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An investigation of ICT use for Italian and Irish language learning in a secondary level school environment: new perspectives on the digital natives/digital immigrants claim

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UNIVERSITY *of* LIMERICK

OLLSCOIL LUIMNIGH

**An Investigation of ICT Use for Italian and Irish
Language Learning in a Secondary Level School
Environment: New Perspectives on the Digital
Natives/Digital Immigrants Claim**

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Thesis presented to the University of Limerick for the
award of the Degree of Doctor of Philosophy

Supervisor: Dr Liam Murray

Submitted to the University of Limerick, November 2015

To My Beloved Father, Luciano

ABSTRACT

This study investigates the use of technology for Irish and Italian language learning in two secondary schools of the Republic of Ireland. The targeted schools are characterized by different technological orientations: School A has a strong commitment to innovation and heavy use of ICT in its pedagogies whereas School B offers a more traditional book-based approach and poor technological equipment. Qualitative and quantitative data on students' and teachers' attitudes towards the use of ICT within the two languages were collected through a mixed-methods approach. Furthermore, an analysis on the Digital Natives/Digital Immigrant claim was provided in relation to the gathered empirical data. The participants were specifically 3rd and 5th year students and their Italian and Irish language teachers. The findings of the study confirm a general positive attitude towards the use of ICT as a pedagogic method, yet there were school level barriers addressed by both students and teachers which affected its integration.

As regards the current perceived status of instruction for the two languages, this study provides some evidence of a more negative attitude among Irish students due to the continued presence of deep-rooted stigmas still attached to the language which are absent in the case of Italian. It is proposed that technology could reverse these destructive attitudes towards Irish and indeed be beneficial for the promotion of the two languages.

The digital divide does not appear to be as clearly defined as Prensky has argued. While there are differences in how generations engage with technologies, there are also similarities across generations mainly based on how much experience people have with using these tools. Generational distinctions between natives and immigrants are not reflected in the empirical data and the uncritical use of these terms could have negative implications for a number of issues, chief amongst them, teacher and student interactions.

This study aims to reflect and understand the current uses and expectations of ICT for learning in general and language learning in particular offering suggestions pertinent to future developments in school practice and national policies.

LIST OF PUBLICATIONS AND PUBLIC TALKS

The following is a list of publications and conference papers which are an integral part of the research process carried out for this study.

Book chapter:

- Benini S., Murray L. 2014, *Challenging Prensky's Characterization of Digital Natives and Digital Immigrants in a Real-World Classroom Setting*, CALICO journal (monograph series), co-editors L. Williams and J. P. Guikema <https://calico.org/bookfiles/pdfs/DigitalLiteracies.pdf> .

Book review:

- Benini S. (2013). Review of Margaret Nicolson, Linda Murphy, and Margaret Southgate *Language Teaching in Blended Contexts*, ReCALL, 25, pp 302-304, [http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=885240].

Conference proceedings:

- Benini S., 2014, *Is ICT really essential for learning? Perceptions and uses of ICTs for language acquisition in secondary level environments*, proceedings of EuroCALL Conference, Publishing.net, Groningen, Netherlands.
- Benini S., Murray L. 2013, *Critically evaluating Prensky in a language learning context: the "digital natives/immigrants debate" and its implications for CALL*, proceedings of EuroCALL Conference, Publishing.net, Evora, Portugal, (http://research-publishing.net/publications/2013-eurocall-proceedings/) pp.25-30.

Conference papers:

- EuroCALL International Conference, *Critical CALL*, 25-29 August, University of Padua (Italy): *Blogging and Microblogging in personal and professional domains: perceptions and connections from third level language learners*.
- EuroCALL International Conference, *CALL Design: Principles and Practices*, 20-23 August 2014 University of Groningen (Netherlands): *Is ICT really essential for learning? Perceptions and uses of ICTs for language acquisition in secondary level environments*.
- Invited main speaker at CALS (Centre for Applied Language Studies) Seminar, 27 March 2014, UL (University of Limerick), Ireland: *Italian and Irish*

Language and Culture Acquisition: exploring the use of new technologies in post primary education environments.

- Postgraduate Research Conference in Italian Studies, 1st of March 2014, UCC (University College Cork), Ireland: *Digital Natives and Digital Immigrants: fiction or reality?*
- EuroCALL Conference, *Learning from the past, looking to the future*, 11-14 September 2013, Universidade de Evora (Portugal): *Critically evaluating Prensky in a language learning context: the “digital natives/immigrants debate” and its implications for CALL.*
- Postgraduate Research Conference in Italian Studies, 9th of February 2013, UCC (University College Cork), Ireland: *Role and use of Web 2.0 technologies in teaching Italian as L2/LS*
- CALS Research Day, 23rd of May 2012, UL (University of Limerick), Ireland: *Italian and Irish Language and Culture Acquisition: exploring the use of Web 2.0 tools in a post primary education environment.*
- Postgraduate Conference in Italian Studies, 4th of February 2012, UCC (University College Cork), Ireland: *Italian Language and Culture learning through Web 2.0 tools.*
- (Conference attended) *Web 2.0 and Language Learning Conference*, 1st of June 2012, UL (University of Limerick), Ireland.
- (Conference attended) *Learning through sharing: open resources, open practices, open communication*, 29th -30th of March 2012, Università degli Studi di Bologna, Italy.

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DECLARATION

I declare that the work presented herein is original and a result of my own work

Silvia Benini

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LIST OF ABBREVIATED TERMS

ASTI:	Association of Secondary Teachers of Ireland
BECTA:	British educational communications and technology agency
BYOD:	Bring your own device
CALL:	Computer-assisted language learning
CEB:	Curriculum and Examinations Board
CESI:	Computer Education Society of Ireland
CMC:	Computer-mediated communication
DES:	Department of Education and Science
DI:	Digital immigrants
DN:	Digital natives
DS:	Digital Schools
ECDL:	European Computer Driving Licence
EFL:	English as a foreign language
ESL:	English as a second language
EU:	European Union
FL:	Foreign language
ICALL:	Intelligent computer-assisted language learning
ICT:	Information and communication technologies
L1:	First language
L2:	Second language
LCA:	Leaving Certificate Applied
LCVP:	Leaving Certificate Vocational Programme
MALL:	Mobile-assisted Language Learning
MMOG:	Massively multiplayer online games
MOOC:	Massive Open Online Courses
MOODLE:	Modular object-orientated dynamic learning environment
NCCA:	National Council for Curriculum and Assessment

NCTE:	National centre for technology in education
NDP:	National Development Plan
NPADC:	National policy advisor and development committee for information communication
OECD:	Organization for Economic Co-Operation and Development
OFSTED:	Office for standards in education, children’s services and skills
PC:	Personal computer
PCR:	Pupil Computer Ratio
PISA:	Programme for International Students Assessment
PP:	Post Primary
SDPI:	School Development Planning Initiative
SDPS:	School Development Planning Support
SIP:	School Integration Project
SLA :	Second language acquisition
SLSS:	Second Level Support Service
TELL:	Technology-enhanced Language Learning
TES:	Teacher Education Section
TICCIT:	Time-shared, interactive, computer controlled information television
TL:	Target language
TS:	Technical Support
TPACK:	Technological pedagogical content knowledge
UNDP:	United Nations development programme
VECs:	Vocational Education Committees
VLE:	Virtual learning environment
WELL:	Web-enhanced language learning

CHAPTER 1- INTRODUCING THE RESEARCH **PROJECT: BACKGROUND AND SETTING**

1.1 INTRODUCTION

This chapter introduces the area of research delineating its background and context. The objectives are explained in detail here offering, together with the key questions, the rationale of this research. In this chapter the importance of the project and the contribution it will make to the field of ICT (Information & Communications Technology), CALL (Computer Assisted Language Learning) and “repurposed CALL” for secondary level instruction are also explained. The final section outlines the chapters which follow.

1.2 BACKGROUND AND DESCRIPTION OF THE RESEARCH

The 21st century challenges us with new choices, new perspectives, and opportunities due to the ubiquitous presence of technology in many areas of our lives. The Information or Digital Age we are living in has allowed rapid global communications and networking to shape modern society; important changes in information access along with parallel technological developments has opened up and redefined the core concept of the delivery of learning in educational institutions (Gibson 2001). Traditional teaching paradigms and approaches have been shaken by the integration of ICT into educational practices and students’ expectations have profoundly changed. In the last 20 years, the use of new technologies and their repurposed tools to support learning continues to grow rapidly, redefining roles, skills and perspectives of both language educators and language learners. Given the strong interest in the potential of computer technology for language learning, it is important to examine how computers

are used to support second and foreign language learning, looking specifically at their integration in the education environment and at their benefits and potential pitfalls.

This present research adds to the literature in areas of technology and CALL by examining and providing evidence on how students and teachers in secondary level institutions access and use new technologies and Web 2.0 tools for their language learning and teaching. A significant amount of literature has already explored the potential of computer technology with regards to teaching and learning languages more effectively. Dunkel as far back as 1990 was already asserting that the possibilities of computer technology as a tool could include: increasing language learners' self-esteem; motivation; language proficiency and, overall academic skills. The benefits of multimedia, the Internet and various forms of distance education were subsequently explored by many others inter alia (Garrett 1991; Armstrong and Yetter-Vassot 1994). Furthermore, discussions on the benefits of computer technology have also included the exploration of the application of certain technologies in specific language areas (Brandl 2002; Levy 2009). Together with discovering many of the benefits, the research literature has also started to uncover some potential pitfalls technology integration may highlight in the classroom such as teachers' lack of training and familiarity, inadequate infrastructure, limited access to technology, weak technical support (Ringstaff and Kelley 2002; Baek, Jung et al. 2008) and internet censorship may also be a concern to language curricula and instructors (Singhal 1997; Zhao, Pugh et al. 2002; Kessler 2006). Despite all the characteristics outlined, many studies have shown that the learning potential of technology has not been fully exploited and its challenges need to be considered and examined further (Hayes 2007). Therefore, this research aims to contribute to the existing literature, providing empirical evidence gained from a large case study. By analysing and discussing the data it is hoped to have a better and more critical understanding of the current digital *status* of our students and teachers; this will consequently add salient and critical information on how we should be approaching and educating young learners and how our pedagogical methods, as language teachers, are changing in a technological and educational policies' rich reality. The research findings of this study will be presented in chapters 5 and 6 and explored in a salient discussion on the claims of Prensky (2001) regarding Digital Natives and Digital Immigrants.

This researcher's review found that existing literature on the use of technology in language education is very limited in three aspects: a) the number of empirical evaluative studies that approach the effects of technology usage for language learning in secondary level environments is very small, b) the languages studied and investigated are limited to common foreign languages and English as a foreign or second language, c) the experiments conducted were often short term and dealt with one or two aspects of the language learning process e.g. vocabulary, grammar (Liu, Moore et al. 2002; Zhao 2003; Felix 2005). This research endeavours to fill some of those gaps presenting findings and recommendations that will be of interest to teachers, principals, school support services, curriculum developers and policy-makers. It is hoped that this study will inform debate and policy decisions on how we can ensure that young people have the skills, knowledge and attitudes necessary to benefit from the opportunities presented by these powerful technologies in the years ahead.

The specific context within which this research was conducted is Italian and Irish language learning programmes at second level Irish institutions. Students and teachers were approached via a number of modes which delivered the main datasets utilised for this endeavour. The specific aims of the research are described in turn below.

1.3 AIMS AND RATIONALE

1.3.1 Key Questions

The aims of this research have been distilled into the research questions presented below:

1. How strong and is the use of technology in secondary level institutions and what are the teachers' and students' attitudes toward technology?
2. What are the impacts and challenges for Irish and Italian language teachers when integrating ICT into their practice? How are technologies used in the language classes and to what extent?
3. Does the current evidence resulting from this study validate or dispute Prensky's digital natives-digital immigrants claim?
4. Do the students feel comfortable in using new technologies and Web tools within their language learning experiences in school and out of school? How do the students' skills, as allegedly digital natives, work in relation to their language learning processes?

The first question is exploratory and intends to investigate two important aspects of secondary level education: the role and use of ICT in Irish secondary schools and the teachers' perceptions and attitudes towards technologies. This is considered essential in order to have an overview on technology and education practices, but also to examine specific government initiatives and schools' policies in Ireland. It has been noted that the majority of countries have experienced important investments in ICT school facilities, and of course the Irish government is no exception, having invested significantly in the provision of ICT resources at both primary and secondary level (Mulkeen 2003). The Department of Education and Science in fact, influenced by trends to integrate ICT in teaching and learning globally and concerned about Ireland's economic competitiveness in a global information based society, introduced important school initiatives in the past years (1997, 2001, 2006) that will be discussed in depth in

chapter 2 and 3. More recently, the use of ICT as an integral part of teaching and learning was endorsed in educational plans and policies including the *Key Skills Framework* (NCCA, 2009), the *Project Maths* (NCCA, 2008) or the *Framework for the Junior Cycle* (DES, 2011, 2012). Furthermore, the Irish Teaching Council has identified ICT as a crucial point for the country to focus on (The Teaching Council, 2011) and the Eurydice's *Key Data on Learning and Innovation through ICT at school in Europe* (Ranguelov, Horvath et al. 2011) confirmed that Ireland avails of important national strategies in relation to ICT and e-learning. Overall, it can be said that teachers both at primary and secondary level are expected to use ICT in all subject areas as well as their students. There are no central recommendations on the use of ICT for assessment activities. In addition, partnership between schools and IT companies are encouraged in order to promote the use and integration of ICT into education (Wastiau, Blamire et al. 2013). With this in mind, it is crucial to explore in depth the current status and access to ICT in secondary level environments, as a result of those various initiatives and strategies, and also to analyse teachers' perceptions of ICT, focusing particularly on how and if they integrate it in their daily practice. In support of the importance of teachers' attitudes towards computer use, Zhao, Tan and Mishra (2001) provided evidence to suggest that the attitudes of teachers are directly related to computer use in the classroom. It has been shown that teachers who are confident in their own ICT competence but encounter barriers to use it at school (due, for example, to poor infrastructure) are more inclined to use ICT regularly during their lessons compared to those teachers that have few obstacles but a low level of confidence in their own digital competence (Wastiau, Blamire et al. 2013). Furthermore, the success of student learning with computer technology has been proven to depend largely on the attitudes of teachers, and their willingness to embrace the technology (Teo 2006). Consequently, gaining an appreciation of the teachers' attitudes towards computer use may provide useful insights into technology integration, acceptance and usage into teaching and learning. In this regard, the preparation and the training teachers receive in order to integrate technologies in their teaching curricula will also be examined.

The second question aims to approach Irish and Italian language teaching. The two languages are analysed in this research from different perspectives. First of all, the Irish Language is presented together with its historical background, providing information not only on the developments and promotions of the language itself over

the years but also on its constitutional status among Ireland and Europe. The Irish language, as we will see in chapter 3, has a very unique and rich history. The language is deeply rooted in the heart of the population being an essential part of the national identity. As a spoken community language, Irish is unique to Ireland and of crucial importance for the world heritage. However, the language is characterized by a series of peculiar and controversial issues, above all the fact that it is constitutionally recognized as the first language of the Republic of Ireland but, in reality, it is spoken by a minority of Irish people. Irish is in fact more frequently used in the Gaeltacht areas where the language continues to be the main spoken language from an extensive number of inhabitants (Darmody and Daly 2015). As it will be discussed in more depth later, a broad range of government policies and initiatives exist to support and promote the language. From an educational point of view, Irish is one of the core subjects and compulsory language (together with English) in the curriculum both at primary and secondary level. This brings us to approach the challenges of Irish both as an L2 and a minority language in relation to the pedagogical practices in place, to the other languages studied (such as English and the foreign languages offered) and, above all, in relation to technology and its role in the language teaching and learning process, promotion and perception.

On the other end, the Italian language is approached as a foreign European language taught in Irish secondary schools (together with French -which, for historical reasons, has been the dominant language over the year- Spanish, German and Japanese). It is important to highlight that the study of a foreign language is not compulsory at any stage of the educational curriculum however Italian, where available, is studied both in the Junior and Senior Cycle, (the Transition Year, in some cases, offers this option as well) providing interesting results as the Post-primary Language Initiative (2003) shows. Irish as L1/L2 and Italian as FL offer an interesting platform where to compare teaching methods, students' approaches, learning outcomes and, above all, technology's role and use for a better understanding of the different dynamics in place. It is in fact essential to understand how, when and which types of computer technology teachers use in order to devise implementation strategies to encourage them (Ma, Andersson et al. 2005). To this ends, this research also intends to present the various tools available for teachers that can be utilized within their current and future educational career development.

The third research question examines the data gained from this study in respect of the Digital Natives/Immigrants claim. Prensky argues that students today, the so-called “Digital Natives”, have been immersed in technology all their lives developing technical skills and learning preferences for which traditional education is not well prepared for. As such, young people’s use of ICT differentiates them from their teachers or “Digital Immigrants” (2001a). “Digital Natives”, according to Prensky, process information quickly, enjoy multitasking and gaming while “Digital Immigrants” process information more slowly, work on one thing at a time, and they do not appreciate less serious approaches to learning (this, in practice, means not going to the Internet first for information; printing things out as opposed to working on the screen; and reading manuals rather than working things out on-line). A generational divide has been recently recognized also by the OECD survey of Adult Skills (PIAAC) which shows that young people (on average of 16-24 years of age) are much more competent at solving problems in technology rich environments compared to their older counterparts. In addition, in many countries investigated in the OECD study (including Ireland) a large part of the adult population has confirmed to have poor ICT problem solving skills (OECD 2013). The divide between the interests and technological skills of new students and the limited and simplistic use by educators is claimed to be creating alienation and disaffection among students (Levin, Arafeh et al. 2002; Prensky 2005). Following on from this, there is a growing body of academic research that shows the variables that go into creating the stereotypical Digital Native (Waycott, Bennett et al. 2010; Margaryan, Littlejohn et al. 2011) and that investigates the effects and role of technology in both their formal and informal learning (Pegrum 2011; Dabbagh and Kitsantas 2012). However, it is particularly important to examine in depth this definition together with other similar findings in order to critically understand them and their wide and erroneous use in various academic and non-academic fields. This study provides then empirical evidence to test and reflect on these putative claims.

The final research question examines students’ perceptions on the use of technology for language learning. The focus here is not on technology itself but on the learners’ interaction with technology. Technology does not necessarily result in fundamental improvements to educational practice in fact, as confirmed by Bransford (2000:206), “technology does not guarantee effective learning” and inappropriate use of it can even

hinder it. Therefore, it is important to understand students' practices and behaviours when introduced to the use of technology for learning their languages. In this regard, many aspects of the technology-student relationship are overlooked confirming the need for a: "rigorous investigation that includes the perspectives of young people and their teachers, and genuinely seeks to understand the situation" (Bennet, Maton and Kervin, 2008:784). This study contributes to such understanding analysing the perspectives of students and teachers towards technology. Studies of the effect of technology-enhanced instruction on achievement and studies of student attitudes regarding learning with technology have increasingly been conducted (Salaberry 2001). A number of benefits for students related to the general use of technology in classrooms have been reported, these include increased motivation, mastery of basic skills, more student-centred learning and engagement in the learning process, more active processing, resulting in higher-order thinking skills however, there are also potential pitfalls that need to be considered. An example of the latter is the fact that appears that many students are more reluctant to employ online learning methods than their level of digital exposure may suggest (Pedro 2009; Margaryan, Littlejohn et al. 2011). Technology in education faces various challenges such as accessibility, appropriate teacher training, curricula and assessment integration/design. Accordingly, this research proposes to discuss and evaluate some current language teaching methodologies, offering suggestions for researchers, policy makers and practitioners on how new technologies impact upon modern education in Irish settings and how the important relationship between technology and learning may be better approached and integrated. In addition, this research question attempts to examine the learning characteristics of today's students as the so-called "Digital Natives" (Prensky 2001a), "Millennials" (Strauss and Howe 2000), "Net Generation" (Tapscott 1999; Oblinger, Oblinger et al. 2005) or "Generation Y" (Jorgensen 2003; Weiler 2005; McCrindle 2006). In this respect, specific skills that the new generation of students are claimed to possess are investigated here in order to understand their role and use in the language learning process and, more generally, how they may impact upon students' educational attitudes. This is an area in need of further research as while there has been considerable interest in outlining the features and learning preferences of our students, there has been little empirical support for several of the claims being made (Jones and Shao 2011).

1.4 OUTLINE OF THE RESEARCH

The second chapter of this thesis, entitled “Literature Review”, presents the first theoretical area of research which characterises this study. It starts by exploring the area of ICT in education and its development in the last decades in a wider social and economic context. ICT in education has been taken up by educators and educational researchers since the 1960s with varied success, but it is the uses of the Internet and the World Wide Web that are stimulating new demands and expectations in education. Therefore, after a brief history, this chapter examines the background to the provision of ICT in the Irish educational environment, focusing on the extent to which ICT is used in schools, specifically at secondary level, and the impact ICT has on teaching and learning. The chapter then discusses the history of computer technologies and language learning. It focuses particularly on how Computer Assisted Language Learning (CALL) has been supporting the teaching of foreign languages since the 1960-70s and on gathering a better understanding of the potential offered by the twenty-first century technological tools to foster language learning. This chapter also examines key concepts of language learning and teaching areas such as the role of teachers and students in a technological educational environment, learner motivation and autonomy, teacher training and support.

The third chapter presents the two languages investigated in this study: Irish and Italian. On the one hand, the Irish language is examined here as the official language of the Republic of Ireland as well as a Second Language for a larger proportion of the population. On the other, the Italian language is presented here as a foreign language taught and learned in Irish institutions. Pedagogical practice, language policies and school initiatives are the main focus of this chapter together with the role of technologies within the two languages.

The fourth chapter examines the process through which the research methodology has been selected. This research combines both qualitative and quantitative methods. In this chapter the contextual details of the study are offered, in terms of the participants, data collection and analysis. In addition, a timeline of the project is presented. Finally, the rigour of the research is described through a discussion on validity, reliability and the researcher role.

Chapter five presents the analysis and findings of this research. Specifically, the chapter is divided into three sections. The first section introduces the quantitative data gathered from the questionnaires providing an in depth analysis and discussion. It starts by outlining the questions asked to the participants and it then moves on examining their responses. The second section presents, examines and discusses the qualitative data gathered from the semi-structured interviews. Finally, the third section introduces the qualitative data gathered in the last stage of the elicitation process namely the class observations. Overall, the data are analysed in accordance with the research questions focusing on specific topics such as the use and perception on ICT for learning in general and language learning in particular, the schools' accessibility to technology, ICT policies, the technological tools that are used both inside and outside the classroom and the pedagogical approaches employed for both Irish and Italian language. Student and Teacher feedback and testimony are explored observing also the participants' reactions to the use of specific tools such e-books, power point presentations while reflecting on how learners' skills work when technology is integrated in the educational environment and how comfortable participants are in using these technological tools.

Chapter six summarises the findings of this study in accordance with the main research questions and sub-questions outlined in Chapter 1. In addressing each question, the findings from each method of data collection are compared, looking at the consistency, contrasts and similarities. These results are then linked back to the wider literature.

Chapter 7 summarises the results of this study highlighting issues for future consideration whilst also presenting the main conclusions. Conclusions and recommendations are made with regard to the most salient themes which emerged from the findings. It is hoped that this thesis will provide useful information for implementing technological reflection in secondary level institutions thus gaining a better understanding of the current digital *status* of our students and teachers. Furthermore, this research aims to challenge Prensky's original and oft-cited remarks concerning Digital Natives and Digital Immigrants offering new and critical perspectives to the debate.

CHAPTER 2 - LITERATURE REVIEW

There should not be a dramatic transition between the use of technology at home and at school. We need to be stimulated and challenged in a modern learning environment (Union of Irish Secondary Students, Investing Effectively in ICT in School Report, 2008)

2.1 INTRODUCTION

Nowadays, from the time we awaken in the morning to the time before we go to sleep, we are surrounded by ICTs without being sometimes even fully aware of it. But what exactly is ICT and which media and tools come under this umbrella? ICT definitions are various and diverse but here we present the one provided by the United Nations Development Programme (UNDP) which seems to fit particularly well with this research:

ICTs are basically information-handling tools, a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the “old” ICTs of radio, television and telephone, and the “new” ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our “networked world” – a massive infrastructure of interconnected telephone services, standardized computing hardware, the Internet, radio and television, which reaches into every corner of the globe (Blurton, 1999:130).

ICT has become an essential part of most organizations and businesses these days and, of course, it has gained a strong position in the educational field. Supporters of the view that ICT has a specific role in Education have many arguments that they put forward and most of these focus, on one hand, on issues of the global contexts, the changing nature of the learner and the reality that existing educational systems cannot cope with the demand for education and, on the other hand, on issues of access, equity and resources (Reddi and Sinha 2004). In this new challenging educational scenario

traditional pedagogical models have to be re-thought and re-defined as well as teachers' and students' role and attitudes.

This chapter provides a critical evaluation of the existing literature on the topics tackled by this study. Hence, it looks at the role of ICT in Irish educational settings exploring the barriers and the priorities for future developments. This is then followed by a focus on Second Language Acquisition and Computer Assisted Language Learning as those disciplines which serve as a theoretical background to approach the two targeted languages, looking specifically at the theories and different technological approaches behind the language learning process.

2.2 ICT IN EDUCATION

The integration of ICT into educational practice has had a rapid development in the past 20 or so years obliging the schools to “re-think” and renovate their pedagogical approaches and to avail and exploit new technological resources. There are high expectations of ICT as, from a policy perspective, it holds the potential to sustain and promote competitiveness in the global market and, from an institutional one, it endorses a profound transformation in education (Ottesen 2006; McGarr 2009; Hourigan, Murray et al. 2011). As a consequence, a large number of education initiatives and research have been directed towards ICT integration in schools. Different approaches have been used to facilitate ICT integration but, among them, two appear to be the more prominent: firstly the development of technology infrastructure in the schools and secondly the production and infusion in schools of sophisticated ICT-based tools for instruction and learning (Jimoyiannis and Komis 2007). According to policy makers, the use of ICT in schools should lead to significant educational and pedagogical outcomes, beneficial for both teachers and students (OFSTED 2002; European-Commission 2004). A large amount of research has shown that the use of ICT in education can increase student' motivation and deepen understanding, promote active, collaborative and lifelong learning, offer shared working resources and better access to information, and help students to think and

communicate creatively (Jonassen 2000; Webb 2005). The use of interactive multimedia software seems to motivate students and leads to improved performance; in fact, research shows that more students finished high school and many more consider attending college where they routinely learned and studied with technology (BECTA 2004a). Many studies on the use of technology in education consistently found that students in technology rich environments experienced positive effects on performance in all subject areas and that ICT inclusion would promote deep learning and allow schools to respond better to the varying needs of the students (Barak 2006; Lau and Sim 2008). In addition, it has been claimed that due to the widespread use of technology the educational status of today's students has changed and they are addressed as "Millennials" (Strauss and Howe 2000), "Net Generation" (Tapscott 1999; Oblinger, Oblinger et al. 2005), "Generation Y" (Jorgensen 2003; Weiler 2005; McCrindle 2006) or "Digital Natives" in contrast with their teachers who are considered "Digital Immigrants" (Prensky 2001a). Therefore, it can be said that ICT appears to affect the very nature of teaching and learning, changing the roles and paradigms of the traditional pedagogical system. Overall, the benefits of ICT use and integration are summarized in Figure 2.1 below.

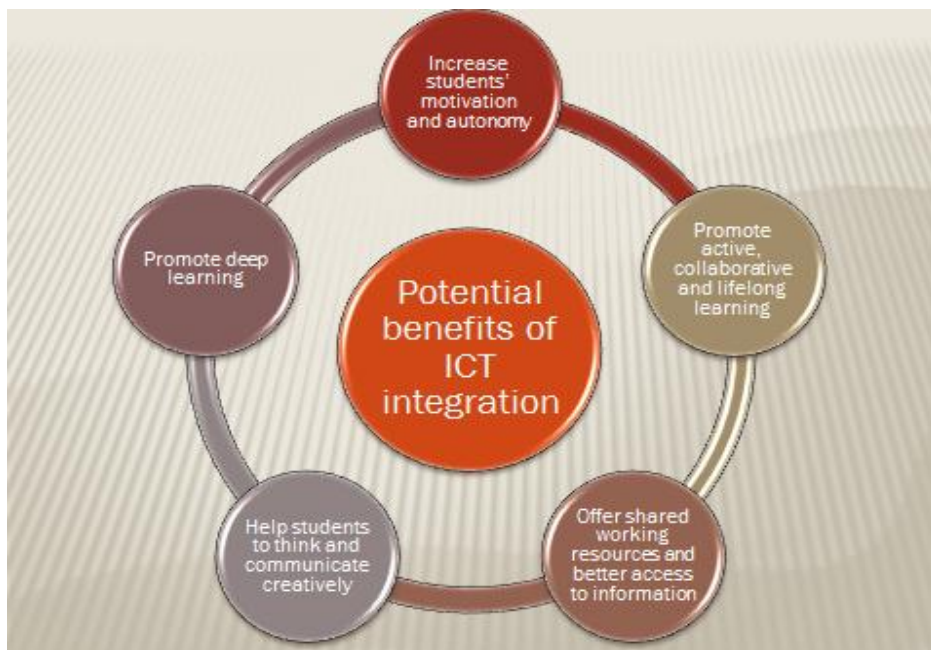


Figure 2.1 **Benefits of ICT integration**

Despite all the apparent benefits of the use of ICT in educational environments, many studies have shown that the learning potential of ICT is not fully exploited. Many schools, for example, tend to assimilate, rather than accommodate, new approaches to the use of ICT (Higgins and Moseley 2001; Korte and Hüsing 2006; Lau and Sim 2008). It has been argued also that despite the changes in society as a result of ICT, it is not widely integrated into the educational system and, where it is present and available, there is no evidence that it has affected teaching approaches (Levin and Wadmany 2005; Ertmer and Ottenbreit-Leftwich 2010). Research indicates also that although home access to ICT has been growing rapidly both for teachers and students and the ICT infrastructure in the schools has improved considerably in the past few years, teachers do not appear to make great and effective use of ICT tools in their instruction (BECTA 2004a). In particular, studies on teachers' readiness for ICT generally suggest that there is still a long way to go before the educational system will be able to take full advantage of the opportunities provided by the 21st century technology (Ya'acob, Nor et al. 2005; So and Swatman 2006).

It has been shown in fact that while teachers exploit ICT for their own learning, they are cautious about integrating advanced technologies in schools. In addition, while teachers seem to recognize the potential of technology in stimulating students' learning and making school studies relevant to real life contexts, they do not think that ICT is preferable for class-based instruction for promoting cooperation and reflection in learning (Barak 2006). Hayes observes that although research into the use of ICT in education is into its third decade there is still "a pressing need to better understand how computer-based technologies are influencing learning opportunities" (Hayes, 2007:1). In conclusion, there are many reasons given for the low level of ICT impact in the classroom; many of the most common factors include: inadequate infrastructure, limited access to technology, lack of training and personal expertise, weak technical support, poor planning and teacher beliefs (Ringstaff and Kelley 2002; Baek, Jung et al. 2008; Donnelly, McGarr et al. 2011). Research categorises these barriers into different orders which is important now to explore and analyse further.

2.3 BARRIERS TO INTEGRATION OF ICT INTO EDUCATION

Integrating ICT into teaching and learning is quite a complex process that needs to take into consideration many aspects of the education system itself including a number of difficulties that may already be in place. These difficulties are known as “barriers” and a barrier is defined as “any condition that makes it difficult to make progress or to achieve an objective” (Schoepp, 2005:2). Different categories have been described by researchers and educators to classify barriers to the integration of ICT in the classroom. Several studies have divided the barriers into two categories: extrinsic or first order barriers and intrinsic or second order barriers. According to Ertmer (Ertmer 2005), first order barriers are the most visible and easiest to remove and they include elements such equipment, time, training and support. Second order barriers, on the other hand, are more difficult to address since they interfere with or inhibit the process of change; these barriers are rooted in the teacher’ beliefs about teacher-student roles, classroom practices, teaching methods, organizational and management methods. Another classification addressed by the literature is teacher-level barriers versus school-level barriers.

Barriers have been grouped according to whether they relate to the individual (teacher-level barriers), considering specific elements such as lack of time, lack of confidence and resistance to change, or to the institution (school-level barriers) considering, in this case, lack of access to resources and lack of effective training in solving technical problems as the main issues (BECTA 2004a). Another perspective presents the obstacles as strongly associated to material and non-material conditions. The material conditions may be the insufficient number of computers or software copies in the institution and the non-material conditions may include teachers’ insufficient ICT knowledge, teachers’ lack of time and the difficulty of integrating ICT into their instruction (Pelgrum 2001). As one of the purposes of the chapter is to examine the integration of ICT in the education system, teacher-level barriers and school-level barriers will be discussed in depth in order to critically determine the present issues.

2.3.1 Teacher-level barriers

The three main teacher-level barriers can be identified as: lack of teacher competence, lack of teacher confidence and finally resistance to change and negative attitudes (Hennessy, Ruthven et al. 2005; Bingimlas 2009; Leask and Pachler 2013).

Lack of teacher competence in integrating ICT into pedagogical practice is strictly related to their confidence. Specifically, research indicates that the level of teacher competence barrier differs from country to country. In the developing countries teachers' lack of technological competence is one of the main barriers to their acceptance and adoption of ICT (Pelgrum 2001). In Syria and Saudi Arabia for example, lack of ICT skills is a serious obstacle to the integration of technology into education (Al-Alwani 2005; Albirini 2006; Gamlo 2014). In 2006 a report was carried out in 27 European countries on the use of ICT in schools presenting data from the Head Teachers and Classroom Teachers Survey. The findings indicate that teachers who do not use computers in the classroom claim that "lack of skills" is a constraining factor preventing them from using ICT for teaching (Korte and Hüsing 2006). Another survey of nationally representative sample of schools from 26 countries found that teacher's lack of knowledge and skills is a significant obstacle to the usage of ICT particularly in primary and secondary schools (Pelgrum 2001). Furthermore, the results of a study conducted in Denmark indicates that "many teachers still chose not to use ICT and media in teaching situations because of their lack of ICT skills rather than for pedagogical /didactics reasons" (Balanskat, Blamire et al. 2006:51). Therefore, according to the research, lack of teacher competence seems to be one of the strongest barriers to the integration of technology into education and it may be consequently involved in the resistance to change process.

Several researchers indicate that lack of teacher confidence is another serious barrier that prevents teachers from using ICT in their teaching. The reasons for this seem to be mainly the teachers' "fear of failure", which causes a lack of confidence (Beggs 2000), and the limitations in teachers' ICT knowledge, which makes them feel anxious about using ICT in the classroom and thus not confident to use it in their teaching (Gillespie and Barr 2002; Balanskat, Blamire et al. 2006). This concept together with the lack of competence have been reinforced also by other authors (Levin and

Wadmany 2005; Prensky 2005) which see today's teachers ("digital immigrants") lacking the technological fluency of their students ("digital natives") and, consequently, finding themselves unfamiliar with many of the technological skills possessed by students. "Digital Natives", according to Prensky (2001a,b), process information quickly, enjoy multitasking, and gaming while "Digital Immigrants" process information more slowly, work on one thing at a time, and they do not appreciate less serious approaches to learning (this, in practice, means not going to the Internet first for information; printing things out as opposed to working on the screen; and reading manuals rather than working things out on line). The divide between the interests and technological skills of new students and the limited and simplistic use by educators is claimed to be creating alienation and disaffection among students. According to Becta's survey (2004), many of the teacher respondents who identified their lack of confidence as a barrier reported being particularly afraid of entering the classroom with limited knowledge in the area of ICT with their students knowing that this was the case. Lack of confidence and experience in using technology influence teachers' motivation in integrating ICT in the classroom but, on the other hand it has been confirmed that teachers who confidently use technology in their teaching found it very helpful feeling also the need to extend its use further in the future (Preston, Cox et al. 2000; Balanskat, Blamire et al. 2006).

Resistance to change and negative attitudes are a significant barrier to teachers' use of ICT in education. It has been claimed that one key area of teachers' attitudes towards the use of technology is their understanding of how these tools will benefit their teaching and, consequently, their students' learning (BECTA 2004a). Overall teachers feel that there is more than enough technology available but they do not feel supported, guided or rewarded in the ICT integration process. Furthermore, those teachers who are not using new technology in their classroom are still of the opinion that the use of ICT has unclear or no benefits at all (Schoepp 2005; Korte and Hüsing 2006). Resistance to change seems to have specific reasons rooted in the lack of technical support, teacher expertise or time for planning but this resistance could be easily overcome by encouraging and facilitating crucial resources such as the power of new developments, Internet access, rapid availability and ease of communication. It has been argued that teachers are unlikely to use new technologies in their teaching if they see no need to change their professional practice; those teachers who resist change are

not rejecting the need for change but they lack the necessary education in accepting the changes and they are given insufficient long-term opportunities to make sense and good use of these technological tools (Preston, Cox et al. 2000; Hennessy, Ruthven et al. 2005). This type of barrier also varies from country to country. In Europe, for example, only a fifth of teachers can be regarded as unfavourable to the use of ICT in the classroom as they feel that it does not offer significant learning benefits for the pupils (Korte and Hüsing 2006) but this needs to be taken into consideration for a wider and deeper understanding of the educational practice (Benini and Murray 2014).

2.3.2 School-level barriers

Lack of time, curriculum constraints, lack of effective training, lack of accessibility and lack of technical support are the main barriers in place at school level.

Several studies indicate that many teachers have competence and confidence in using technologies in the classrooms, but they still make little use of it because of a lack of time; teachers in fact need a good amount of time to plan technology lessons, explore and practice using the technology, deal with possible technical problems and receive adequate training (Beggs 2000; Gillespie and Barr 2002; BECTA 2004a; Schoepp 2005). It has been also reported that teachers take much more time to design projects that include the use of new ICT than to prepare traditional lessons. Therefore, time limitations and the difficulty in scheduling enough computer time within the curricula seem to be an important and strong barrier for the integration of ICT into teaching practices.

Curriculum constraint is another confirmed barrier which is closely related to the time issue. It has been shown that: “having insufficient freedom to make decisions about content, pedagogy and assessment” discourages teachers from exploring and experimenting with ICT tools (Kaufman, 2005:1). Teachers have to follow certain curricula entailing academic activities already mapped out for the year, so little time is left for other activities. This means, as several studies confirmed, that there is a general lack of freedom for embracing more diverse and sophisticated ICT-supported

pedagogical practices (Tondeur, Van Braak et al. 2007; Chen, Tan et al. 2012). The curriculum is of course an essential guideline for the whole educational system but it seems essential to reflect on how dominant it is and if teachers have a fear of departing from it, influencing, in this way, creativity and innovation. This will be analysed and discussed further in chapters 5 and 6.

Lack of effective training is one of the barriers most approached and referred to in the literature (Beggs 2000; Pelgrum 2001; Schoepp 2005; Balanskat, Blamire et al. 2006; Sicilia 2006; Bingimlas 2009). Pelgrum's study (2001) reported that there are not enough training opportunities for teachers in the use of ICTs in the classroom environment and similarly Beggs (2000) found that one of the top three barriers to teachers' use of ICT was the lack of training. According to Becta (2004), the issue of training is a quite complex one as there are many elements that need to be considered to ensure the effectiveness of the training. These elements include the time for training, such as: pedagogical training, skills training and ICT use in initial teacher training. Providing teachers with pedagogical training rather than simply training them to use ICT tools is a very important issue. It has been argued that if teachers are to be convinced of the value of using ICT in their teaching, their training should focus on the pedagogical issues (Preston, Cox et al. 2000). The result of Preston and Cox's research (Ibidem) in fact indicates that after having attended professional development courses in ICT, teachers seem to be still unsure of how to use technological tools in their classroom, instead they have acquired the knowledge on how to set and run computers and related machinery (as printers, projectors, interactive whiteboards etc.). This shows that teachers' training should focus more on building awareness in regards to the technological facilities available on-line for educators (such as ad hoc platforms, personal learning environments, online communities of practice) where they can share, learn and contribute to the creation of knowledge while being informed and practicing the best way to integrate technology into the classroom.

As a matter of fact, teachers explained that the training programmes offered to them did not focus on pedagogical practices in relation to ICT but on the acquisition and development of basic ICT skills (Preston, Cox et al. 2000; Balanskat, Blamire et al. 2006). According to Newhouse (2002: 45): "teachers need to not only be computer literate but they also need to develop skills in integrating computer use into their teaching/learning programmes". Therefore teachers need training in technology

education (focusing on the study of technologies themselves) and educational technology (support for teaching in the classroom). Pre-service teacher education can play a significant role in providing opportunities for experimentation with ICT before integrating it into teaching. Initial training is essential for teachers in order to develop appropriate skills, knowledge and attitudes regarding the effective use of technology to support learning (Newhouse 2002). Lack of ICT focus in initial teacher education is a barrier to teachers' use of what is available in the classroom during teaching practice (BECTA 2004a).

Lack of access to resources is another barrier that discourages teachers from integrating new technologies into education and, although it is a widespread obstacle, it differs greatly from country to country. According to Pelgrum's study (2001) four of the top ten barriers of the 26 countries explored were related to the accessibility of ICT. These barriers were insufficient number of computers, insufficient peripherals, insufficient number of software copies and insufficient simultaneous Internet access. Hence low numbers of computers, oldness or slowness of ICT systems and appropriateness of material resources in the schools have a great impact on teachers' motivation and consequently on successful integration of technology in the classroom. Overcoming such hardware barriers does not, in itself, ensure that ICT will be used successfully. The accessibility of ICT resources in fact does not guarantee their successful implementation in teaching, and this is not merely because of the lack of ICT infrastructure but also because of other barriers such as a lack of high quality hardware, suitable educational software and access to ICT resources (Balanskat, Blamire et al. 2006). Research shows that poor choices of hardware and software systems together with poor consideration of what is appropriate for classroom teaching are problems that many teachers are facing (Newhouse 2002; Bingimlas 2009). Furthermore, many teachers agree on the fact that insufficient ICT resources in the school and insufficient time to review software prevent them from using ICT (Preston, Cox et al. 2000).

Without good technical support in the classroom and in the whole school, teachers cannot be expected to overcome the barriers preventing them from using ICT (Lewis 2003). Lack of technical assistance is one of the top barriers especially for primary and secondary school teachers. Technical obstacles that may occur include: waiting for websites to open, failing to connect to the Internet, printers not working,

malfunctioning of computers and: “these technical barriers impede the smooth delivery of the lesson or the natural flow of the classroom activity” (Sicilia 2005: 43). A Becta report (2004: 16) stated that: “if there is a lack of technical support available in a school, then it is likely that technical maintenance will not be carried out regularly, resulting in a higher risk of technical breakdowns”. Many of the teacher participants in the Becta survey indicated that technical problems might discourage them from using ICT in their teaching because of the fear of equipment breaking down during the lesson. Although lack of technical support can prevent teachers from successfully integrating ICT in their teaching, research indicates that in some countries, such as the United Kingdom, the Netherlands, Latvia, Malta and the Czech Republic, schools have recognized the importance of technical support to assist teachers in their education practice (Korte and Hüsing 2006).

2.4 TEACHER’S ROLE

The impact of new technologies and the Internet in education fosters the vision of an open, global and flexible learning leading to radical shifts from “traditional” modes of instruction to a new current mode that is infused by new pedagogical ideas, as summarized in Table 2.1.

<i>Traditional Pedagogy</i>	<i>New Pedagogy supported by ICT</i>
Linear Presentation	Hypermedia presentation
Receptive Learning	Self-paced learning
High Teacher Control	High Learner Control
Limited Resources	Unlimited and updated resources
Focus on what to learn	Focus on how to learn
School learner	Life-long learner
End-task assessment	Authentic assessment
Expository teaching/learning	Scaffolding teaching/learning
Uni-perspective learning	Multi-perspective learning
Monologic/Uncritical	Dialogic/Critical
Absolute truth/answers	Relative truth/answers
Focus on observable behaviour	Focus on personal/social meaning
Directed goals/content	Negotiated goals/content
Learning by observing	Learning by doing/discovering

Table 2.1: Traditional pedagogy versus new pedagogy supported by ICT (Makrakis 2005:2)

In the last two decades, traditional pedagogical methods have been heavily criticised for putting too much emphasis on the content being taught and too little emphasis on what learners bring to the classroom concerning this content. It also happens that some of this content might be outdated due to the fast changes in knowledge at many levels. While traditional school learning has been increasingly disconnected from the kinds of learning situations that characterise activities and problems that learners encounter outside of school (Nagel 1996; Makrakis 2008), new pedagogy focuses more on providing experiences in authentic versus decontextualized environments, and promoting learning processes versus learning outcomes (Choi and Hannafin 1995). School learning in the context of new pedagogy highlights procedures that advance emancipatory knowledge creation and understanding of meaning, aiming also to establish an open and flexible learning environment that may alter both the means and the ends of education (Means and Olson 1997). In this context the teacher's role and competencies have changed. As Makrakis argued (2005), teachers have to see

themselves more as facilitators and mentors, as resource and technology coordinators and as curriculum developers. Teachers as “facilitators and mentors” will guide students’ critical and creative thinking in collaborative learning environments; teachers as “resource and technology coordinators” will have to develop searching skills to their students and make use of multiple resources and finally, teachers as “curriculum developers” refers to teachers who critically assess school knowledge and reorder and enrich it according to the principles of new pedagogy supported by technology. Overall, teachers are now required to develop suitable skills related to the new learning contexts and paradigms; their role expands to various and challenging settings, allowing them to become a guide of the autonomous learning process, a researcher and a designer of suitable learning scenario, an adapter and producer of new didactic materials in ICT-based settings, a collaborator and contributor with other teachers and students from all over the world, an evaluator and finally a life-long learner in ICT among all the other professional fields (Taalas, Tarnanen et al. 2008; Stickler and Hampel 2015) .

It has been addressed that the teachers’ role in ICT-based learning settings is not an easy one, it is in fact crucial that they acquire instruction regarding the design and implementation of on-line courses, the orchestration of ICT/Web-based instructional processes and the development of management skills (Garrett 2009; Levy 2009; Levy and Stockwell 2013; Stickler and Hampel 2015). On-going teacher training together with the creation of suitable instructional spaces becomes fundamental to enabling teachers to successfully implement ICT in their teaching process. Table 2.2 presents the official UNESCO ICT competency framework for teachers (2011). This framework outlines the competencies that teachers need to have in order to integrate ICTs into their professional practice. It highlights the role that ICT can play in supporting 6 major education focus areas across 3 growth phases of knowledge acquisition. There is an emphasis on the educational benefit of ICT integration in each focus area of the framework, to provide a social educational context for the development of ICT skills. As one progresses through the phases, the activities demand greater higher order thinking skills. They move from basic comprehension of issues relating to ICT to finally reinterpreting educators’ responsibilities to leveraging ICTs in unique ways.

	TECHNOLOGY LITERACY	KNOWLEDGE DEEPENING	KNOWLEDGE CREATION
UNDERSTANDING ICT IN EDUCATION	Policy awareness	Policy understanding	Policy innovation
CURRICULUM AND ASSESSMENT	Basic knowledge	Knowledge application	Knowledge society skills
PEDAGOGY	Integrate technology	Complex problem solving	Self management
ICT	Basic tools	Complex tools	Pervasive tools
ORGANIZATION AND ADMINISTRATION	Standard classroom	Collaborative groups	Learning organizations
TEACHER PROFESSIONAL LEARNING	Digital literacy	Manage and guide	Teacher as model learner

Table 2.2: The UNESCO ICT competency framework for teachers (2011)

It is important to consider the fact that when ICT is introduced in a learning environment, this does not necessarily mean that the pedagogical practice in place will change. Rather, as Butler et al. (2013) suggested: “ICT use in education is inextricably linked with understandings of the nature of knowledge and the nature of knowing” (p.7). Various studies have shown that teachers’ attitudes and pedagogical orientation towards ICT have a significant influence on how ICT is actually employed in the classroom (Becker 2001; Plomp 2003; Law, Pelgrum et al. 2008). In addition, it has been shown that constructivist approaches to teaching strongly facilitate ICT integration compared to more traditional ones (Higgins and Moseley 2001; Shear, Means et al. 2009).

It can be noted that generally teachers agree on the fact that computers represent a valuable tool and they are positive about students’ accomplishment of ICT skills and knowledge. However, in many cases, ICT is perceived by the teachers as a new subject in education rather than a new way of teaching and interaction between learners and knowledge (Williams, Coles et al. 2000). It seems also that, even though teachers recognize the importance of introducing ICT in education, they tend to be less positive about its extensive use in the classroom and far less convinced about its potential to improve teaching (Zhao and Cziko 2001; Russell, Bebell et al. 2003). Research

indicates that although teachers show great interest in and motivation to learn about ICT, their use of ICT tools is very limited and focused on a narrow range of applications. Most of the teachers in fact continue to use computers for low-level supplemental tasks such as word processing (lesson plans, worksheets, assessment tests, registration of grades, power point presentations etc.) or getting information from the Internet (Becker 2001; OFSTED 2004; Waite 2004). Relatively few teachers seem to routinely use ICT for instructional purposes and even fewer seem to integrate ICT into teaching practice in a way that motivates pupils, enriches learning and stimulates critical and higher-level thinking (BECTA 2004a; Ertmer and Ottenbreit-Leftwich 2010). The European Schoolnet and University of Liege survey (Wastiau, Blamire et al. 2013) has recently reported that approximately 35% of students at all grades across Europe never used ICT as part of their learning experience and between 50% and 80% of students have never used digital applications such as videogames, podcasts or e-book. A similar situation can be found in Ireland where only a minority of teachers make a regular and extensive use of ICT into their teaching practices confirming that digital technologies are often used and considered as an extra tool to complement traditional teaching approaches (Vanderlinde, van Braak et al. 2012; Wastiau, Blamire et al. 2013). However, according to Butler et al. (2013): “when teachers’ pedagogical orientations are driven by understanding of 21st century learning, they take on a more facilitative role, provide-student centred guidance and feedback and engage more frequently in exploratory and team-building activities with students” (p.8).

Overall, it seems that teachers have a positive attitude toward technology and they believe that technology can help them to accomplish professional and personal tasks more efficiently but they are often reluctant to use it as they do not consider themselves qualified enough to integrate it effectively into their classes (Yildirim 2000; Lawless and Pellegrino 2007). On the other hand, there is evidence that indicates that teachers with a learner-centred and constructivist teaching philosophy might find ICT more useful in stimulating the learning environment and in favouring pupils’ inquiry and collaboration (Higgins and Moseley 2001). It is therefore essential for teachers to develop a technological awareness through a conscious reflection on the digital skills and competences required in today’s teaching and learning environment. Specifically, this for them means moving beyond the technical aspects of ICT towards a more critical approach which involves active collaboration and creation of meaning.

There are various models that have been developed for preparing teachers to integrate ICT in their classrooms (Zhao, Pugh et al. 2002; Franklin and Sessoms 2005). The “one shot” and the “one shot plus follow-up” are two approaches still common in the education environment even though they proved ineffective for teachers’ development in ICT (Schrum 1999). Other models follow the diffusion of innovations theory suggested by Rogers (1983) which is considered one of the most appropriate theory for investigating the adoption of technology in the educational environments (Parisot 1995; Medlin 2001). There is a strong link between diffusion research and technological innovation and Rogers himself used often the words “technology” and “innovation” as synonyms (Sahin 2006). According to Rogers in fact, “technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome” (1983:13). In this regard, the concepts of adoption and integration are a decision of “full use of an innovation as the best course of action available” and, on the contrary, rejection is a decision on “not to adopt and innovation” (p.177). This adoption model considers innovation, time, communication channels and social system as the key elements of the diffusion of innovation. Ultimately, the model of Technological Pedagogical Content Knowledge (TPACK) presents an engaging framework which describes the knowledge required by teachers to effectively integrate ICT in their instruction (Koehler and Mishra 2009). At the heart of the TPACK framework, there is the complex relation between the three primary forms of knowledge: Content (CK), Pedagogy (PK), Technology (TK) and the knowledge that lies at the intersections of these primary forms: Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). Specifically, the Content Knowledge refers to the knowledge teachers have about a specific subject matter to be learned or taught. Pedagogical Knowledge is described as the “teachers’ deep knowledge about the processes and practices or methods of teaching and learning” (Koehler and Mishra, 2009:64). Technological Knowledge is the understanding that there are different ways of thinking and using the technological resources into the classroom. Pedagogical Content Knowledge refers to the main areas and ideas on learning, teaching and curriculum. Technological Content Knowledge is the comprehension of the way technology and content influence one another. Technological Pedagogical Knowledge is the understanding that learning and teaching are affected by the introduction of technology into the classroom. Finally,

Technological Pedagogical Content Knowledge is the foundation of the effectiveness when teaching with technology (Koelher and Mishra, 2009:64). Therefore, it can be said that the framework focuses on designing and evaluating teacher knowledge that is concentrated on effective student learning in various content areas. The TPACK is useful for thinking about what knowledge teachers must have to integrate technology into teaching and how they might develop this knowledge (Schmidt, Baran et al. 2009). This could potentially have an impact on the type of training and professional development experiences designed for both pre-service and in-service teachers.

During recent years the research community and the educational policy authorities have worked on a large number of initiatives designed for training teachers on the integration of ICT in their everyday educational practices. Various programmes have been established in the EU countries (European-Commission 2004), UK (OFSTED 2002), USA (PT3 1999) and Australia (Queensland-Government 2004) aiming to enhancing teachers' skills in the pedagogical application of ICT in instructional and learning processes. Until recently, most teacher training programmes have been designed to raise teachers' ICT knowledge and skill levels, and foster a positive attitude towards ICT as a teaching and learning tool (Galanouli, Murphy et al. 2004). However, it has been argued that most reform efforts in the past have often failed as they did not take into account teachers' existing knowledge, beliefs and attitudes (Van Driel, Beijaard et al. 2001; Mulkeen 2003). It is therefore essential to analyse the type of training offered to the teachers, the on-going support provided and the ICT policies applied in the institutions, as will be discussed in chapters 5 and 6.

2.5 STUDENT'S ROLE

Technology is influencing and supporting what is being learned in schools but also the way students are learning. Learners are moving from a passive stance and teacher-centred forms of delivery to a more active and student-centred one; instead of taking in information from a unique source (the teacher), students have the chance to learn more independently and collaboratively, interacting, comparing interpretations and working

with teachers, fellow students and peers in other parts of the world toward mutual understanding (Kern 1996). Traditional approaches to teaching and learning are usually based on pre-packaged learning materials, fixed deadlines and assessment tasks designed by teachers. The reality, however, shows that today's students perceive little value in the absorption of factual information, given the accessibility and ease of use of search engines and web-based reference sites such as Google and Wikipedia (Berg, Berquam et al. 2007). Moreover, students are now very much in control of online content and, as members of the open and interactive culture of the Web, are capable of being both producers and consumers of knowledge using a variety of accessible tools that empower them to develop and share ideas (Klamma, Cao et al. 2007). Prensky (2001a) and others (Tapscott 1999; Oblinger, Oblinger et al. 2005) go even further arguing that because today's generation of young people have been immersed in a world infused with technology they behave and learn differently from their predecessors. It is claimed that they think differently, they exhibit different social characteristics and they have different expectations about life and learning. The new generation of students, according to them, are said to prefer receiving information quickly, relying on communication technologies for accessing information and interacting with others, favouring active rather than passive learning, being often proficient in multitasking and having low tolerance for lectures.

It can be said that ICT, by its very nature, is a tool that incites and supports independent learning therefore, students working with new technologies are encouraged to take responsibility for their own learning, becoming more aware of the process itself and of the knowledge they acquire. According to Dubreil (2006), learners today have specific characteristics and roles, they are in fact described as "active participants", "researchers", "ethnographers" and "authors". Active participation is one of the main features of modern students. As mentioned before, they do not gain knowledge only from their teachers but also from the collaboration and interaction with others, and the teachers act as facilitators of this learning process. Learners behave nowadays as researchers, they express in fact their curiosity by looking for and collecting information and consequently they develop hypotheses for future meanings. Learners act also as "ethnographers" by studying "the qualitative description of human and social phenomena" (Ibid.: 254). Finally, students may assume the role of authors producing their own work that can be easily shared.

Overall, the role of modern students reflects the constructivist paradigm where the teaching is based on the belief that learning occurs as learners are actively involved in a process of meaning and knowledge construction as opposed to passively receiving information. Constructivist teaching fosters critical thinking, and creates motivated and independent learners. In practice, teachers relinquish control of the class and learners are the makers of meaning and knowledge under their guidance (Dubreil, Ducate et al. 2006; McLoughlin and Lee 2008). This being said, it is important to underline that the role of the modern student is strictly related to the modern learner –centred pedagogy. This new pedagogy needs to offer learners not only the technologies they are likely to use in the knowledge economy but also the apprenticeship for different kinds of knowledge practice, new processes of inquiry, dialogue and connectivity (Murray, Hourigan et al. 2005; Beetham and Sharpe 2013). Practices underpinning effective, innovative pedagogy will differ according to the subject areas but they are likely to include the following central elements (McLoughlin and Lee 2008):

- Digital competencies that focus on creativity and performance
- Strategies for meta-learning, including learner-designed learning
- Inductive and creative modes of reasoning and problem solving
- Learner-driven content creation and collaborative knowledge-building
- Horizontal (peer to peer) learning and contribution to communities of learning

It is important now for the main core of this thesis to approach the Irish educational environment from the ICT perspective. The secondary educational environment will be analysed in detail, providing first a description of the educational system itself and then an historical overview of the technology integration and use in Irish schools together with the current status and the future investments and projects.

2.6 SECOND LEVEL EDUCATION IN IRELAND (Post-Primary)

This paragraph provides a description of the Irish educational system in order to understand clearly the setting of this research and the role that ICT had over the years in the schools. In particular, below it will be discussed the compulsory education in Ireland, the levels in which the educational system is divided in, the examinations and programmes available.

The levels of education in Ireland are divided into primary, secondary and higher or third level education. All children must receive compulsory education between the ages of five and sixteen, and all children up to the age of eighteen must complete the three years of post-primary. The compulsory educational system is the competence of the Department of Education and Science and this branch of the government controls the examinations, the curriculum and teacher certification up to the Leaving Certificate Level (the Leaving Certificate is the final exam for students generally taken at around seventeen or eighteen years of age).

The second level education sector comprises secondary, vocational, community and comprehensive schools. Secondary schools are privately owned and the trustees of the majority of these schools are religious communities or Board Governors. The Vocational schools are established by the State and managed by the Vocational Education Committees (VECs) while community and comprehensive schools are managed by Boards of Management of differing compositions. As outlined in the tables 2.3 and 2.4 below, the second level education consists of a three years Junior Cycle (lower secondary), followed by a two or three years Senior Cycle (upper secondary), depending on whether students decide to take or not the optional Transition Year. Students commence their Junior Cycle at the age of 12 and after three years a State Examination named Junior Certificate is taken. After that starts the Junior Cycle that caters for students from 15 to 18 years of age. Transition Year, one of the major innovations in Irish education, is an option that follows the Junior Cycle providing a wide range of educational opportunities for students including working experiences and a general focus on personal development and social awareness. During the final two years of Senior Cycle students take one of the three programmes,

each leading to a State Examination: the traditional Leaving Certificate, the Leaving Certificate Vocational Programme (LCVP) or the Leaving Certificate Applied (LCA) (Drury 1995; McNamara and O'Hara 2005).

Junior Cycle of Secondary School in Ireland	
1 st Year (age 12-13)	The Junior Cycle includes 1 st , 2 nd and 3 rd year and leads to the Junior Certificate Examination (external state exam). Students start the 1st year of secondary school at the age of 12 having completed 2 years at infant school and 6 years of primary school.
2 nd Year (age 13-14)	
3 rd Year (age 14-15)	

Table 2.3 Senior Cycle of Secondary School in Ireland

Senior Cycle of Secondary School in Ireland	
4 th Year (age 15-16)	Transition Year
5 th Year (age 16-17)	5th and 6th year form the senior cycle. At the end of the two years, students take the Leaving Certificate Examination, which is the examination necessary for high school graduation and university entrance in Ireland.
6 th Year (age 17-18)	

Table 2.4 Senior Cycle of Secondary School in Ireland

2.7 ICT IN IRISH SCHOOLS: AN HISTORICAL REVIEW

This ICT review aims to introduce and examine the role of technology in the Irish educational system. The historical phases, the government initiatives and the different associations created will be presented below together with the related literature review. This will help understand the research background while gradually moving towards the core of our investigation.

Ireland has experienced rapid social changes and achieved enviable economic growth in the past years, even though the recent economic crisis has affected this country as well other European ones. On its part, the educational system has been continuing to adapt and adjust accordingly, facing important investments for the provision of ICT resources at both primary and secondary level. The development of computer technology in Irish schools moved through three distinct stages that we are going to review in detail in the paragraphs below. The first stage was one of the early explorations and the first approach to technology followed by the second stage defined by the formalization of computer technology in schools through the development of informatics subjects. Finally, the third stage was characterized by the integration of ICT across the curriculum and the introduction of significant ICT funding by the Irish government (Brady 1987; McKenna, Brady et al. 1993; Freeman, Holmes et al. 2001; Shiels and O'Flaherty 2006; McGarr 2009).

2.7.1 The early ICT stage

In 1971 Ireland began to show serious interest in computer technology with the provision of Department of Education funded summer in-service courses. In 1973, thanks to the success and interest raised by these courses, the Computer Education Society of Ireland (CESI) was established. This society aimed to promote the development of computer education in Ireland through a variety of initiatives and activities. At the beginning, as a first priority, it focused on providing training to members in order to work on the acquisition of teachers' computer skills. These courses approached mainly the programming aspect of computer technology

considering the fact that schools rarely possessed their own computers as they were very expensive and consequently well beyond the financial resources of the school and were still not powerful (McKenna, Brady et al. 1993). In the summer of 1980 over 300 teachers attended training sessions provided by the society when there were approximately 800 post primary schools in the state. The CESI was open to teachers of all subject disciplines but the majority of them were from a mathematics background. Brady (1987:46) commented his experience on approaching technology in the early seventies as an ICT enthusiast teaching Maths in a secondary school:

Only very enthusiastic, very computer orientated teachers were involved at this time (early seventies). Most of us who became involved at this stage had only the vaguest idea of what computing was about. We were motivated more by curiosity about the new technology than by educational considerations but, in general, teachers who got involved at this stage intended to teach Computer Science.

In the late seventies microcomputers were introduced in Irish schools but the usage at this stage was strictly related to the resources available to each school and the enthusiasm of teachers. The CESI, together with providing training for teachers, had also another aim which was the introduction of a national computer subject in the post-primary curriculum. In 1980 the Department of Education introduced an optional computer module in the Leaving Certificate Mathematics course, despite all the pressure by the society and the computer industry to have a distinct separate subject. The module did not have a syllabus but those schools willing to teach this course could prepare and submit one to the Department of Education. The syllabus presented had to include topics such as careers in computing, problem analysis and programming languages, focusing therefore on learning about the new technology itself (McGarr 2009). In the eighties there was an increase of computer adoption and use in Irish secondary schools: by 1981 there were over 600 computers across over 800 secondary schools. Despite this growth, the computer module introduced did not have much of an impact on computer usage mainly because it was an optional choice. In 1985 it was introduced as a computer-based subject at the Intermediate Level (12-15 years) but computer use remained strictly confined and related to teachers' interest and schools' resources.

2.7.2 The second stage: from computer science to computer literacy

In 1984 the Association of Secondary Teachers of Ireland (ASTI) conducted a survey in 215 schools. The results of the survey reported a shift from the computer science-programming option to a broader course in computers, specifically focused on computer literacy (Breathnach 1984:17):

It is interesting to note the tendency to use, or to favour the use of all kinds of application packages, most particularly word-processing and educational software. This might represent a relatively recent shift of emphasis away from programming as the central feature of computer studies (p.17).

During those years the Curriculum and Examinations Board (CEB) was also established which had the responsibility of supervising the design of new curricula and developing computer policy. According to the CEB (1987:17):

Information technology should be developed on a cross-curricular basis, and to be manifest in every subject. Information technology should be an essential element of the learning experience of all young people throughout the period of compulsory schooling....it is important that schools incorporate it into the everyday educational environment of their students.

Consequently, several changes occurred and computer elements were introduced, but they were still limited to business and technological subjects. In 1993 an EU commissioned evaluation on the use of computers in second level schools was undertaken, and this was the first study that approached the usage and availability of computers in Irish institutions. The results reported high usage of standard applications such as Word processing, Desktop publishing and CAD software, but very little use of Computer Aided software and little emphasis on programming in few schools at the Leaving Certificate year. The report also highlighted several barriers affecting the integration of ICT which included the shortage of funding and suitable software, a lack of standardization of equipment and a lack of explicitly stated policy (McKenna, Brady et al. 1993:40):

One major constraint has been the lack of an explicitly stated strategy for developing IT activities in schools. It is clear from the number of activities that have been initiated

and supported by the inspectorate that the department of education implicitly favours the promotion of IT in schools but no definitive policy has been articulated. While the lack of an articulated policy has given freedom to individuals to experiment, schools have found it difficult to develop and sustain their own long-term IT strategies in the absence of an overall guiding plan.

In 1995 a large study was conducted by Drury (1995) that reported significant findings. The study found that there was an average of 22 computers per school primarily located in specific PC rooms and that 33% of all usage was for Computer Studies and Informatics classes. The findings also reported that schools had begun to develop IT skills courses focused on common computer application software. Further studies showed that in the absence of a national policy computer usage had evolved becoming confined to informatics classes and little integration existed in other subject areas (McGarr 2009).

2.7.3 The third stage: ICT integration

The third stage was characterized by the integration of ICT in post-primary schools and marked by the launch of the *Schools IT2000 initiative*. The Department of Education and Science, influenced by trends to integrate ICT in teaching and learning globally and concerned about Ireland's economic competitiveness in a global information based society, introduced the initiative in November 1997. The initiative aimed, through the establishment of the National Centre for Technology in Education (NCTE), to ensure that all students achieved computer literacy and that teachers were supported in renewing skills which would enable them to integrate ICT into the learning environment. Specifically, the initiative had three major strands:

- The Technology Integration Initiative
- The Teaching Skills Initiative
- The School Support Initiative [including the School Integration Project (SIP) and the Scoilnet]

The Technology Integration Initiative was designed to support schools in developing their ICT infrastructure. Schools received funds for the purchase of computer hardware and they were assisted in getting Internet connection where not in place already. The aim of the initiative was to have at least 60,000 computers in schools by the end of 2001.

The Teaching Skills initiative provided training for teachers in three distinct areas: ICT skills and awareness, professional skills development in ICT, and pedagogical skills development.

The Schools Integration Project investigated a range of teaching and learning topics with regard to ICT integration. Approximately 90 pilot projects were conducted in a number of schools, which worked in partnership with businesses, industry, education centres, third level institutions, and the community.

The Scoilnet initiative focused primarily on the development of the Scoilnet website (www.scoilnet.com) as a resource for teachers and students. The Scoilnet website is the Department of Education and Science's official portal for Irish education. This initiative was also responsible for the development and maintenance of the NCTE website, which provided guidance and support on all aspects of ICT in education.

The IT2000 initiative significantly raised the profile of ICT in education across the country. However, in the following years it appeared to lose a bit of perspective. An evaluation of Schools IT2000 conducted in 2001 (NPADC) reported a substantial increase in IT infrastructure and computer use within schools. It found also that 59% of the teaching staff availed of the training offered. However, the report also identified the need for a more clearly defined policy in relation to ICT. Following on from Schools IT2000, a further policy entitled *The Blueprint for the future of ICT in Irish Education* was launched. This was a three-year plan designed to support and expand the initiatives begun under the IT2000. This policy provided an investment of €108 million (€79m on technology infrastructure and €29m on support services including teacher professional development) in ICT in primary and post primary schools. The main objectives of the Blueprint policy were:

- Expand the ICT capital provision to schools
- Increase access to, and the use of, internet technologies
- Further integration of ICT into teaching and learning
- Enhance professional development opportunities for teachers

Furthermore, this policy included identification of the school principal as a key player in successful use of ICT and an emphasis on the use of ICT in special needs education (Freeman, Holmes et al. 2001; McGarr 2009). Subsequent to those initiatives, in 2005 a national census about the integration of ICT in schools was conducted by the NCTE (Shiels and O'Flaherty 2006). The results indicated that ICT resources had increased in schools, but the rate of increase had slowed from 2002. The pupil computer ratio was 7:1 in post primary schools, confirming the distance from the desired ratio of 5:1 and over 19% of computers were greater than six years old. The census reported also that 96% of schools had been provided with broadband access. Despite the relatively high levels of ICT resources reported no further policy announcements were made for a few years and a significant decline in ICT investments and general ICT activity in schools was taking place. In 2006 the EU report *Benchmarking Access and Use of ICT in European Schools* (Korte and Hüsing) has shown that 82% of Irish classroom teachers had used computers in class in the 12 months prior to the survey date, against an EU average of 74%. It found that Irish teachers ranked around the EU average in terms of positive attitudes about the different ICT applications for teaching. Specifically, the study confirmed figures around the EU25 average on attitudes that ICT should be used by pupils to do exercises and practice (79%), letting pupils retrieve information in a self-directed manner (79%) and for collaborative and productive work by pupils (82%). Irish teachers who were integrating ICT in their practice felt very confident in using emails (73% as compared to 66% EU average), and using text processors (58% as compared to and EU average of 65%). However, they felt less confident when downloading or installing software or creating electronic presentations. The report also found that 91% of teachers strongly agreed that pupils were more motivated and attentive when integrating computers in class. Despite this general positive attitude, Ireland ranked 19th of the 25 European countries in terms of ICT usage during the classes and it was at the very bottom in Europe when it comes to teachers' satisfaction

with the ICT infrastructure (85% of Irish teachers wished there was a better support and maintenance for ICT in schools). Schools, in fact, did not have access to a basic level of equipment and technical support to enable ICT integration to take place. Furthermore, the absence of multi-annual funding made it difficult for schools to plan for ICT development. Teachers did not have access to sufficient digital content and digital content tools relevant to Irish school curricula. As the survey stated:

Despite the fact that all Irish schools are equipped with some computers and have an Internet access, a major problem seems to be the still insufficient ICT equipment and access to the Internet in Irish schools, indicated by 34%. As a consequence, Ireland finds itself in the bottom half of European countries on the ICT readiness of schools and teachers (p.7).

In 2006, the OECD's (Organization for Economic Co-operation and Development) programme for International Students Assessment (PISA) study contained some questions on computer use in schools (Maunsell, Downes et al. 2008). The available findings highlighted that while there was an increase in the use of computers in Irish schools in the "at least once or twice a week by 15 year olds" category (47% in 2006 as compared to 24% in 2003), Irish students were still behind the OECD average of 55%. With great concern, the study reported also that 30% of students never used computers in schools, as compared to OECD average of 13%. In February 2007, the Minister for Education and Science announced the allocation of €252 million for investment in ICT education over a period of 6 years (McGarr 2009). In November 2009, the Taoiseach launched a €150 million plan for the "smart schools" initiative. The plan included the provision of teaching laptops, projectors and software for the classrooms in the country, starting with the primary schools and moving then to the post primary. This action plan was produced by the joint advisory group established by the Minister of Education and Science. The advisory group comprised members of ICT Ireland, the Telecommunications and Internet Federation, the Irish Software Association, the Department of Education and Science, the Department of Communications, Energy and Natural Resources and the National Centre for Technology in Education. According to the Taoiseach, thanks to the launch of the report "Smart schools=Smart Classrooms" (Costello 2012) *the Government recognises the need for investment in this area and it's committed to providing funding to support*

the integration of information communications technology (ICT) in teaching and learning in our schools. Our talented young people, the education sector and ICT are central to developing our "smart economy". 'Our children and teenagers are very comfortable with technology so we need to exploit the benefits of ICT in our classrooms to stimulate and enrich teaching and learning and to develop students' ICT competence. The commitment to invest in ICT in schools is a further expression of the Government's commitment to the development of innovative ICT in Ireland. More recently (2011-2012), a survey on ICT in Education was launched by the European Commission Directorate General Communications Networks, Content and Technology and conducted in 31 countries included the European ones. Ireland's profile presented key indicators concerning access, use and attitudes to ICT in primary and secondary schools derived from responses to surveys completed by head teachers, teachers and students showing national results against the EU average. According to the report, students in Ireland benefit from infrastructure and connectivity levels close to the EU mean and above EU average percentages are in "connected" schools with broadband. On the other hand, ICT use by teachers is considerably above other countries, and their confidence in using ICT is overall above the EU mean, except at grade 11. Frequency of students' use of computers is close to EU averages, but their confidence levels are below the EU mean (Balanskat, Blamire, & Kefala, 2006; Wastiau et al., 2013).

It seems that investments and progress have been made in putting basic ICT infrastructure in place in Irish schools and in the provision of teacher professional development and online learning resources. However, ICT seems to have still a long way ahead for an extensive and complete integration in Irish institutions.

2.8 PRIORITIES FOR FUTURE ICT DEVELOPMENT IN IRISH SCHOOLS

Some of the recent reports conducted by the designated Strategy Group, have provided recommendations in relation to how schools should plan for the process of transforming themselves into e-learning environments. The reports addressed factors

and strategies for a successful integration of ICT into teaching and learning. The “Investing Effectively in ICT in schools” report of 2008 established a baseline for ICT investment in schools over a seven year period. The Strategy Group has identified a few main areas to work on; these are drawn from the experience of Irish schools that have achieved Digital school status and from best international practice.

1. Creating leading edge e-learning environments

The schools need to be assisted in developing their e-learning plans. In this regard, important factors need to be taken into consideration: leadership (every school, under the leadership of the principal and supported by the ICT coordinating teacher, must work towards an effective whole-school ICT coordination that should provide concrete learning experience for students); whole-school vision (this recognises the capacity of ICT to motivate students and build a cooperative and interactive learning environment in the schools together with the need to have a school ICT committee which will plan ICT integration and work collaboratively to develop a whole-school shared vision); ICT culture (this emerges when effective leadership and coordination is in place, using all the technological tools inside and outside the classroom); curricula application (ICT should be used seamlessly within the curriculum) and finally realising ICT integration and e-learning.

2. Investing effectively in ICT in education

Strategic ICT investments in schools are essential for the successful integration of technology into education. A first allocation made of €252 million in the NDP (National Development Plan) funding allows schools to re-engage with ICT and its tools, allowing significant progress towards ICT usage. In addition to the NDP investment, it is estimated that a further €85 million will be made available for ICT provision in schools by the DES (Department of Education and Science) Building Unit and other sources within DES. Together, these represent a potential spend of approximately €337 million. According to the Strategy Group, this is an important

investment however, considering the number of schools and students and the existing level of ICT, it is considered inadequate.

3. ICT investment goals 2008-2013

The future investments goals suggested by the Strategy group are all interconnected, considering the learner needs always as the main point of call. As indicated in the figure 2.2 these goals include:

- Promoting and supporting leadership, creativity and vision for ICT integration in schools.
- Providing all schools with ICT equipment and broadband internet service.
- Meeting teachers' ICT professional development needs and supporting them in using ICT effectively in their teaching.
- Providing teachers and students with access to curriculum-relevant digital content and ad-hoc digital tools.
- Promoting a system that disseminates good practice models among teachers and schools, enhancing and supporting innovating teaching.
- Integrating ICT practice in the curriculum design and development from an early stage.

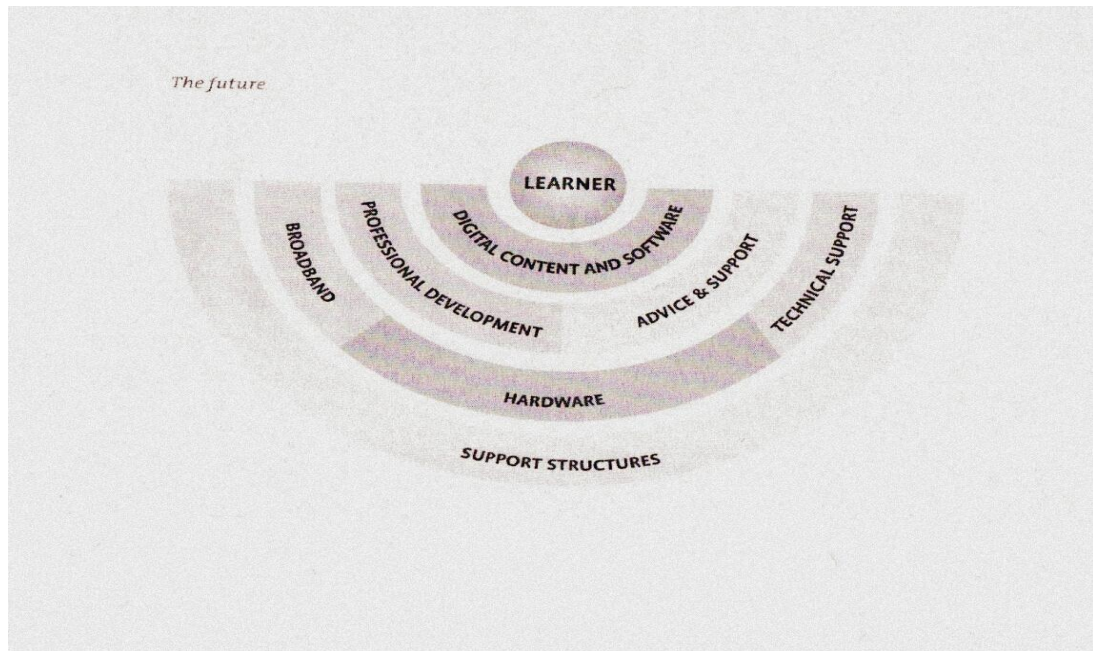


Figure 2.2: Integrating ICT with learner-centred education (Investing effectively in ICT, 2008:13)

As appointed by the Strategy Group (2008-2013), the Irish schools urgently require new equipment and technical support together with a critical need to move towards an embedded e-learning culture. Computer technology and education have many challenges ahead in a rapidly changing country where ICT is increasingly at the heart of social, commercial and industrial life. With this in mind this research focuses on a specific subject discipline (Language Learning) and its specific relationship with ICT namely CALL (Computer Assisted Language Technology). CALL has a long and varied history of innovation and integration and it is discussed here, in abridged form, to present an informative analysis on how computer-mediated communication may support language learning and teaching. The second part of this chapter will specifically start by defining the CALL discipline itself, moving then to its historical backdrop and progression over the years and finally presenting technological tools, some of which have been encountered within this research project.

2.9 SECOND LANGUAGE ACQUISITION: THEORIES FOR PRACTICE

Second language acquisition (SLA) is a complex process that refers to and reflects on how people learn a new language. Various hypotheses and theories on how such acquisition occurs have been offered by researchers working in different fields such as linguistics, sociolinguistics, psychology, neuroscience and education (Chambers, Conacher et al. 2004; Blin 2005; Levy and Stockwell 2013; VanPatten and Williams 2014). Each of these theories captures a different aspect of the language learning process however, not one in particular has been widely accepted as being predominant amongst researchers. In the following paragraphs this researcher will present some of these theories, having selected the ones considered most influential in revealing teaching practices within this case study. This is done in order to illustrate this researcher's established knowledge of CALL (Benini and Murray 2014) and SLA as she attempts to answer her primary research questions concerning TELL (Technology Enhanced Language Learning), impacts, challenges and attitudes towards technology in secondary level educational contexts.

2.9.1 From the Behaviourist to the Connectivist model: SLA theories for post-primary language instruction

Theories of learning have been influenced by earlier practices (for example observations of classroom behaviour) and theories taken from other disciplines (such as philosophy, psychology, mathematics etc...). In the case of behaviourism, there is a wide range of practices and empirical influences dating as far back as the ancient Greeks but the person associated *par excellence* with this theory is B. F. Skinner. Behaviourism gave birth to a stimulus-response (S-R) theory which emphasizes rote learning together with memorization techniques through repetitive drills where students are motivated and rewarded by positive responses. Controversially, according to Skinner, learning comes from a change in the behaviour due to an individual response to events (stimuli) that occur in the linguistic environment (Skinner 2011;

Menezes 2013). In this respect, the learning activities are graded from simple to complex with frequent reviews of the key points and reinforcement exercises. In this model, the learner has no control of his/her own learning but the software programme or the teacher play the role of expert and unique source of information and learning material. Behaviourist teaching practices are still frequently carried out in schools particularly in the exercises proposed and in the teachers' approaches, as the researcher will demonstrate in the following chapters. It is important to say that behaviourism has been criticized for being too simplistic, ignoring the complex workings of each individual mind and reducing the language acquisition to a boring and repetitive rote activity that would finally demotivate the learner (Oxford 1995). This model favoured research on contrastive analysis, especially error analysis where the main focus was on the faulty inferences brought from the first language to the target language. Furthermore, it favoured research on interlanguage studies as the system that refers to a structurally intermediate status between the native and the target language (Selinker 1972; Ellis 1994; Connor 2002). Despite its controversy, there is no doubt of the ongoing influence of Behaviourism on current teaching methodologies and also on early designs of CALL programmes.

The comprehension (or input) hypothesis is originally part of a group of five hypotheses (the input hypothesis, the acquisition-learning hypothesis, the monitor hypothesis, the natural order hypothesis and the affective filter hypothesis) formulated in the 1970s and 1980s by the linguist S. Krashen but, over time, the term has come to refer to the five hypotheses as a group. The comprehension hypothesis was influenced by Chomsky's assumptions on language as an innate faculty (Chomsky 1986; Pesetsky 1999; White 2003). The hypothesis states that we acquire a language when we receive comprehensible input and we understand the given messages. Krashen stated that "the Comprehension Hypothesis is closely related to other hypotheses. The Comprehension Hypothesis refers to subconscious acquisition, not conscious learning. The result of providing acquirers with comprehensive input is the emergence of grammatical structure in a predictable order. A strong affective filter (e.g. high anxiety) will prevent input from reaching those parts of the brain that do language acquisition" (Krashen 1985: 1). Therefore, comprehension is a necessary element for language acquisition processes but other conditions have to be in place in order to have comprehensive and

effective learning: an open aptitude, new aspects of the language that the learner is ready to acquire and a low affective filter. Krashen's theory provides a linear perspective with regard to language acquisition stating a cause-effect relation between input and acquisition and showing also that the grammatical structures are acquired in a sequential and predictable way. This is particularly important for our case study as the type of input provided together with the teacher practices and students' responses and perceptions are the core aspects that will be presented and analysed. A few criticisms have been raised against this theory mainly referring to the lack of substantial evidence within the research itself. In this regard, Cooks points out that the model "makes sense in its own terms but is not verifiable" (Cook, 1993: 65-66).

Swain (1985), the most influential figure for the Output Hypothesis, has argued that comprehensible output also plays an important part in SLA. When learners produce comprehensible output they are in fact brought to recognize and reflect on what they do not know or partially know as "output may stimulate learners to move from the semantic, open-ended non-deterministic, strategic processing prevalent in comprehension to the complete grammatical processing needed for accurate production" (Swain 1985:128). "Noticing" is an essential aspect of SLA and according to the Output Hypothesis, the output can have two other functions: to test hypotheses and to trigger reflection, a metalinguistic function. Learners can produce output just to see what works or not, reflecting then on the language they produce when negotiating meaning as the content of negotiation is the relation between the meaning they are trying to express and the language form (Swain 1995). Krashen criticizes the output hypotheses considering comprehensible output production very rare and regarding as inappropriate pushing students to speak in a second language when they may not be comfortable or ready to do that, raising, in that way, the affective filter and thus hampering acquisition (Krashen 2003). The Output Hypothesis is closely related to the Need Hypothesis, which states that we acquire language forms only when we need to communicate or make ourselves understood. In this regard, language learners are pushed to produce output. Krashen disagrees with the Need Hypothesis and with the principles shared with the Output Hypothesis, pointing out also that the need could be helpful for the learner only when comprehensible input is in place, otherwise it is completely useless (Ibidem). Evidence of the output hypothesis will be provided in

later chapters (chapters 5 and 6) analysing the methodologies and the tools teachers use to facilitate the spoken production and interaction.

Another theory behind SLA is Interaction Hypothesis. The theory, credited to M. Long for his empirical study (1996), stated that the development of language proficiency is facilitated and promoted by face-to-face interaction and communication. Through this theory, Prof Long reconciled and integrated the input and output hypotheses. As for Krashen's theory, the interaction hypothesis claims the importance of comprehensible input for language learning. Furthermore, it is claimed that the effectiveness of comprehensible input increases when learners have to negotiate for the meaning. During conversations, there are certain situations where the participant does not understand what the other says; in this case "negotiation" comes into to play allowing the participants to actively engage in the interaction (asking for clarifications, for example) in the attempt to understand and repair the miscommunication. Interaction Hypothesis addresses the importance of interaction between a second language learner and a native speaker so the learner can approach and study the language in the most authentic comprehensive way. Although there are several studies that link interaction with language acquisition, not all researchers agree on the idea that mainly the interaction would allow language proficiency development. Larsen-Freeman and Long (1991) argued that interaction itself can help in some circumstances but it is not essential for language acquisition. Gass (2013) claimed that interaction could facilitate learning functioning also as a "setting stage" for learning rather than being the means by which learning happens. Finally Ellis (1997) observes that interaction is not necessarily positive, in some cases it can make the input more complicated and in some others it can create an amount of input too big to be handled by the learner. Having said that, it is important to note that the interactionists' view seems to be more powerful than other theories as: "they invoke both innate and environmental factors to explain language learning" (Larsen-Freeman and Long, 1991:266). Overall, Interaction theory together with Output theory will help us analyse the spoken aspect of Italian and Irish language learning considering the type of input provided, the tools used and many of the emotional and practical issues in this researcher's study.

An important and influential theory known as Sociocultural Theory (SCT) is based on the thoughts of soviet psychologist and social constructivist Lev Vygotsky (1978) and

emphasized the importance of social interaction in the learning process. The theory argues that the development of human cognitive and higher mental abilities is due to social interactions and the participation in social activities, which requires the activation of cognitive and communicative functions, and allows the learners first to use those functions and secondly to enhance and nurture them. The central constructs of the theory are mediation, regulation, internalization, the zone of proximal development, verbal thought and activity theory (Vygotsky 1978). Vygotsky's theory remains hugely attractive to SLA researchers and was adopted and spread in the western world by J. Bruner who laid the foundations of a model of language development in the context of adult-child interaction (Bruner 1985). In strong contrast to behaviourist theory, which emphasized that the learners are conditioned to learn a language by a stimulus-response pattern, the social cultural approach focuses on a social-cognitive model where the social world serves as the context of language development for the learners. Lantolf and Thorne (2007: 217) defend the principles of the SCT arguing that that they can be easily applied to SLA: "SCT is grounded in a perspective that does not separate the individual from the social and in fact argues that the individual emerges from social interaction and as such is always fundamentally a social being". Therefore, in the social world learners observe the language in use, and they approach, imitate and interact with the whole environment. One of the main concepts borrowed from Vygotsky is "scaffolding" which is the assistance, support and direction one learner can get from other people such as parents, teachers, peers, coaches and so on, to enable the learner to complete a learning task (Menezes 2013). Sociocultural theory will be later analysed in relation to use of social network platforms, web tools and more traditional social activities (such as pen-pal) to enhance intercultural communication and learning within the two targeted schools of this current study.

Most of the theories mentioned above were developed in a time when learning was not strongly impacted by technology but this is not the case for the Connectivism theory which focuses on Internet technologies and the new opportunities created to learn and share information across the World Wide Web. Table 2.5 illustrates how Connectivism compares to other learning theories and how it differs from established paradigms.

	Behaviourism	Cognitivism	Constructivism	Connectivism
How does learning occur?	Black box-observable behaviour main focus	Structural, computational	Social, meaning created by each learner (personal)	Distributed within a network, social, technologically enhanced, recognizing and interpreting patterns
What factors influence learning?	Nature of reward, punishment, stimuli	Existing schema, previous experiences	Engagement, participation, social, cultural	Diversity of network
What is the role of memory?	Memory is hardwiring of repeated experiences-where reward and punishment are most influential	Encoding, storage, retrieval	Prior knowledge remixed to current context	Adaptive patterns, representative of current state, existing in networks
How does transfer occur?	Stimulus, response	Duplicating knowledge constructs of “knower”	Socialization	Connecting to (adding nodes)
What types of learning are best explained by this theory?	Task-based learning	Reasoning, clear objectives, problem solving	Social, vague (“ill-defined”)	Complex learning, rapid changing core, diverse knowledge sources

Table 2.5: Situating Connectivism (Ireland, 2007:7)

Connectivism, promoted by Downes and Siemens, seeks to explain complex learning in a rapidly changing digital society. According to the connectivist model, knowledge, which can be stored in a variety of digital formats, is distributed across networks and learning, defined as “actionable knowledge”, consists of the ability to construct and work within those networks (Downes 2012; Siemens 2014). Both cognitive and affective domains contribute to the learning process in a significant way. As illustrated by Siemens (2005: 4), the main principles of Connectivism are the following:

- Learning and knowledge rests in diversity of opinions;
- Learning is the process of connecting specialized nodes or information sources;
- Learning may reside in non-human appliances;
- Capacity to know more is more critical than what is currently known;
- Nurturing and maintaining connections is needed to facilitate learning;
- The ability to identify connections between concepts is important;
- Maintaining current and accurate knowledge is the purpose in connectivist activities;
- Decision-making is a learning process as information can change and what is viewed as correct one day may be incorrect the next;

Connectivism focuses specifically on two important skills that contribute to learning which are the ability to seek out current information and the ability to filter secondary and unimportant information. The ability to make decisions and be critical on the basis of information having been acquired is considered an essential part of the learning process. In connectivist learning the role of the teacher is to guide students among the load of information available (mainly on the Web) answering key questions as needed and encouraging them in sharing and discussing the information gained.

The connectivist theory expresses the importance of open learning for a new learning society where:

“The ethic of learning is collaborative, global and universal. It is collaborative in that learners need to work with each other. It is global in the sense that every society has a contribution to make and a responsibility to each other. And it is universal because every part of a society must invest in learning and participate” (Cisco report 2010:1).

In 2008, Siemens and Downes delivered an online course called “Connectivism and Connective knowledge” which was free and open to anyone who wished to participate initiating in this way the phenomenon of massive open online courses (MOOCs). The main features of a connectivist MOOC are that it is open to anyone who wants to enrol, it uses open software and systems across the Web to facilitate learning and sharing and it takes place primarily online for a designated period of time. There are facilitators that guide the MOOC and the participants are responsible for what and how

they learn and share (Bárcena, Read et al. 2014). MOOCs can play an important and valuable role in secondary school education as a means to increase participation, enhancing students' learning and improving outcomes on existing courses. The Connectivist theory assumes a particular importance in this research as focusing on teaching and learning dynamics in digital worlds, it represents a significant theoretical framework in which to analyse tools, perceptions, use and practices of today's students and teachers.

2.10 CALL: FROM THE DEFINITION TO THE APPLICATIONS

After having described the role of ICT in education and a number of the main theories behind SLA, CALL discipline will be approached and examined in depth. Hence, the researcher will be analysing the role and use of technologies within language learning and teaching, starting by defining CALL, moving then towards its historical background and phases and finishing with the description of repurposed technological tools typical of CALL instruction. This essential background is provided in order to understand the specific role CALL plays in this research. Having a review of CALL applications and phases will help us in locating and analysing the technological status and practices of the two targeted schools for Irish and Italian language learning. Specifically, this introduction will help us examine and answer in chapters 5 and 6 the following questions: are students and teachers using dedicated CALL packages? Are they using a form of repurposed CALL or Social Media platforms for SLA? And finally, to which extent are they using CALL applications?

We move on now to the discipline of CALL.

2.10.1 Definition of CALL

The term CALI (Computer Assisted Language Instruction) was in use before CALL, reflecting its origin from the more general term CAI (Computer Assisted Instruction). CALL began to replace CALI in the early 1980s (Davies & Higgins, 1982: 3) and it is

now integrated into the names of a growing number of professional associations. Other alternative acronyms include, for example, TELL (Technology-Enhanced Language Learning) which emerged in the early 1990s (Brown 1988) and WELL for Web-Enhanced Language Learning (Haworth and Cowling 1999). These acronyms reflect the changing nature of CALL. CALL has been defined in a variety of ways, some of which are reported here:

- CALL was the expression agreed upon at the 1983 TESOL convention in a meeting of all interested participants. This term is widely used to refer to the area of technology and second language teaching and learning despite the fact that revisions for the term are suggested regularly (Chapelle, 2001:3).
- CALL has been defined as the search for and study of applications of the computer in language teaching and learning (Levy, 1997:1).
- Given the breadth of what may go on in CALL, a definition of CALL that accommodates its changing nature is any process in which a learner uses a computer and, as a result, improves his or her language. CALL has come to encompass issues of materials design, technologies, pedagogical theories and modes of instruction. Materials for CALL can include those which are purpose-made for language learning and those which adapt existing computer-based materials, video and other materials (Beatty, 2013: 7-8).

Overall, the CALL discipline is often perceived as an approach to language teaching and learning where technology is used as a valuable tool to present, reinforce and assess the material that will be learned in a way that is usually interactive. CALL embraces a wide range of information and communication technology approaches to teaching and learning foreign languages, from the first drill and practice programs that characterized CALL in the 1960s and 1970s to more recent applications. It also extends to the use of corpora and concordances, interactive whiteboards, Computer Mediated Communication (CMC), language learning in virtual worlds, web-based distance learning and mobile-assisted language learning (MALL).

2.10.2 History of CALL: typology, phases and approaches

During the 1980s and 1990s, CALL and its activities have been categorized and analysed in different ways focusing, for example, on the various types of CALL programmes such as gap-filling and cloze programs, multiple-choice programs, sentence-reordering programs, adventures and simulation etc. (Davies and Higgins 1982; Levy 1997; Garrett 2009) or, as Murray has termed them: “the classical triumvirate of CALL” (Murray, 2004:81), as well as focusing on the historical phases of CALL and their underlying pedagogical and methodological approaches (Warschauer 1996; Warschauer and Healey 1998). Since the late 1990s it became more and more difficult to categorize CALL as a wider range of applications were included in the discipline: blogs, wikis, Web 2.0 tools, social networking, podcasting, language learning in virtual worlds and interactive whiteboards (Davies, Walker et al. 2011). Warschauer and Healy (1996; 1998) identified three historical stages of CALL named respectively Behaviouristic CALL, Communicative CALL, and Integrative CALL where each stage mirrors the level of technology and the pedagogical approach in use in a specific time. Firstly, Behaviouristic CALL, conceived in the 1950s and implemented then in the 1960s and 1970s, consisted of drill-and practice materials in which the computer presented a stimulus and the learner provided a response, echoing clearly the Behaviourism notions.

At this stage, the computer would analyse and give feedback, and more sophisticated programs would respond to students’ mistakes by providing remedial exercises. The exercises presented were focusing particularly on grammar and vocabulary acquisition and the learner was quite dependent on the teacher and the technology (Levy 1997; Warschauer 2000). This phase is illustrated by the PLATO (Programmed logic for automatic teaching operations) project, initiated at the University of Illinois in 1960 and it represented an important landmark in the early development of CALL (Marty 1981). This project was the first generalized computer assisted instruction system that ran on its own special hardware and offered a variety of drills, grammatical explanations and translation tests (Warschauer and Healey 1998). Furthermore, PLATO (together with other projects such as TICCIT – Time-shared, interactive,

computer controlled information television – see Bunderson 1973) embodied the base on which many modern concepts in multi-user computing are developed, including forums, emails, chat rooms, instant messaging and multiplayer games. Even though the project was a breakthrough in CALL at the time, it did not attend to all the language skills and consequently dissatisfied the learners' needs; it was in fact designed for grammatical and lexical purposes, leaving behind other aspects such as oral production.

The advent of Communicative CALL took place in the late 1970s and early 1980s when behaviouristic approaches to language learning began to fall both from a pedagogical and theoretical perspective (Underwood 1984; Warschauer and Healey 1998). At the same time, mainframe computers were being replaced by personal computers, which made computing much more widely available and resulted in a huge development of software for language learning. The Communicative approach focused on using the language rather than the analysis of the language; the grammar was not taught in the traditional explicit way by language teachers, but now they would develop techniques that help learners to register the grammar consciously. The originality and flexibility in student output of the language was favoured together with the prominent use of the target language (Underwood 1984; Jones, Fortescue et al. 1987; Phillips 1987). The first CALL software in this phase continued to provide skill practice exercises but not in a drill format (language games, text reconstruction and paced reading were used instead). Even though Communicative CALL was seen as an advance from Behaviouristic CALL, by the late 1980s and early 1990s it began to be criticized for the fact that computer was used in *ad hoc* and disconnected way for very marginal elements rather than being used for the central aims of the language acquisition process (Kenning and Kenning 1990). As a consequence, communicative language teaching and practice was reassessed witnessing a shift from a cognitive view of teaching to a more socio-cognitive and socio-collaborative approach which focused on giving more importance to the use of the language in real authentic contexts.

This led to our third phase named Interactive CALL which started from the 1990s and tried to address criticisms of the Communicative approach by integrating the four language skills (reading, speaking, writing and listening) and technology itself into the language learning process. In the integrative approaches, students were guided to

discover and employ technological tools in their ongoing language acquisition and the language lab was not considered anymore an isolated place to be used sporadically. This phase corresponded to the development of multimedia technology, the Internet as well as Computer Mediated Communication (CMC). According to Warschauer and Healy (1998: 58), the multimedia networked computer provided: “a range of informational, communicative and publishing tools now potentially at the fingertips of every student” meaning a more collaborative and social interactive learning environment.

In a later publication, as shown in Table 2.6, Warschauer (2000) changed the name of the first phase of CALL from Behaviourist CALL to Structural CALL revising also the dates of each phase:

- Structural CALL: 1970s to 1980s.
- Communicative CALL: 1980s to 1990s.
- Interactive CALL: 2000 onwards.

Stage	1970s–1980s: Structural CALL	1980s–1990s: Communicative CALL	21st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English-teaching paradigm	Grammar-translation and audio-lingual	Communicate [sic] language teaching	Content-Based, ESP/EAP
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	Fluency	Agency

Table 2.6: Warschauer's three stages of CALL (Warschauer, 2000).

Levy (2009) also explored the theme on how CALL practitioners have conceptualized the use of computers in language learning and teaching. He did this through a precise review of the literature and a comprehensive CALL survey which was carried out among authors of CALL materials from 18 different countries in order to define the framework behind their work. Most of the survey respondents, for example, viewed the computer as a tool unable to replace the teacher and considered word processing a valid area within CALL. Overall, there was a strong support for the communicative approach to language teaching and task-based learning, but a good number of respondents also supported formal grammar instruction.

On the other hand, Bax (2003) offers a critical review of Warschauer's CALL stages, offering a new categorization and approaches. He, in fact, talks about:

- **Restricted CALL:** the term “restricted” refers to the actual software and activities in use at the time, considering also the teacher's role, the feedback given to the students and other aspects of the language acquisition not necessarily “behaviouristic”. According to Bax (Ibid.: 20), the term “restricted” is more comprehensive therefore more satisfactory as a descriptor.

- Open CALL: this variety of CALL is more open regarding the feedback provided to the students, the types of software and the role of the teacher. This approach includes simulations and games. In the historical development of CALL, at this moment we are still operating within an Open CALL approach aiming to move forward to an integrated CALL in the future.
- Integrated CALL: still to be achieved. “Integrated” is more appropriate than “Integrative” as Warschauer was indicating.

Bax (2003) introduces also the concept of *Normalization* defined as the state where technology is invisible and truly integrated into everyday practice; the author in fact suggests that: “a technology has reached its fullest possible effectiveness in language education when it has arrived at the stage of ‘*normalization*’, namely when it is used without our being consciously aware of its role as a technology, as a valuable element in the language learning process” (p.23). Bax finally points out that there is still an element of fear and exaggerated expectations surrounding ICT that need to be overcome in order to obtain a state of normalization (Chambers and Bax 2006; Bax 2012). This concept will be actively examined during the data analysis of this research exploring if CALL is naturally integrated in teaching practices in the same way that we have Book Assisted Language Learning (BALL) or Pen Assisted Language Learning (PALL). Many authors have been approaching and supporting the concept of normalization within the wider discussion on the role technology should play in language learning (Allford and Pachler 2007; Lamy and Hampel 2007; Spencer-Oatey 2007; Hansson 2008; Levy and Stockwell 2013), offering interesting perspectives: “working towards a normalization is a useful practical strategy. Language teachers are very much working within a complex system of opportunity and constraint. Normalization then becomes a process of understanding the infrastructure, the support networks, and the materials, and working effectively within them” (Levy and Stockwell, 2013: 234).

On the contrary, others argue that while this notion is very seductive, it brings CALL practitioners towards a natural extinction resulting in CALL becoming an invisible field (Hubbard 2008). Throughout the history of CALL it is suggested that the

computer can serve a variety of uses for language teaching and learning. It can be a tutor which offers drills and skill practice, it can be a stimulus for interaction and discussion, a tool for researching, writing, communicating globally and a source of authentic material but as Garret (2009: 75) stated: “the use of the computer does not constitute a method [rather it is a] medium in which a variety of methods, approaches, and pedagogical philosophies may be implemented”. Therefore, the effectiveness of CALL resides in the way it is used and integrated into pedagogical practices. Having outlined the three phases of CALL, the following section attempts to define the actual status of CALL in a putative fourth phase and to explore the uses of CALL through the different dedicated and repurposed tools.

2.10.3 A fourth phase for CALL

The three phases (behaviourist, communicative and integrative) outlined above provide a general timeline for the history and development of CALL. Each new stage corresponds to movements in language learning theory, indicating the tools being used and the different pedagogies adopted. The twenty-first century seems to introduce a new fourth phase where the advances in digital technology, the development of Web 2.0, the reduction in size of computer hardware and the increased connectivity are making a strong impact on society. Warschauer (1998) was the first one to suggest a fourth stage of CALL named “Intelligent CALL”. Intelligent CALL comprises multiple media with a user friendly interface and implies intelligent software products which would provide context and data simultaneously. In this fourth phase, local networks are enabled and various online possibilities are offered. Furthermore, intelligent CALL implies the development of a new technological skill which is electronic literacy. This skill involves online reading and writing in order to enable students to create their own online texts. This skill, among others acquired with technology under teachers’ guidance, allows learners to become more autonomous, active and conscious participants of their own learning (Warschauer and Healey 1998; Warschauer 2000). This seems to be the anticipation of what has happened in more recent years. In the last fifteen years in fact, the Internet has changed enormously,

experiencing an increase in speed, a decrease in cost and becoming, in this way, an integral part of everyday life (Andersen 2007).

This development allowed the Internet to enter into a new stage, the Web 2.0 one. The term “Web 2.0” was officially coined in 2004 by Dale Dougherty, the vice president of O’Reilly Media Inc. (company famous for its technology-related conferences and high quality publications) during a brainstorming session on a potential future conference on the Web (Andersen 2007; O’Reilly 2009). Web 2.0, characterized by greater user interactivity and collaboration, more pervasive network connectivity and enhanced communication channels, has been most commonly defined by its contrast with the concept of Web 1.0. In the first stage of the Internet in fact users played a more passive role, simply viewing and downloading information (McLoughlin 2007). Web 1.0 tools included email, chat rooms and discussion boards. On the contrary, users of Web 2.0 consume, create and manipulate content while collaborating with each other. Web 2.0 offers a wide range of tools going from social network platforms (such as *Facebook*, *My Space*), to open source sites (such as *YouTube*, *Ustream* and *Flickr*) together with different authoring tools (such as *Twitter*, blogs and wikis). The proliferation of these online platforms offers the potential for language skill development and the invaluable opportunity to use language in contexts that are immersive and authentic (Sykes, Oskoz et al. 2013). Therefore, developments in CALL and in the related areas (such as Mobile assisted language learning –MALL-; Computer Mediated Communication - CMC-; Massively Multiplayer Online Role-Playing Games – MMORPGs- and Synthetic Immersive Environments -SIEs) seem to outline perfectly the fourth phase of this discipline where language learners and language instructors are equipped with complex and sophisticated applications which lead to growth opportunities and advantageous learning experiences for language learners (Godwin-Jones 2011; Keengwe 2014). What follows is an overview of some of the most widely-used technology repurposed tools by language teachers in the educational environments targeted for this research as these tools continue to influence how today’s educators perceive, define, and teach second language acquisition.

2.10.4 Appropriated and Repurposed technological tools for language acquisition

Since the end of the last century, second language acquisition has been experiencing an important shift moving from a cognitive orientation to a more social one, from closed classroom settings to more open and naturalistic ones, and from L2 learning to L2 use (Firth and Wagner 1997; Block 2003; Johnson 2008). This shift seems to be in perfect alignment with the developments of technology tools and applications over the years. Basic applications (such as Word, Excel or Power Point) and particularly Web 2.0 tools have transformed the way students approach their learning and the way teachers deliver their knowledge offering that crucial change where ease of participation, collaboration, information sharing and communication are the core elements of learning. Research shows that the applications of Web 2.0 technology in many L2 learning contexts has transformed the conception of language acquisition, curriculum design and teaching pedagogy (Warschauer and Grimes 2007; Sturm, Kennell et al. 2009; Sykes, Oskoz et al. 2013). Web 2.0 tools offer language learners the potential for a collaboration-orientated and community-based language environment. In addition, the language learning environments afforded by Web 2.0 technologies seem to have expanded the scope of enquiry on technology and language learning focusing not only on the traditional four language skills (listening, writing, speaking and reading) but also on new literacies, culture, peer feedback, interaction, discourse, knowledge construction, communication skills and comparison of instructional methods (Warschauer 2004; Murray, Hourigan et al. 2005; Lomicka 2009). Some of the tools extensively in use in education are outlined in Table 2.7 together with their affordances.

Tools	Affordances
Blogs	reflection; self-expression; affect; collaboration
Wikis	authoring; flexibility; co-construction of knowledge; active participation
Forums	reflection; evaluation
Chat	affect; social presence; group cohesion
Twitter	sharing; concise language use; part-technological, part-social
Social network sites (e.g. Facebook)	participatory learning; autonomy; affect; community building
You Tube	student led; agency; integrated skills practice
Podcasts	authentic listening; autonomy (iPods)
Skype	authentic communication; collaboration, multiple discussion
Digital Games	active participation; identity formation; meaning negotiation

Table 2.7: Murray, Riordan (2012), Social Mobile 2.0 Conference, Digital ELT Ireland.

Rather than focusing on one specific tool, this research illustrates how the applications available in the targeted educational environments are employed for language teaching and learning. Therefore, it is important to provide specific and further details on those tools, explaining also the concepts of appropriation and repurposing behind them.

- **Blogs**

This web-based social networking tool is very popular in secondary and tertiary level institutions due to its collaborative nature. Studies indicate that blogs cannot only develop students' writing skills but, as electronic journals, can also enhance students' reflective abilities and critical thinking (Efimova and Fiedler 2004; Kajder, Bull et al. 2004; Godwin-Jones 2005; Murray and Hourigan

2008; Hourigan and Murray 2010). Blogs provide students with a flexible platform where they can share thoughts and ideas within the learning environment allowing them to also continue the discussion outside of class. For teachers, blogs represent a way to engage their students in a more interactive and authentic way facilitating collaboration while developing a sense of community (Ray and Hocutt 2006).

- **Wikis**

According to Grant (2009), this is an effective Web 2.0 tool for collaboration in writing. One of the main differences between a wiki and a blog is that while bloggers can contribute to a blog, they cannot edit the author's post. On the other hand, contributors to a wiki can edit any other contributors' content. For its very nature: "wiki technology made it a natural fit for collaborative student projects. Students writing projects also benefitted from being able to see each other's work, and from having an efficient way to bring additional Internet resources into their projects" (Peterson 2009: 27).

- ***Twitter***

Twitter is described as a social networking and microblogging platform that users like to use for short messages of 140 characters in length (Tweeternet 2011). The short format allows, for example, a unique and easy way of communication between teachers and students, students and students in the same class, and students and students in another country. Through this tool, users are able to look for and share information, be (co-) creative and socialize in synchronous or asynchronous ways. *Twitter* can also be used for asking questions and getting instant points of view to scrutinize and discuss. For teachers, *Twitter* allows them to boost task-based, collaborative and interactive learning (Dervin 2012; Lamy and Mangenot 2013)

- **Social Network sites (i.e. *Facebook*)**

This on-line social network service has hundreds of millions of users and it is an enticing way for students and teachers to form an on-line community

(Mazer, Murphy et al. 2007; Hew 2011). *Facebook* provides a variety of applications within the platform including the exchange of private messages, chat, posting and sharing videos, photos, links, joining groups in which users share similar interests. The very nature of the site is rooted in community building, social networking and interpersonal relationships which, according to Garrison and Kanuka (2004), are all necessary elements to sustain a dynamic and meaningful educational experience over time and is a valuable asset to promote higher level thinking and the construction of knowledge. Furthermore, socio-pragmatic awareness can be boosted by using the tool in pedagogically meaningful ways (Blattner and Fiori 2009).

- ***YouTube***

YouTube is a video sharing website. The videos available on *YouTube* can serve many purposes for language learners and teachers as it provides linguistic and cultural content and information related to the target language (Duffy 2007). Through this platform students can, for example, create and edit language-based videos while collaborating with each other and the teacher. Utilizing *YouTube* videos in an informative manner is considered to be beneficial for illustrating a concept, presenting an alternative point of view, and stimulating and motivating students' activity (Berk 2009).

- **Podcasts**

This is a digital medium that consists of an episodic series of audio, video, digital radio or ePub files available on-line to download or to stream. Podcasting is widely utilized in language learning both to access authentic content and record it (Stanley 2006; Rosell-Aguilar 2007). Developing a podcast for language learning or teaching is said to be like planning a syllabus as there are quantitative elements to consider (such as how many lessons, how much time per lesson, what and how much material has to be covered) and qualitative ones as well (the appropriate level of the language, the goals, objectives and needs of the learner) (Chartrand 2012).

Appropriation and *Repurposing* are two concepts which have been discussed in some depth in the context of new technologies. It has been argued that the concept of Appropriation is strictly related to creativity; users in fact create new and distinct ways of employing technological tools, taking in this way distance from what those tools have been originally designed and developed for (Degele 1997). Some years later, in the context of IT use among organizations, Appropriation has been described as “technologies-in-practice” (Orlikowski 2000) and similarly Waycott (2005) defined Appropriation as the process of integration of new tools into users’ activities. More recently Hemmi et al (2009) used the term Appropriation to describe the use of social technologies in the educational context. Jones and Twidale (2005) added further details describing specifically two types of Appropriation: (1) the Serendipitous Appropriation which is the uses aroused from spontaneous activity and (2) the Goal-Orientated Appropriation where the user selects a specific technology in order to attain a defined goal.

Regarding the Repurposing concept it has been argued that “pedagogic repurposing” is an important aspect of teachers’ expertise (Fill, Leung et al. 2006); hence practitioners, working both on a technical and content level, should equip themselves with skills and *ad hoc* knowledge that would help them to repurpose technologies in order to successfully integrate them into their educational practice (Fill, Leung et al. 2006; Hemmi, Bayne et al. 2009). Bond et al. (2008), described Repurposing as the process of modification of both content (repurposing to incorporate substantively new content) and learning design (repurposing in changing the way the resource is used).

Repurposed digital tools represent an intriguing and incomparable resource for today’s students and teachers as they grant a: “wealth of functionality at a very high level. The exploitation of this functionality offers a high potential for the future of technology-enhanced learning. However, it is important not to forget that even if technology can be inspiring, the main focus in e-learning should still lie on the needs of the learner” (Ulrich et al., 2008: 713).

2.11 SUMMARY

Seen as a whole, this chapter has reviewed the relevant literature on ICT and language learning in order to provide the fundamental background and the needs of this study. It has been discussed how the role and the contribution of ICT into the educational field help to list many, if not all the barriers that limit its full integration. The changing roles of today's students and teachers have been analysed together with all the policies and initiatives that defined the role of ICT in the Irish education setting. In order to move to the language learning area and link it to ICT, a review of the literature of CALL was presented focusing on the different phases of this discipline and the tools in use. The following chapter will focus on Irish and Italian languages as L1/L2 taught and learnt in Irish secondary schools. Their historical background, current status and related government strategies will be analysed in depth in order to provide additional detailed contexts for the actual research study and to allow an appropriate discussion of the findings in the following chapters (Chapters 5 and 6).

CHAPTER 3 - IRISH AND ITALIAN LANGUAGE LEARNING AND STATUS IN IRISH SECONDARY LEVEL ENVIRONMENTS

A different language is a different vision of life

(Federico Fellini)

3.1 INTRODUCTION

This chapter provides an overview of Irish and Italian languages which represents the means through which ICT integration in secondary schools will be investigated in this research. Before approaching the research methodology it is therefore essential to analyse both languages in their historical background, their issues and positions within the two countries and Europe in general. In this chapter, the researcher also attempts to compare critically the two languages and to describe their current role and status in the Irish secondary level education system.

Irish language, *An Ghaeilge*, is the first official language of Ireland and English is recognised as the second official language. However, English is spoken by the vast majority of the population being the language of daily use. According to a survey carried out in 2007 (Greil 2009), 7.8% of respondents considered themselves to be fluent or very fluent in Irish; this corresponds to about 357.000 people out of a total population in the Republic of Ireland of 4.58 million. Irish language is a compulsory subject in school during the period of education that goes from 6 to 16 years of age and Irish medium schools (*Gaelscoileanna*), in which all subjects are taught through Irish, are widely spread in the country having experienced also a rapid growth in the past years (Hinton and Hale 2001; Kelly 2002; Chríost 2004). This unique and controversial status of the language will be analysed in some depth in the following paragraphs but it can be already anticipated that it has profound effects on the issue of the teaching of other languages as well as its own status.

The study of a foreign language is not compulsory in the Irish secondary school curriculum nevertheless a large majority of students study a foreign language for at least part of their time in schools. Italian is one of the modern languages available in Irish schools. Although the language enjoys very positive attitudes among Irish people, it is not widely taught and available in many secondary schools. Over the years, Italian has experienced mixed fortunes as regards its place in Irish education being the focus of attention, together with other languages, of government initiatives and new programmes (Little 2003; Lasagabaster and Huguet 2007). Because of its unique nature as an L1/ L2 and FL, the two targeted languages provide an exceptional setting and invaluable perspective from where we can look at and compare the different attitudes when using technology for teaching and learning.

3.2 IRISH LANGUAGE IN THE REPUBLIC OF IRELAND: L1 OR L2?

Yu Ming is ainm dom (“My nam is Yu Ming”) is a short movie that describes in a simple and very fascinating way the unique status of the Irish language. The main character of the movie is a young Chinese man who has studied Irish for six months as he planned to move to Dublin. Once there, he starts to speak Irish discovering straight away that almost anybody can not understand him. An Irish speaking man explained to him that despite the bilingual signage visible across the city, Irish is not spoken there and English is the main language. You Ming, amazed by this, find himself unable to communicate with the majority of people he meets, he decides then to move to the *Gaeltacht* region (this is an Irish language word which is used to indicate an Irish speaking region) where he finds employment and manages to settle down. This short movie explains in simple words the very interesting yet controversial Irish language issue. The Irish language is in fact spoken as a first language by a small minority of Irish people and as a second language by a much larger group. Article 8 of the Irish Constitution (Kelly 1984), *Bunracht na hEireann*, of 1937 makes the following statements:

1. The Irish language as the national language is the first official language
2. The English language is recognized as the second official language

Therefore, Irish is constitutionally recognized as the national and first language of the Republic of Ireland and as an official language of the European Union yet, when we look at the actual everyday interaction, English remains the first language. Historically, Irish was the predominant language of the Irish people for most of their recorded time but its fate was influenced by the increasing power of the English state in Ireland. Its decline began in the seventeenth century. At the end of the nineteenth century there was a dramatic decrease in the number of speakers due to the Great Famine, when Ireland lost 20-25% of its population either to emigration or death. The Irish speaking regions were hit particularly hard by this tragic event. By the end of the English rule, the language was spoken by less than 15% of the national population. During this time, the Irish language revival started and, since the establishment of the Irish Free State in 1922, it worked actively with the government for the promotion of the Irish language. The Irish government's strategy for the revival of the language between the years 1922 and 1960 comprised a dual policy focused on maintenance and restoration, specifically maintenance of the spoken language in the areas where it was still a community language and restoration of the language through a reversal of language shift in all the other areas (Hindley 1991; Hinton and Hale 2001; Hutchinson 2012). The education system was considered the major tool through which such goals would be achieved. Later on, a third policy was added which focused on providing the necessary infrastructure for maintenance and revival. By early 1960, the overall results of those strategies were an increase of Irish speakers outside the *Gaeltacht* and a decrease of indigenous Irish speakers in the Irish speaking regions. Significant initiatives undertaken by the government to support and promote the language included also the establishment of Irish as a compulsory subject at primary and secondary level, the recognition as an official EU language and the creation of an official Irish standard named *An Caighdeán Oifigiúil* (Kelly 2002; Chríost 2004; Greil 2009). It is important to note that on one hand important initiatives were taken to support the Irish language, on the other there has never been an official policy in Ireland for the English language. As it was mentioned above, from the 18th century onwards, English started to replace

Irish as the language of business, trade, administration and education maintaining this invariable status over the years (Kallen 1988; Crowley 2005).

The part of the government responsible for the Irish language is the Department of Community, Rural and Gaeltacht Affairs. The Department constantly worked toward the support of the Gaeltachta region aiming for the extension of the Irish speaking area to the whole island. In this regard, two important initiatives were launched in the recent years: The Official Language Act (OLA) in 2003 (Irish Statute Book) and the 20 Year Strategy for the Irish Language in 2010 (Government of Ireland). The first aim of the Language Act was to improve the availability of Irish offering bilingual services within the government departments and public bodies. Private companies and semi-state bodies did not have to embrace this service. The Language Act represents the first phase of a new centralised language plan which aimed to ensure the legislative rights of Irish speakers and Gaeltacht communities. The objective of the 20 Year Strategy Initiative was to increase the use and knowledge of Irish as a community language. Specifically, “the government’s aim is to ensure that as many citizens as possible are bilingual in both Irish and English” (20 Years Strategy: 3). Furthermore, the aim of the policy was to:

- Ensure the visibility of Irish in the society.
- Provide support for the Gaeltacht region recognising the issues in this area where Irish is the household and community language.
- Enhance the use of Irish in public discourse and services.
- Support and increase the number of families who use Irish as the daily language of communication.

Throughout the document an important distinction is made between knowledge and use of the language and in that sense the Government seeks “to create positive circumstances for greater use by our people of the language ability that they have and for a real increase in that ability over time” (Ibidem: 7). Both documents, proposed also important areas of action in the education sector, among those a special focus was on reversing negative attitudes towards Irish language usage and on expanding the opportunities to use Irish within and outside the education system. Overall, the

documents and initiatives presented highlight the fact that the Irish language is not considered, even by policy makers, a language of ordinary communication except for the Gaeltachta region. It is also noted that parents recognize the invaluable cultural importance of the Irish language but they do not see the economic advantages in using it; this results in a very poor use of the language outside the education environment (Ibidem: 21). Hence, two controversial elements seem to characterize the Irish language issue: the constant support for the language preservation and the attitude indicating that Irish does not seem to have any practical value specifically in relation to the English language perceived, on the contrary, as a gateway to all forms of social and economic access. The support given to language is strongly linked to the concepts of culture and identity. As confirmed by Shadler (2005), the link between language and identity is valid both for a society's dominant language and a lesser used one. The very act of using a language may in fact make a strong statement in which its symbolism can be valued as high (or even higher) as its communicative element. Many sociolinguistic studies (Riagáin 1997; Greil 2009; O'Rourke 2011) demonstrate that the Irish language is an integral part of Irish identity.

The cultural, ideological and state-support is recognized to be very high even though the actual language use is very low, but it has been noted that there is no correlation between the language proficiency and its perceived value as identity-marker. When we look at the future of the language, Mac Greil's (2009) findings seem to be very relevant as they indicate that most people do not wish to see bilingualism in Ireland but rather would prefer to see Irish outside the Gaeltachta region as a cultural and added value thus leaving aside its practical function.

3.3 ITALIAN: LINGUISTIC DIVERSITY FOR LANGUAGE SUCCESS?

Italian is a romance language spoken as a native language by 59 million people in the EU (13% of the EU population) based specifically in Italy, San Marino and Vatican City and as a second language by 14 million people located respectively in Malta,

Slovenia and Croatia. Italian is also one of the three official languages spoken in Switzerland and it is widely used by minorities in Albania, Crimea, Eritrea, France, Libya, Monaco, Montenegro, Romania and Somalia and by expatriate communities in Europe, America and Australia (Lepschy and Lepschy 1998; Marazzini 2004). The Italian language has been characterized by complex historical circumstances in which linguistic diversity played an important role. Several historical minorities are situated in the north part of the country where borders have fluctuated over the years (Bavarian, French, Cimbrian, German, Slovenian, Franco-Provençal, Mochoeno, Preovençal and Walser) while in the centre and south the population have preserved the language of old foreign settlements (Greek, Catalan, Albanian, Serbo-Croatian). Furthermore, Italy has three recognized domestic minority languages (Friulan, Sardinian and Ladin). Italian, as the standard national language of Italy, was promoted and encouraged by the political unification of the country in 1861. At the time, Italian was spoken only by 2.5% of population while the rest spoke various dialects. The elegant ideal for spoken standard Italian was provided by the literature based on the model prose and the poetry of Florentine writers such as Dante, Petrarca and Boccaccio.

Despite the recognition of Tuscan as Italy's national language in 1861, the linguistic differences, heritage of centuries of political division and cultural diversity, could not be erased. However, the unification of Italy boosted an important transformation of the political, social, economic and cultural situation. The literacy rate increased with mandatory schooling and many speakers were able to take distance from their native vernacular in favour of Italian (Migliorini and Ghinassi 1961; Lepschy and Lepschy 1998; Maiden 2014). In 1946 a referendum introduced the Republic with a Constituent Assembly that issued a Constitution that came into effect on the 1st of January 1948. Few articles of the Constitution (Amorth 1948) deal with "Language rights" confirming that the principles of "language rights" secures the legal equality of citizens "without distinction of sex, race, language, religion, political opinions and personal conditions" (Article 3); another article safeguards language rights with regard to freedom of speech (Article 21, Part 1) while Article 6 refers specifically to minorities in the country "The Republic protects linguistic minorities with appropriate measures". In the second half of the 20th century with the advent of television, the literacy rate increased further as people were able to follow news and TV shows in which standard Italian was used and taught. This did not erase the many dialects of Italy that are still

widely spoken, but it certainly helped the expansion of an “official” language. It is important to highlight that dialects in Italy are not varieties of Italian but they are separate and distinctive vernaculars developed from Latin; in that sense, Italian is unique in Europe as there are relatively few monolinguals and it is the first language of about 50% of its speakers (Malfatti 2004; Berruto 2005).

Over the years and according to the historical events, Italian has been influenced by different languages such as Spanish, French and English and it has adopted and “Italianised”, in some cases, their words. Many Italian words from different fields such as Art, Music, Architecture, Food, Cinema and Theatre were also successfully integrated into other languages through emigration and other cultural phenomena (De Mauro and Vedovelli 1994). The recent history of Italian (1861-2015) is characterized by many challenges and developments that can be compared, in some cases, to those faced by Irish and other European languages. Among those, it can be noted the strong need for a language planning and *ad hoc* policies to support a more effective promotion of Italian language and culture inside and outside the country. It has been argued that Italy, either because of the quite recent unification or its political reluctance, has never invested much in language promotion, except for the nefarious Fascist attempts. In this regard, two areas appear to be in need of special attention: the one related to the position of Italian in a multilingual Europe where the competition with “major” international languages such as English, French, German and Spanish is very challenging and the one concerning the spread of the language in the New World, particularly in English speaking societies. Therefore, language policies and investments would have important impacts on the role Italian plays within the national and international communities (Coulmas 1991; Tosi 2001).

3.4 COMPARING IRISH AND ITALIAN LANGUAGE

As described in the above paragraphs, Ireland and Italy present very different historical backgrounds, but there are some similarities regarding of their language status that need to be addressed:

- both countries are members of the European Union;
- they are experiencing an increasing influence of English (the lingua franca in the modern global economy) as the result of their role in the European Union;
- they are both experiencing pressure from the European Union in the context of minority languages, linguistic rights and related regulations;
- they have both demonstrated the importance of bottom-up development strategies as opposed to top-down.
- they have been concerned with spreading literacy for language policy development.

In very different ways, the two countries are trying to assert their national language. Ireland is struggling to enhance and reinforce the use of Irish which is being overwhelmed by the English language while Italy, being characterized by a strong linguistic and cultural diversity, is struggling to successfully develop and promote a strong national language. In both countries the education sector plays the major role in disseminating the language changes throughout the population. Overall, the active involvement of the population is considered essential as “language policy and development is inherently a political activity” (Kaplan 2007: 20).

3.5 LANGUAGES IN SCHOOL

During the compulsory schooling period that goes from 6 to 16 years of age, pupils have to study two languages, Irish and English. As was mentioned above, the language of instruction in Ireland is English but there are exceptions represented by two Irish speaking environments: the *Gaeltacht* and the *Gaelscoileanna*. On the one hand the Gaeltacht refers specifically to all the districts where the government recognizes the Irish language as the predominant vernacular. Gaeltacht councils receive grants and

subsidies from the government in order to maintain the use of the language (Walsh, McCarron et al. 2005). On the other hand, Gaelscoileanna refers to Irish-medium schools outside the Gaeltacht region. Students in the Gaelscoileanna acquire Irish through total language immersion, all subjects are in fact taught through the medium of Irish. According to studies and reports (Harris and Murtagh 1987; National University of Ireland and Giollagáin 2007; Giollagáin 2008), Gaelscoileanna seem to produce very competent Irish speakers whereas English-medium schools produce relatively few fluent Irish speakers, despite the fact that Irish is a compulsory subject. One of the main reasons for this appears to be the lack of Irish-language immersion programmes. In this regard, the present government has promised important reforms for the curriculum and teacher training in English-medium schools (Government of Ireland, 2013). It is important to highlight that for the vast majority of pupils Irish is not spoken outside the school environment including their family homes, and in that sense the learning process can be compared to the one of any foreign language.

Government initiatives mentioned in the above paragraph have implemented the pedagogical instruction of Irish in schools. In the past years, a revised syllabus in Leaving Certificate Irish was introduced in all schools for initial examination in 2012 and it was designed to provide increased oral interaction in the classroom and to allow for an increase to 40% in the marks for oral assessment (NCCA 2003; Ireland 2010). Overall, syllabuses and examinations recognize the importance of oral communication focusing also on reading and writing skills while listening often receives less attention. A study conducted in 2000 (DES) on students' metalinguistic skills and strategies highlighted that some learners were not aware that Irish was taught as a modern language, as they did not have any experience of pair and work group for example (even though these activities are recommended in the Department of Education and Science' guidelines), students did not realize they were learning a language during their Irish classes preferring to spend a lot of time on rote learning. The fact that the study of English and Irish is mandatory in schools has profound effects on the range of languages that the school can offer and on the way these languages are integrated and taught (Devitt 1998). Furthermore, historical, cultural, psychological factors addressed in the above paragraph, affect greatly the way Irish language is taught and attitudes students have when learning it.

Ireland together with Scotland is the only European country where the study of a foreign language is not compulsory at any stage of the educational curriculum, nevertheless at least one language other than Irish and English is studied by most students in their schooling time. This is partially due to the fact that a third language is required to access each of the four constituent universities of the National University of Ireland, even though in the recent years this rule was made more flexible. Competence in a third language is not required to access programmes in the remaining universities except for those programmes where a particular language is studied at an advanced level. No post-primary school is obliged to offer a third language, although many schools have the availability of at least one third language (RIA 2011). There are four modern languages, apart from Irish and English, more commonly taught in Irish second level schools: French, German, Italian and Spanish. For historical reasons, French has been the dominant language taught at post-primary level since the nineteenth century, with the result that it has traditionally been the language most studied at third level. Because of this, Italian, Spanish and German lag far behind in numbers. Micheál Martin, the minister of Education and Science from 1997 to 2000, concerned about the growing hegemony of French, created a programme to diversify and promote the offer of languages in schools.

This initiative was very important for Ireland and Europe as well, as until then, no other European Government had intervened in order to ensure a wide selection of languages available to students (Nic Pháidín and O'Ceirnaigh 2008; RIA 2011). In 2000, implementing Martin's programme, the Post-Primary Language Initiative (PPLI) was officially launched by the Department of Education and Science under the National Development Plan 2000-2006, and continued under the National Development Plan 2007-2013 (Morgenroth and Gerald 2006; RIA 2011). The initiative focused on expanding and diversifying language teaching in post primary schools, addressing specifically Spanish and Italian and also introducing new languages such as Russian and Japanese. The initiative produced a good amount of valuable teaching and promotional materials (such as the first Italian Leaving Certificate textbook, published in November 2010) in order to gather interest around those languages. Schools taking part in the initiative could apply for extra funding to avail of specialized teachers and to purchase pedagogical material. New programmes in teacher education were also set up, including a Postgraduate Diploma in language

and teaching methodology. While this important initiative brought attention to the foreign language issue, reports show an interesting and sometimes unexpected indication of trends in language study in the Irish secondary sector. In 2010, the large majority of students (50.6%) who sat at the Leaving Certificate took French as foreign language, while 13.4% took German, 6.7% Spanish and approximately 0.5% Italian (State Examination Commission 2010). These figures show the existing disparity between languages, although when we look and compare the results over the years we can see how the French and German percentage has fallen, Spanish experienced a varying fortune and Italian had a marginal increase. As shown in the tables below (Tables 3.1, 3.2, 3.3, 3.4), the numbers of schools now offering Italian has slightly increased if compared with 2007 figures, while the opposite movement has occurred for German, French and Spanish. However, there is still a big gap between Italian and the other languages when it comes to students taking Italian at the Leaving Certificate.

Regarding the syllabuses for foreign languages it is important to note that they share a common framework both at Junior and Leaving Certificate level. The Junior Certificate framework introduces general educational and communicative topics related to relevant grammar and linguistic activities which are carried out and deepened in the Leaving Certificate framework. The latter also contains sections on language and cultural awareness which are developed as a series of general activities and themes. In their general structure, syllabuses for foreign languages seem to be strongly committed to the communicative aspect of teaching and learning.

Overall, the important fact has been acknowledged that students can now sit examinations in a wider range of curricula and non-curricula language subjects and that they are instructed in a more communicative way rather than a rote one (as was often the case for Irish) (RIA 2011) but it is important also to note that, unless actively promoted and continuously supported in the curriculum, foreign languages can easily experience a huge decrease in interest and consequently in student numbers.

Category of School	Total	Single Schools		Mixed Schools	Within Schools		
		Boys	Girls		To Boys Only	To Girls Only	To Both Sexes
Subject							
1.French.. .. .	89	16	7	66	3	5	58
2.German.. .. .	20	5	2	13	3	0	10
3.Spanish.. .. .	17	3	3	11	0	1	10
4.Italian.. .. .	2	0	1	1	0	0	1

Table 3.1: Number of second-level schools providing modern languages ab-initio at senior cycle¹ (Statistical Report 2007-2008)

Category of School	Total	Single Schools		Mixed Schools		Within Mixed Schools			
		Boys	Girls	Boys	Girls	Provided to Boys only	Provided to Girls only	Provided to both sexes of which	
Subject								Boys	Girls
1.French.. .. .	2,001	359	71	1,144	427	15	7	1,129	420
2.German.. .. .	412	49	19	250	94	19	0	231	94
3.Spanish.. .. .	503	81	49	260	113	0	2	260	111
4.Italian.. .. .	16	0	5	5	6	0	0	5	6

Table 3.2: Number of second-level students taking modern languages ab-initio at senior cycle (Statistical Report 2007-2008)

¹ The ab-initio study of modern languages in senior cycle was introduced in 1989-1990 to cater for senior cycle pupils who wished to begin the study of a language ab-initio but were not in a position to take on the Leaving Certificate course in that subject.

Subject Code	Subject	ALL SCHOOLS	Single Sex Schools		<i>Mixed Schools</i>	Within Mixed Schools		
			Male Students	Female Students		To Male Students Only	To Female Students Only	To Both Sexes
10	French	84	18	10	56	7	1	48
11	German	18		1	17	4	2	11
13	Italian	3			3		1	2
12	Spanish	16	2	2	12	1	1	10

Table 3.3: Number of second-level schools providing modern languages ab-initio at senior cycle (Statistical Report 2013-2014)

Subject Code	Subject	All Students	Single Sex Schools		Mixed Schools		Within Mixed Schools		Provided to Both Sexes Within Mixed Schools	
			Male Students	Female Students	Male Students	Female Students	To Male Students Only	To Female Students Only	To Male Students	To Female Students
10	French	2136	328	74	1286	448	56	2	1230	446
11	German	446		6	277	163	7	4	270	159
12	Spanish	438	40	35	242	121	1	22	241	99
13	Italian	68			49	19		4	49	15

Table 3.4: Number of second-level students taking modern languages ab-initio at senior cycle (Statistical Report 2013-2014)

3.6 SUMMARY

This chapter has described the historical background and the current status of the two languages targeted for this research: Irish and Italian. Although very different in their educational and cultural developments the two languages present some important similarities. The analysis of the Irish post-primary education system and the role of Irish and Italian within this context allow the reader to understand the setting where this study took place. The following chapter will focus on the research methodology used to design this study describing specifically the procedure through which data and its related analyses were conducted.

CHAPTER 4 - METHODOLOGY

Research is formalized curiosity. It is poking and prying with a purpose.

(Zora Neale Hurston).

4.1 INTRODUCTION

This chapter presents the methodological approach employed for this study in order to provide a detailed setting for the data and its analysis. The following sections describe the methodological techniques employed, the context and the data collection methods and the issues concerning reliability and validity. The final paragraph delineates ethical principles in relation to the study.

The research problem identified in this study was the lack of empirical evidence when it comes to investigating the role, uses and approaches to technology for language learning in secondary level environments. This study contributes to filling this gap through the investigation of two languages studied in Irish institutions as L1/L2: Irish and Italian. Because of their unique linguistic status, the two languages represent an original conduit through which technology, pedagogies and learning attitudes can be observed and analysed. Furthermore, Prensky's claim, which defines allegedly today's technological rich environment, is challenged here providing empirical data that validate or dispute students' and teachers' categorization as respectively Digital Natives and Digital Immigrants. This is done in order to empirically analyse and discuss the digital attitudes and skills participants may have when using technology for educational purposes.

The specific research questions that have been investigated to address these issues are:

1. How strong and is the use of technology in secondary level institutions and what are the teachers' and students' attitudes toward technology?
2. What are the impacts and challenges for Irish and Italian language teachers when integrating ICT into their practice? How are technologies used in the language classes and to what extent?
3. Does the current evidence resulting from this study validate or dispute Prensky's digital natives-digital immigrants claim?
4. Do the students feel comfortable in using new technologies and Web tools within their language learning experiences in school and out of school? How do the students' skills, as allegedly digital natives, work in relation to their language learning processes?

The research design and methodological approach used to obtain and analyse the research data are described in the next section.

4.2 THE MIXED-METHOD APPROACH

This study employed a mixed-method approach which aims to describe contexts (presence of ICT in schools), analyse behaviours (how teachers integrate ICT) and understanding perceptions and digital status (perceived impact of using ICT in supposedly digital savvy students) as a consequence of certain actions. Therefore, through the participants of this research and their ideas, attitudes and acts it is expected to provide a critical and objective measure of a phenomenon. This type of mixed approach is becoming more and more adopted in social research (Denzin 2012; Gray 2013) and it was considered the most appropriate approach given the environment where this study took place. In fact, as this research was conducted in secondary level institutions, having both students and teachers as participants, was conducted within in a limited amount of time and as the researcher was not professionally involved in the

schools' life ruled out other types of research (i.e. action research, longitudinal research), therefore suggesting the suitability of the mixed method approach.

The mixed-method approach has been defined as: “the collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of data at one or more stages in the process of research” (Creswell, 2007: 212). Most researchers agree that mixed method research combines quantitative and qualitative methods. In fact, if quantitative research allows us to identify relationships between variables and to make generalizations, qualitative research enables researchers to analyse concrete cases in their: “temporal and local particularity” (Flick, 2009:13) starting from people’s ideas and actions set in a specific context (Gray 2013). Mixed-methods research adopts a pragmatic approach where the knowledge is seen as socially constructed and based on the reality of the world we live in. This mode of research uses induction to identify patterns, deduction to test theories and hypothesis and abduction to select the best explanations in order to understand the results (Johnson, Onwuegbuzie et al. 2007; Gray 2013). Table 4.1 offers an overview of how the mixed-method approach is applied in research.

Types of mixing	Comments
Two types of research questions	One fitting a quantitative approach and the other qualitative
The manner in which the research questions are developed	Pre-planned (quantitative) versus participatory/emergent (qualitative)
Two types of sampling procedures	Probability versus purpose
Two types of data collection procedures	Surveys (quantitative) versus focus groups (qualitative)
Two types of data analysis	Numerical versus textual (or visual)
Two types of data analysis	Statistical versus thematic
Two types of conclusions	Objective versus subjective interpretations

Table 4.1 Mixed- method approach applied in the research (Gray, 2013:196)

Greene et al. (1989) identified five main purposes of using a combination of methods, respectively: Triangulation, Complementary, Development, Initiation and Expansion.

Triangulation means combining in one research qualitative methods or qualitative and quantitative methods together (Gray, 2013). The term was coined by Webb et al. (2000) who stated that two or more independent measurement processes reduce greatly the risk of wrongly interpreting data. Triangulation methods are divided in *within-methods*, where multiple quantitative or qualitative methods can be used, and *between-methods*, where both qualitative and quantitative methods are involved. The latter is described as the most powerful as bias of one method could be balanced by the other (Denzin 2012). On the other hand, a complementary mixed method approach means using qualitative and quantitative methods to measure overlapping but also different aspects of a phenomenon. This is different from Triangulation which employs different methods to assess the same phenomenon (Gray, 2013). The Development approach uses the results of one method to inform and develop the second while the Initiation approach uses mixed methods to reveal new perspectives and possible contradictions of a phenomenon. In this case, new insights may be generated leading to a possible reconsideration of the research questions. Finally, Expansion approach employs mixed methods to broaden the range of a research study (Gray, 2013).

This study made use of Triangulation as several qualitative and quantitative methods were combined. The participants of the study completed questionnaires and they were also, in a second phase, interviewed. The answers from both data sets are combined and compared here. As Flick (2009) argues, combining methods allows for one method to compensate for the weaknesses of the other, but the different methods remain perfectly autonomous, operating side by side.

In this research, the qualitative and quantitative parts were conducted quite independently; specifically, quantitative elements were carried out and analysed before the qualitative ones. “Different methods could be used to address the same research questions or focus on different aspects of the research” (Gray, 2013: 202), and this is the instruction this study has followed. Hence, research questions were approached firstly with questionnaires and then interviews and classroom observations served to inherently deepen and expand them (Initiation method > Expansion method).

4.3 SELECTING THE POPULATION OF THE STUDY

Considering and planning the sampling population for this study was an essential and delicate phase. As Gray stated (2013: 208) “the careful sampling of participants and data sources is a key component of any research study”. The selection of the sampling strategy needs take into consideration various aspects of the research including the purposes, the methodology, the design, the constraints and the timeline. Because this research aims to investigate two specific languages (Italian and Irish) and the use of ICT within language teaching, a purposive sampling strategy was adopted to select the population. Specifically, the researcher selected two schools in the same county where both languages were available and different ICT orientations were in use. As confirmed by Gray (2013), the purposive sampling was therefore used: “when particular people, events or settings are chosen because they are known to provide important information that could not be gained from other sampling designs” (Ibidem: 207).

The sample size is another issue that was taken into consideration for this project. The researcher tried to understand how many participants a study should have in order to be considered valid, reliable and well balanced. Following researchers’ guidelines, this study adopted a non-probability sampling strategy as it aims to describe a specific group of learners and their teachers avoiding any wider representation. It is recommended that a qualitative non-probability sampling contain not less than thirty participants, especially if the researcher intends to conduct statistical data analysis. For this reason it was decided to sample two classes of students for each school (3rd and 5th year for a total of 77 students) and their Italian and Irish language teachers (6 teachers in total, 3 for each school). When determining sample size, the possibility was considered that many participants could refuse to take part in the project or withdraw at a later stage.

4.3.1 Information about the participants

After having explained the criteria for choosing a specific population for this study, it is important to provide further details about the participants themselves and the setting where this project was investigated. The study was conducted in two secondary schools both located in the Munster region, Republic of Ireland. The first school, named for privacy reasons as *School A*, is a mixed community school (as a type of secondary school funded individually and directly by the state where there are both male and female students) that accommodates 900 students and a staff of almost 70 people. School A offers progressive educational programmes focusing particularly on science, languages, Information and Communication Technology and an overall commitment to innovation and heavy use of ICT in their pedagogies. They even go so far as to use a "flipped classroom" approach in many of their classes (Berrett 2012; Houston and Lin 2012). The school is well equipped with overhead data projectors in each classroom and facilities to charge and connect technological devices such as *ad hoc* desks. The majority of students here are equipped with notebooks or tablet computers as are all of their teachers.

The second school, named *School B*, is a Catholic female school, where the number of students exceeds 400, and the staff includes more than 40 people. In School B, the environment and the teaching reveal a more traditional book-based approach with small class sizes, a close teacher-student relationship, and limited access to one single computer lab for all classes. Some of the classrooms are equipped with overhead data projectors but the classrooms are not adapted to the daily use of technologies.

The participants of this study are third and fifth-year students (3rd Year: age 14-15; 5th Year: age 16-17) together with their Italian and Irish language teachers; specifically, regarding the instructors, three teachers for each school have been participating in this project: in School A 1 Italian teacher, 1 senior Irish teacher and 1 teacher of both Irish and Italian whereas in School B 2 Irish teachers (of whom 1 is senior) and 1 Italian teacher.

The data below provide a visual description about the participants, respectively figure 4.1 outlines the setting and the population of this study while table 4.2 shows a

breakdown of the students participating in the project according to their schools and schooling years.

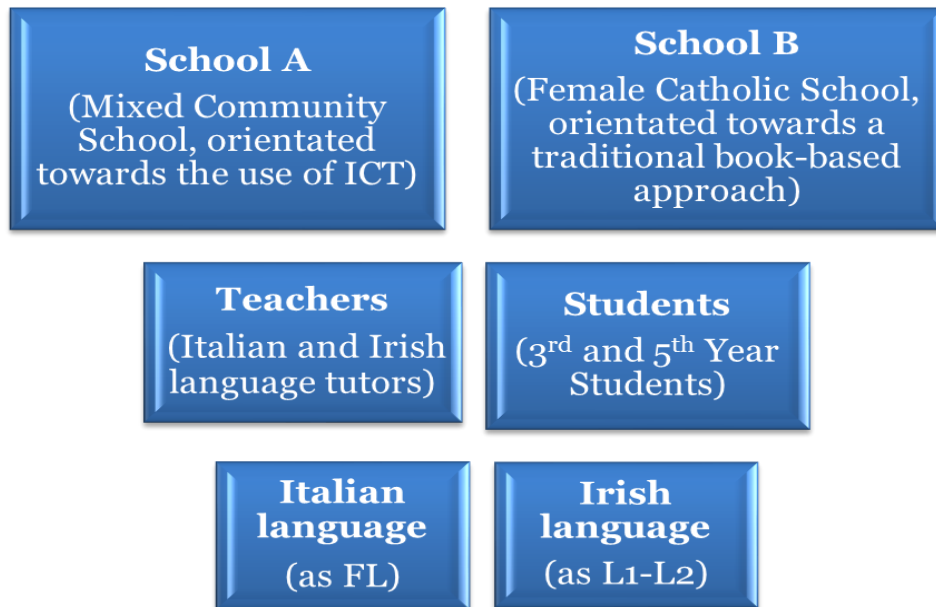


Figure 4.1: Participants and Setting of the study

Count of Year			
	School A	School B	Grand Total
3rd	9	29	38
5th	32	7	39
Grand Total	41	36	77

Table 4.2: Breakdown of students' participants

4. 4 EMPIRICAL STUDY TIMELINE

This study started in May 2011 and progressed through various phases over the years. The first pre-study phase started by deepening the topics the researcher decided to embrace during the PhD proposal. The experience as an Italian language teacher facilitated and enhanced the curiosity in investigating ICT and language teaching and learning approaches. Specifically, being an Italian living in Ireland, allowed the researcher to investigate Italian as a foreign language but also to approach Irish language pedagogy and status. Irish has always been a topic of profound interest for this researcher and having the possibility to investigate *in loco* the history and the pedagogy of the language was an invaluable experience. Furthermore, being a foreigner who has studied for the first, second and part of the third cycle in Italy, enabled the researcher to approach the Irish educational system with a very different perspective and reduced bias both perceived and actual. That is, as perceived by the participants and actualised by this researcher.

This initial phase led to the proper first-targeting phase where a literature review related to this study was developed. This involved reading articles, books and reports on CALL, SLA, digital issues, Irish and Italian language backgrounds and educational policies in Ireland. Step by step the literature review allowed the researcher to reflect on how those topics were approached and discussed by others and what kind of evidence has already been gathered. As a consequence, precise research questions were formulated and an appropriate research methodology was developed. The following phase was characterized by the targeting of the schools. This process lasted for a few months and it was particularly challenging as the researcher aimed to target schools with very different ICT orientations and where Italian language was offered (unfortunately, as already noted, not many schools in Ireland offer Italian in their curriculum). Once the schools were selected, the researcher presented her study to the participants and asked for their availability for data collection. During this time, numerous visits to the schools were made accompanied by constant contacts to the teachers and principals via email and telephone. In the following phase the data collection took place, conducting interviews, questionnaires and classroom observations from January to June 2013. While the data were collected, the researcher

worked on transcribing interviews, organizing questionnaire responses and classroom observations respectively in an Excel and Word document. During the following phase the data were analysed: the data from the questionnaires were aggregated and broken down by different variables such as school, year, gender and perceptions of ICT integration; the data from the interviews were coded around key categories of themes and the responses were aggregated; observation data, recorded by using an open schedule, were examined according to the specific aspects described such as school technological equipment, teacher use or non-use of technology and lesson organization and delivery. Once the data were analysed, the researcher proceeded with the discussion of the findings addressing the research questions, looking for consistency and contrast in the data and finally linking all of this back to the theory. The writing of this thesis was an on-going process but the last phase of this study was characterized by a more intense writing activity and a specific focus on editing and arranging all the related parts.

Phase	Activities	Date
Pre-study period	Reflecting on my experience as an Italian language teacher and on my profound interest in Irish culture and language; collecting more info about ICT and Italian and Irish language learning in Ireland.	May 2011- October 2011
First targeting phase	Reading articles on the targeted topics in order to develop the literature review.	November 2011- July 2012
Developing research questions and formulating research methodology	Further reading research in the field of ICT and secondary level education in Ireland; reading on research methods.	August 2012- November 2012
Targeting schools and first contacts	Research of the schools in Ireland (preferably in the same county) where Irish and Italian language where available; once selected the school, the first contacts were made via email and face to face visits.	September 2012- December 2012
Collecting data	Data was collected from questionnaires, interviews and classroom observation.	January 2013- end of May 2013
Analysing and reporting of data findings	<p>The data gathered from the questionnaire was put together and broken down according to the different factors (such as gender, age, use of ICT). All the findings were then reported in a section for quantitative findings.</p> <p>The data gathered from the interviews was coded around key categories of themes and then put together accordingly. Observation data was recorded using an open schedule. All the findings were reported in a section for qualitative findings.</p>	July 2013- December 2013
Discussion of the findings	Research questions were addressed and linked back to the literature.	January 2014-June 2014
Writing up	Writing of thesis chapters (on-going process) and putting together all thesis parts for submission.	January 2013 – May 2015

Table 4.3: Phases of the study

4.5 RESEARCH METHODS

After having selected the population of the study, the researcher applied for ethical approval which was granted by the University of Limerick Ethics Committee in November 2012. An information sheet and a consent form (see Appendices I and H) were the official documents that always accompanied the researcher in her approach to the schools and the participants. Firstly, the researcher contacted the principals of schools A and B presenting her research through the above mentioned forms and asked for availability in carrying out the research. The responses of the principals were very positive, they both appeared very enthusiastic and interested in the research; hence, Italian and Irish language teachers were approached asking for their availability in taking part in this project together with their students. Again the response was very positive and six teachers in total made themselves available for interviews, classroom observations and questionnaires. The researcher considered this a balanced number of teachers which would provide quality data where to extract thick and rich information (Gray, 2013). The students targeted for the research were third and fifth years and this was considered a good range sample according to the secondary school cycle. As mentioned above 77 students were made available. Even though the actual organization of interviews, questionnaires completion and classroom observation were quite challenging as those processes had to fit into the school calendar, the researcher was always welcomed with great enthusiasm from teachers and students. The data elicitation phase started in January 2013 and continued till the end of May. The data collection started with the distribution of questionnaires and continued then with one to one interviews with teachers, group interviews with students and finally, non-participant classroom observations. In the following paragraphs all three methods used to gather data will be discussed in turn.

4.5.1 Questionnaires

Questionnaires are research tools through which participants are asked to respond to the same set of questions arranged in a pre-determined order. Questionnaires used in a

research project need to fit the objectives of that research seeking to explore perspectives and relationships between variables (Gray, 2013).

When the researcher designed the questionnaires various guidelines as indicated by many authors were taken into account (Ambert, Adler et al. 1995; Cohen and Manion 2007; Creswell and Clark 2007; Flick 2009):

- Provide clear instruction on how to fill it out
- Clear and simple layout
- Make the type face legible and the English readable
- Sequence questions carefully, starting with the easier closed questions and leading up to more thorough questions.
- Always try it out before distributing to your sample (i.e. pilot questions).

Questionnaires were the first tool used in this research to gather data. The questions listed in the questionnaires were devised by the researcher during the phases in which the research methodology was formulated and the schools were targeted and approached. Before starting to design the questionnaires, the researcher had completed the work of developing and gathering a set of objectives for the research itself listing out the information that she aimed to capture. This list of objectives and research goals served as a plan for the questionnaires. The researcher then began to structure the questions that allowed her to gather the information. Once the questionnaires were developed, the researcher used the objectives of the research to go through the questions determining if each question would have provided the information needed. The questions that were not providing useful information were removed. In particular this study employed structured closed questions (see Appendices A and B) with the possibility for respondents to provide more open details on the answers given in a space allocated below each question. The researcher encouraged respondents to comment on their answers and all teachers and the majority of students (56 out of a total of 77 questionnaires returned) approached each question in some depth. This proved to be an interesting combination as on one side the closed questions can generate response frequencies that are open to statistical analysis allowing also comparisons to be made between different sample groups, while on the other side open

questions (presented in this case with the possibility to add comments under each question) allow for potential richness of responses which may reveal unexpected outcomes (Cohen and Manion 2007; Gray 2013). The advantages and disadvantages of the open and closed questions are outlined below in table 4.4.

The set of pre-designed replies offered in the questionnaires varies from “yes”, “no” or “I don’t know” to “yes”, “no”, “sometimes” according to the question asked. This was valid for both students’ and teachers’ questionnaires. In order to ensure a full completion and a quick return, the questionnaires were handed out to the participants during the researcher’s visit, at the beginning of the class, and presented in paper copy. Once all the questionnaires were completed, the researcher recorded and analysed the result on an Excel working document.

	Advantages	Disadvantages
Open Questions	Freedom and spontaneity of the answer	Time-consuming
	Opportunity to probe	Demand more effort from respondents
	Useful for testing hypotheses about ideas or awareness	
Closed Questions	Require little time	Loss of spontaneous response
	No extended writing	Bias in answer categories
	Low cost	Sometime too crude
	Easy to process	May irritate respondents
	Make group comparison easy	
	Useful for testing specific hypothesis	

Table 4.4: The advantages and disadvantages of open and closed questions (adapted from Gray, 2013)

The students' questionnaires comprised seven questions. The first question was explorative asking if students owned any technological devices; then the importance of ICT in the school in general and for language learning in particular was investigated; the second part of the questionnaire focused on the use of ICT outside classroom time and moved on asking if technology may help in classroom activities and in the language learning experience. The last question approached the ICT policy issue, asking specifically if the students were aware of any official ICT policy in place in their school. These questions and the related answers guided the researcher to obtain information about the use, attitudes and beliefs toward ICT together with details on the digital status and technological tools availability inside and outside the school. These questions covered the factors identified in the literature review and linked accordingly to the research questions.

The teachers' questionnaires comprised eight questions and started by asking how important was ICT in their school and in their teaching experience. The third question focused again on the ICT official policy and if the school was equipped with such a policy. The questionnaire then focused on asking if teachers would use technology to enhance Italian and Irish language learning and if they encourage its use outside classroom time. The sixth question approached the interactivity aspect inquiring if ICT helps class interactivity. In the following question teachers were asked if they had received any official teacher training in ICT and finally a statement was provided to agree or disagree with: *Technology helps to improve Italian and Irish Language Teaching*. As for the students' questionnaires, teachers' questionnaires helped to gather information on teachers use of ICT, their attitudes towards ICT, how they perceive ICT as benefiting teaching and learning and the barriers and enabling factors regarding its use. This reflected again the research questions presented and the literature investigated.

As will be shown in chapter 5, the closed questions will be analysed by comparing and contrasting variables in charts and pivots while open responses will be coded using a coding frame system.

4.5.2 Semi-structured interviews

The interview is a tool that allows a verbal exchange in which the interviewer attempts to acquire information from and gain understanding of the interviewee. Similarly to other cases, in this study the interviewer (the researcher) had on hand a set of written questions organized in a structured and methodical way (structured interview). Conducting interviews may be challenging as the process involves human interaction between the interviewer and the respondent (Cohen and Manion 2007). As a matter of fact: “the interviewer has to ask questions, to listen to (and data capture) the responses (either by audio or video recording or taking notes) and pose new questions (...). The interviewer may also not only be listening to the verbal responses, but be noting other elements of the interview process such as the body language of the interviewee” (Gray, 2013: 382). Some authors suggest that interviews may lead to subjectivity and bias on the part of the interviewer affecting in this way the validity of data (Cohen and Manion 2007; Creswell and Clark 2007; Bryman 2012). Furthermore, in some cases, interviewees may not be completely truthful especially when they feel their responses may affect their social situation resulting in presenting themselves in a different way. Despite the challenges that this process involves, interviews remain a very powerful tool which allows researchers to explore issues and obtain information on participants’ beliefs, values and concerns.

In this research semi-structured interviews were employed. The interviewer had a list of questions and issues to cover but she was dealing with the list in a very flexible way changing for example the order of the questions depending on what direction the interview was going (see Appendices C and D). Furthermore, additional questions were often asked, including some which were not anticipated at the start of the interview. The semi-structured interview allows respondents to reflect and expand their answers (Gray, 2013); this was often the case in this study where the interviewer found herself exploring new and not anticipated pathways which helped enormously in meeting the research objectives. The semi-structured interviews with their related characteristics (as listed in table 4.5), allowed the researcher to go into more depth and to gather specific and more accurate data on ICT and its value in term of teaching and

learning, to explore the digital status of both teacher and students together with their educational and technological concerns, values, beliefs and behaviours.

Semi-structured Interviews:
Slow and time consuming to data capture and analyse
The longer the interview, the more advisable it is to use random sampling
Interviewer refers to a guide containing mixture of open and closed questions. Interviewer improvises using own judgement.
Sometimes interviewer-led, sometimes informant-led
Quantitative parts easy to analyse
Mixture of positivist and non-positivist
Harder to ensure anonymity

Table 4.5: Characteristics of the semi-structured interviews (adapted from Ambert and Adler, 1999)

Semi-structured interviews, conducted after the questionnaire phase, targeted both teachers and students. The interviews with teachers were scheduled during the working days and conducted in a space which was quiet (often the classroom) and in the presence of the interviewer and interviewee only. All the interviews were audio-recorded. The questions asked included but were not limited to:

- How do you perceive the use of technology for Education in general and language teaching in particular?
- Have you been using technology in your language teaching experience?
 - If yes, how often?
 - What types of technology are you inclined to use?
- What kind of barriers do you perceive when integrating technology into teaching practice?
- Do you feel that the use of new technologies can enhance language learning?

- Do you think your students are comfortable in using new technologies in their language learning experience (inside and outside the classroom)?
- Mark Prensky is an American writer and speaker on learning and education. He has coined the terms “Digital Natives” (referring to today's students that represent the first generation to grow up with new technologies) and “Digital Immigrants” (referring to people that were not born into the digital world but have, at some later stage in their lives, become fascinated and adopted many aspects of new technologies).
 - Do you feel that the term “Digital immigrants” represents, in practice, today's teachers?
 - Do you feel that the term “Digital Natives” represents, in practice, today's students?

The interviews lasted roughly 15-20 minutes each with some exceptions (2 of them lasted roughly 25 minutes) as often the conversation expanded and the interviewer asked further questions and/or the interviewee added issues or widened concepts.

The interviews with the students were scheduled during school time; specifically 15-20 minutes were kindly allocated by teachers at the end of the language class. The interviews were audio-recorded and always took place in the teachers' presence. The questions asked to the students are listed below but, as for the teachers, further questions and wider comments were often added by the students:

- Do you have access to any of the following pieces of technology: laptop, computer, tablet (e.g. iPads), mobile phones?
 - If yes, how often do you use it (several times a day, once a day, once in a while when I need it)?
- Which piece of technology are you inclined to use more often?
- Do/Would you feel comfortable in using technologies for language learning (inside or/and outside the classroom)?

- Do/Would you feel equally comfortable in using technologies for both Irish and Italian languages?
 - If not, what kind of differences do you perceive between the two languages?
 - What kind of difference do you think technologies can make to your Italian and Irish language learning?
- Do you think there might be specific barriers/obstacles when using technologies for your Italian and/or Irish language learning?
- Do you think the use of new technologies (using for example apps/social media) can facilitate and stimulate your Italian and Irish learning acquisition ?
 - If yes, which aspect of your learning could benefit more from it (listening, speaking, writing, reading)?
 - If not, why?
 - Do feel any difference between Irish language and Italian language in this case?

Subsequently, both teachers' and students' interviews were transcribed in a Word document through *Wreally* software (this is a transcription and dictation software). Once transcribed, the researcher created codes and linked them to specific themes related to the research questions and topics. The most significant responses were highlighted together with the repeated responses which have been respectively used as quotations and data to compare for a statistical analysis. For the analysis of the teachers' interviews, a word cloud generator (*Tagxedo*) was also used where words were turned into visual word clouds, sized appropriately to highlight the frequencies of occurrence within the body of text. In order to ensure anonymity, coded letters were used as codes for the interviewees.

4.5.3 Non-participant class observation

Observation is not simply a matter of looking at things for a longer time but it is a very complex process which involves a combination of different things. Perceptions,

sounds, sights, smells are some of the elements involved in the observation process and through these elements it is possible to develop schemas in order to simplify and understand the world around us. Observation allows the observer to go: “beyond people’s opinions and self-interpretations of their attitudes and behaviours, towards an evaluation of their actions in practice” (Gray, 2013: 413). The aim of using the observation method in this study was to explore systematically participants’ actions and behaviours in their everyday educational environment. Specifically, it was important to observe the use or non-use of ICT during the language class and the consequent teachers’ and students’ behaviour, the resources available and the different technological appliances in place. This researcher carried out a non-participant observation during which she avoided any interference and any change in the class environment (Ambert, Adler et al. 1995). Furthermore, the observation was overt in the sense that participants were aware that observation was taking place. Hence the researcher’s presence was previously organized with the teachers and it was made clear to the students at the start of each lesson (Gray, 2013). As for the interview and questionnaires, organizing classroom observation was quite a challenging process which involved regular contacts with the teachers (via email, telephone and face to face visits) discussing the best time for the process to take place according to the very busy school calendar. Having said that, it is important to note that all teachers and students welcomed the researcher in the classroom and were all very open and collaborative throughout the process.

Six non-participant class observations were carried out in each school, three for each subject and year. They took place after the interviews offering in that way a follow up method of investigation. The researcher was kindly re-introduced to the students at the beginning of each class and then she moved to the back of the classroom where she could sit and take notes. The notes, described as the “backbone of collecting and analysing field data” (Bailey, 2007: 80), were recorded in a pre-organized schedule where different aspects were taken into consideration and listed leaving enough space to hand write under each one (see Appendix E). The elements listed were: the name of the teacher, the aims of the lesson, the environment details, the structure of the lesson, the generic teacher action, the generic students’ action and activities, the resources used and the researcher’s reflections (see Chapter 5 for further discussion of these points). The classes lasted roughly 50 minutes each. Once the schedules were filled

out and the classes were over, the researcher immediately transcribed the notes on her personal computer, saving the data in a password coded word file. It is important to acknowledge that the class observations were scheduled in advance with the teachers but this didn't have a strong impact on the actual use of technology during the language classes. Teachers in fact delivered their lessons following their usual agenda, as they repeatedly confirmed at the beginning of the classes, being fully aware of the important link between the three methods of analysis used by the researcher and the concepts of validity and reliability.

4.6 VALIDITY AND RELIABILITY

The principles of validity and reliability are essential in any qualitative and quantitative research paradigm. They have been defined as the: “tools of an essentially positivist epistemology” (Winter, 2000: 7). The traditional criteria for validity find their origin in the positivist tradition together with other empirical conceptions such as universal laws, evidence, objectivity, deduction, fact, actuality and truth to name just a few. According to Joppe (2000:1) “validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit the 'bull's eye' of your research object?”. Thus, the validity of a study is considered an “important criterion regarding the meaningfulness of the results and overall value of research” (Hartas, 2010b: 74). Four types of validity are common in the educational field of research: internal, external, construct and ecological².

Reliability has been described as: “the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology,

² In research, internal validity reflects on how well an experiment is conducted, especially whether it avoids confounding (more than a possible independent variable acting at the same time); external validity refers to how well data and theories from one setting apply to another; construct validity defines how well an experiment measures what it claims ; ecological validity refers to the extent to which the findings of a study can be generalized to real life settings (Onwuegbuzie 2000; Johnson, 2007).

then the research instrument is considered to be reliable” (Joppe, 2000: 1). Embodied in this criterion is the notion of repeatability of results.

Therefore, the two notions of validity and reliability reveal two strands: with regard to validity, whether the means of measurement are accurate and whether they measure what they are supposed to measure, while with regard to reliability whether the results are replicable.

Validity and Reliability have been at the core of this study’s questionnaires, interviews and classroom observations. Validity in the questionnaires has been achieved by piloting the questions in order to refine the content and the structure (Gray, 2013). Reliability was established using a pilot test by collecting data from 20 subjects; data were then analysed through the Excel package looking at the internal consistency of the questions and at correlations between variables. Once positively tested, the method of analysis was carried out through the whole research. Follow-up strategies were in place in order to ensure the completion and return of questionnaires allowing an increase of reliability (Cohen and Manion, 2007). As for the questionnaires, interviews were piloted using semi-structured interviews. Semi-structured interviews help the researcher to cover his/her agenda and allow interviewees to express their ideas and concerns about a specific topic (Gray, 2013). The structured interviewing process together with a meticulous evaluation of interview material allows us to reduce bias and consequently increase validity (Cohen and Manion, 2007). During the classroom observations, validity was assured by using an open schedule where details on the teacher, lesson and environment were accurately recorded (*Ibidem*).

Generalisation of the results, described as the ability of the researcher to make a justified extension of their conclusions, applying them to members of the target population and other situations (Bassegy 2001; Hammersley and Atkinson 2007), was considered in this study. However, it is important to note that the number of participants and schools involved were limited (77 students and 6 teachers) hence the findings may not be statistically generalizable.

4.7 ETHICAL CONSIDERATIONS

Any research that involves human participants raises important and critical ethical considerations. Some of these considerations may appear as a matter of pure courtesy or common sense while others reveal quite complex scenarios. Firstly, it is important to specify what we mean by ethics. Ethics is a philosophical term derived from the Greek word *ethos* which means character or custom. As a consequence, research ethics refers to those moral principles that guide research projects (Economic and Social Research Council, 2004). Homan (1991:1) defines it as the ‘science of morality’ meaning that research has to be conducted in a responsible and morally defensible way. It has been also argued that, in a time of globalization, there is an urge for an adaptation of the existing Western framework to diverse contexts, having for those contexts very different ethical values (Ntseane, 2009).

There are three main objectives in research ethics. The first is the protection of human participants, avoiding any type of “harm” (from physical to mental and emotional harm). The second objective is to ensure that the research is conducted in a way that allows participants to have sufficient and accessible information about the project so they can make an informed decision on taking part or not. Finally, the third objective is respecting the privacy of participants and avoiding deception (Gregory 2003; Gray 2013). The following paragraphs will examine each of these concerns in relation to this study.

4.7.1 Protection of Participants

Avoiding harm is the first principle that needs to be addressed when conducting research. Research can be considered harmful when it causes anxiety, stress, embarrassment or when it produces general negative emotional reactions (Gregory 2003; Gray 2013). Sudman (1998) states that avoiding harm could include simple acts such as scheduling interviews to avoid disruption to the participants. Therefore,

ethically acceptable research should obey the principle of respect for persons. This means that a study has to be well designed and organized in order to achieve meaningful results in an appropriate way. It is important to highlight that even if a research project may not cause any injury, the fact that the results may be inadequate is nonetheless disrespectful. Similarly, a study's research design should not represent a burden to any participant unless there are some compensating gains (Sales and Folkman 2000; Simons and Usher 2000). According to Gray (2013), researchers should go beyond avoiding harm to participants aiming instead for positive and meaningful benefits. Among the various potential benefits there is the vital element of adding valuable knowledge to the social and educational human class.

Participants in this study were always treated with respect and politeness. The researcher was constantly focused on ensuring that respondents were participating voluntarily with the choice to withdraw at any time. Collection, storage and possible publication of the data were explained in great depth ensuring anonymity in all the phases.

4.7.2 Informed Consent

Informed consent is a principle through which respondents are provided with precise and clear information about the research project; this allows them to make an informed decision about participating or not in the study (Oliver 2010; Gray 2013). As Sudman (1998) indicates, the amount of information given to participants should reflect the degree of risk involved in the study. Details that should be included in the informed consent are: the purpose of the study; how the study will be carried out; the expected duration; any specific risks or benefits; the type of information required by the researcher and finally, who will have access to the data gathered (Ntseane 2009). Informed consent is particularly important for groups that are considered "vulnerable" such as children, people with special educational needs, and refugees (Gray 2013). Having good and clear informed consent forces researchers to reflect on and clarify the purpose of their research, it also helps research participants to have more confidence in

the research and consequently be more open in their responses and finally, having more confidence in the research generally results in higher participation rates.

It is essential that the information given to the participants is clear, simple and succinct so that a wide variety of participants can understand them. Before requesting the participants' consent to partake in this study, participants were provided with an accurate overview of the research. It is important to note that the initial approaches with the schools took several weeks, as the research introduction and the requested availability were obtained through many face-to-face visits and constant contact via email. After obtaining an initial consent, participants were provided with an official information sheet which outlined:

- The title and the purpose of the study
- Details of the researcher and who was supporting the project
- A description of the research method and the role of the participants
- Any potential discomforts or risks for the participants
- The type of information that will be collected and how confidentiality, anonymity and privacy will be maintained
- How the data will be used after collection

Voluntary written informed consent was obtained from the participants offering a copy for them to keep. In the consent form participants confirmed to agree to the following:

- the nature of the study and their role as participants
- how the collected data will be used
- participation implies audio-recording
- the possibility to withdraw participation from the study at anytime
- participants are entitled to full confidentiality
- there is no obligation to participate in the study

Participants in this study were not placed under any pressure or coercion to take part in the project. All respondents have been treated with respect and dignity.

4.7.3 Respect for Privacy

The right to privacy is one of the basic principles of living in a democratic society. In a research study this means that participants can control the access a researcher has into their personal information. Furthermore, it means that respondents must give their informed consent in giving information before and during the data collection phase, keeping always in mind that their participation is absolutely voluntary (Sales and Folkman 2000; Gray 2013).

Issues of anonymity and confidentiality refer to the de-identification of participants so that their real names are not used. In this sense, it is essential that researchers obtain informed consent, remove identifiers, use codes and permanently delete data upon request. These principles are strongly linked to data collection and management. Specifically, they look at to how the data are stored and what kind of controls are in place to prevent any external access (Ntseane 2009; Gray 2013). This research has outlined the respect for privacy and anonymity in the informed consent carrying these principles throughout the whole process and afterwards. Deception was always avoided, presenting the research for what it was in reality.

The elicited paper-based data (questionnaires) were securely stored in a locked cabinet at the University of Limerick, while digital data (interviews and notes on classroom observations) were stored as electronic files on a password-protected personal computer. Antivirus software was installed in the computer to ensure information technology security. Back-ups of the data were performed on a regular basis.

4.7.4 Ethics Committee at the University of Limerick

Any empirical research involving human participants and conducted by a student of the University of Limerick needs to have the required approval by the Faculty's Research Ethics Committee. The student has to submit a form where he or she describes the research methods and data collection techniques. Ethics approval was required for three specific components of this research: the surveys, the interviews and the classroom observations. Once the forms were submitted and reviewed, the Faculty of Arts, Humanities and Social Sciences granted the full approval to conduct the study a copy of which can be found in Appendix H.

4.8 SUMMARY

In summary, this chapter set out the mixed-method and extension approaches used in this study, reiterating the research questions and explaining the research design. This includes a description of the sampling design and each method used for collecting data: the questionnaire, the semi-structured interviews and the non-participant classroom observations. Any relevant ethical considerations were also discussed and described, including protection of participants, informed consent and respect for privacy.

The next chapter now moves on to the data analysis stage.

CHAPTER 5 - DATA ANALYSIS

5.1 INTRODUCTION

This chapter is divided into three specific sections. The first section presents and analyses the quantitative data gathered from the questionnaires. It starts by providing overall details on the questions asked and it moves then to examining students' responses first and teachers' responses after. The second section introduces the qualitative data. Students' and teachers' semi-structured interviews are respectively analysed through quotations related to the specific research topics. Finally, the third section presents the data gathered from the non-participants classroom observations. This section, which represents the last stage of the elicitation process, offers a precise description of the classrooms, lessons, teachers' and students' actions; everything is analysed, as qualitative data, in accordance with the research questions.

5.2 SECTION I - QUANTITATIVE DATA FINDINGS (Questionnaires)

This section is dedicated to the analysis of the quantitative data. As discussed in chapter four, a questionnaire with structured closed questions and an allocated space to add comments under each question was provided to both students and teachers. The questionnaires covered the topics identified in the literature review as the access to technology, attitudes and perceptions toward ICT in general and for Italian and Irish language learning in particular, use of ICT inside and outside the classroom, teacher training on technology use and integration and investigation of and awareness of ICT policy in the targeted institutions. Data from students' questionnaires are presented

first, comparing and contrasting respectively school A and School B, then responses from teachers' questionnaires are provided and examined in relation to their school.

5.2.1 Students and their technological devices

The first exploratory question put to the students was *Do you own any piece of technology (i.e. mobile phone, laptop, PC, tablet computer)?* The responses were unanimous. All students in both schools owned a mobile phone and a laptop (shared in some cases), and they were using these tools regularly on a daily basis. It appears that younger people have a great range of ICTs available and tend to use technological tools and the Internet regularly. In some respects these first findings seem to support the arguments put forward by Prensky (Prensky 2001a; Prensky 2005) about a large proportion of young people using technologies and the Internet as daily “companions.” Furthermore, these responses confirm that the majority of respondents come from fairly media-rich homes, where mobile phones and laptops are widely available, habitually used and often complemented by other digital devices. It is important to note that the personal devices addressed by School A respondents include those provided by the school technological programme (which equips students with new notebooks or tablet computers) while for School B students this refers only to technological devices privately purchased.

5.2.2 Students and their perceived importance of ICT in the school

Participants were asked to indicate in the questionnaires how important the use of ICT in their schools was. School A (with a total of 41 completed surveys) and School B (with a total of 36 completed surveys) students provided very different answers, as the figures indicate. Table 5.1 provides the breakdown of respondents according respectively to their school and schooling year on the horizontal axis and the closed

answers they picked on the vertical axis. This table-analysis together with the variables selected was carried out throughout the students' questionnaire. As we can see from this table, the majority of School A respondents (34 of 41) recorded the great importance of ICT in their institution while a minority of students reported that it was important only in certain situations and for specific subjects (4 respondents) and the rest (3 respondents) stated that it was not important at all. In School B half of respondents (18 respondents) strongly stated that ICT was not important in their institution but still a good number of respondents (10/36) reported that ICT was somehow significant while the rest (8 respondents) stated that technology was considered significant for specific subject and activities. Figure 5.1 shows visually the differences between the two schools providing the overall percentage in relation to each specific answer.

Is ICT important in your school ?		School A		School A Total	School B		School B Total	Grand Total
Answers		3rd	5th		3rd	5th		
No		1	2	3	14	4	18	21
Sometimes		1	3	4	6	2	8	12
Yes		7	27	34	9	1	10	44
Grand Total		9	32	41	29	7	36	77

Table 5.1: Students' perceived importance of ICT according to their schooling year

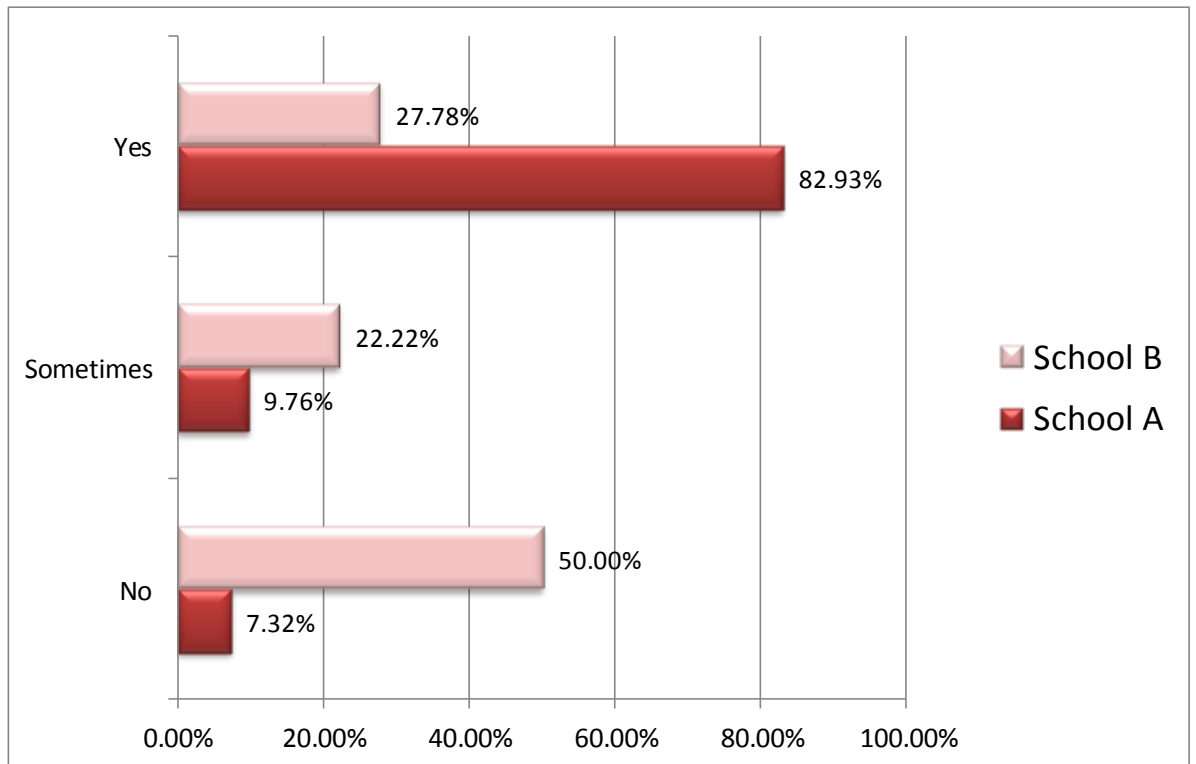


Figure 5.1: Students’ perceived importance of ICT

These figures provide a quantitative analysis of the questionnaires but, as mentioned in chapter 4, the questionnaires also gave respondents the opportunity to comment on each question offering more in-depth data. Therefore, detailed quotations have been selected and listed below in relation to the closed answers given (“Yes”, “No”, “Sometimes”).

82.9% of School A respondents openly addressed the importance of ICT as something being strongly emphasized within the school and widely and regularly used for different subjects. In addition, students emphasize the possibility it has given them to avail of Microsoft Specialist Courses during their 4th year:

- *Yes, it is in every subject and it has a massive impact on how I study (5th year female student, School A)*
- *Yes, it is often used for presentations in class and notes are often put on the school website. Quite a big emphasis is put on ICT and in 4th year, for example, we can complete a Microsoft Office Specialist Course (5th year female student, School A).*
- *Yes, we use it every day (3rd year male student, School A).*

- *Yes, very important because we use it every day in school and it is essential for homework (5th year female student, School A).*

In accordance with the positive responses given, students highlighted the fact that the school is well equipped with facilities that allow the integration of ICT into their learning having two ICT rooms available and laptop computers at their disposal:

- *Yes, we have exceptionally good ICT facilities (5th year female student, School A).*
- *Yes, everybody has a laptop (3rd year male student, School A)*
- *Yes, we have two ICT rooms! (3rd year female student, School A)*

9.7 % of students stated that ICT was important only for specific subjects and certain activities. They did not consider it as an element that should be regularly integrated into educational practice.

7.3% of respondents reported that ICT was not as important as the school itself was stating and actually ICT was considered something that has been forced and imposed onto students over the years. It was also stated that although not essential for students, some teachers would rely on ICT for teaching methods:

- *They like to think so (3rd year male student, School A)*
- *No, it is not important. The school tries to force it; it is taken on board by other years (5th year female student, School A)*
- *Not to me specifically but some teachers rely on it for teaching methods (5th year female student, School A).*
- *Emphasized but not important (5th year male student, School A).*

As shown in Figure 5.1, 50% of respondents in School B strongly stated that ICT was not important in their school especially because of the lack of resources and facilities. Students reported the use of books and traditional tools for their learning. Having said

that, they felt also that ICT should be promoted and regularly integrated into their learning experience:

- *It isn't because there is one computer room for the whole school and we rarely use it (3rd year students, School B).*
- *Not very. We have one computer room that is often booked up (3rd year students, School B).*
- *No, we have a computer room which we don't use too often and over-head projectors that we use three or four times weekly (3rd year students, School B).*
- *No, because they don't supply interactive white boards and iPads. We do have computers but we rarely use them. It is not important but it should be (3rd year students, School B).*
- *We do have a computer room and over-head projectors but otherwise it is not important (5th year students, School B).*
- *Not really, we use cd players for listening and occasionally we use computers. I don't think it is important in our school (3rd year students, School B).*
- *Not really, but sometimes we go on computers. I would like to use them (computers) more (3rd year students, School B).*
- *Not very much, but our teachers sometimes use laptops for power-points. We have only one computer room (3rd year students, School B).*
- *Not really, it is not used a lot by our year. It is used occasionally for power-points and one or two of our teachers put notes online so we can access them at home (3rd year students, School B).*

22% of respondents reported that ICT was important in their school only for specific subjects; Geography is often mentioned as the subject where ICT is frequently used whereas Languages seem to experience a more feeble integration. Younger teachers would use it for presentations or showing videos:

- *Only during Transition Year for the ECDL [European Computer Driving Licence] module and sometimes to do research for projects Internet) (5^t year students, School B).*

- *In some subjects like geography and in languages sometimes (3rd year students, School B).*
- *In some subjects. Some of the young teachers would use it [ICT] in class showing power-points (3rd year students, School B).*

27% of respondents considered ICT important, relating that importance mostly to the use of PowerPoint presentations. Lack of resources is considered a critical obstacle:

- *Yes, our teachers use it when showing the class power-points (3rd year students, School B).*
- *Yes, I think it is important in our school however I feel that we lack some resources in relation to ICT (5th year students, School B).*

5.2.3 Students and their perceived importance of ICT for language learning

Students were asked then if ICT was important for their language learning, specifically for Italian and Irish language and again, the answers were very distinctive and diverse. As shown in Table 5.2 below, in School A 22 respondents of a total of 41 answered positively, stating that ICT was an important aspect of their language learning experience. A quite high number of students (15 respondents) disagreed, saying that ICT was not important in their institution while 4 students agreed that ICT was useful but not to be integrated all the time. In School B the responses were quite dissimilar from those of School A, in fact here, the majority of respondents (22 on a total of 36) confirmed that ICT was not important in their language learning process while 9 respondents stated that technology was important especially in relation to those technological tools used particularly at home and the PowerPoints presented in class, as we will see specifically in the following quotations. 5 students argued that only sometimes ICT was an important element in their language learning process.

Is ICT important in your language learning ?							
Answers	School A		School A Total	School B		School B Total	Grand Total
	3rd	5th		3rd	5th		
No	4	11	15	17	5	22	37
Sometimes	2	2	4	4	1	5	9
Yes	3	19	22	8	1	9	31
Grand Total	9	32	41	29	7	36	77

Table 5.2: Students' perceived importance of ICT for language learning

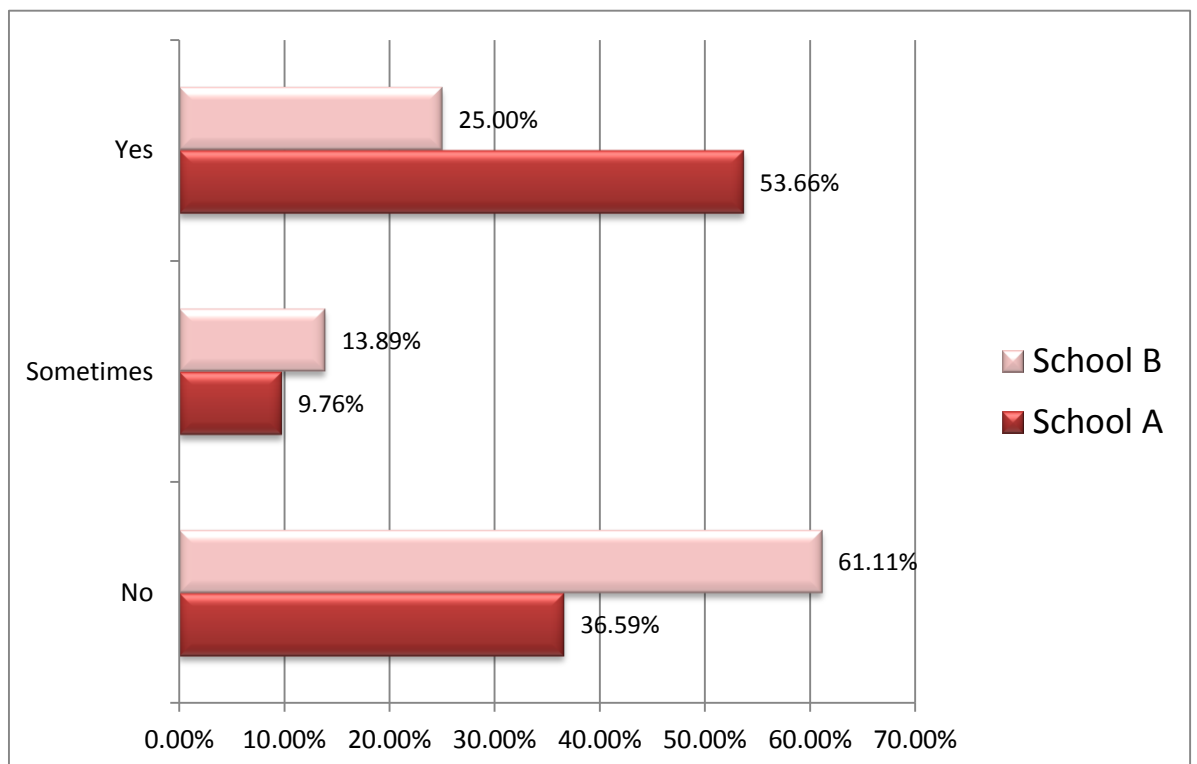


Figure 5.2: Students' perceived importance of ICT for language learning

Moving from the percentages shown in Figure 5.2, it is possible now to introduce and analyse accordingly some selected quotations.

More than half of respondents in School A (53.6%) confirmed the importance of ICT for their language learning process. ICT, according to them, is very important as it helps to investigate different methods of study, broadening the learning and making it easier. Web tools and the Internet are frequently used by the students for their Italian

and Irish language learning. These tools represent for them a great source of information beyond the book and an important support to rely on:

- *Yes, to investigate different methods of study and to gather information (5th year female student, School A).*
- *Yes, it offers different forms of media other than books (5th year female student, School A).*
- *ICT is important. It broadens our learning and makes it easier to learn (5th year female student, School A).*
- *Yes, not all the information is in the book and it is very helpful to have technology to fall back on (5th year male student, School A).*

Google translator is considered the most helpful tool to be used outside the classroom and dedicated websites, particularly for the Irish language, are accessed regularly:

- *Yes, the website “google translate” and “focal.ie” have helped me with my homework (5th year female student, School A).*
- *I use translators with my homework (5th year female student, School A).*
- *Yes, as we are able to access many educational web-sites (3rd year male student, School A).*
- *Yes, so I can use google translate and access the school website to get Italian/Irish stuff (3rd year female student, School A).*
- *Yes, for translating and notes (5th year female student, School A).*
- *Yes, for power-points (5th year female student, School A).*

In School A, teachers and students avail of e-Books for Italian and Irish language and, although they are not always popular as we will see in the interviews’ analysis, they are used on a regular daily basis. The use of technology is emphasized especially for the Irish language:

- *Yes, our teachers use E-Books and online reference books and dictionaries (5th year female student, school A).*
- *In Irish yes, it is important as we have to download power-points and files for class (5th year female student, School A).*

A growing number of participants, specifically 36.5%, claimed that ICT was not particularly important for their language learning mainly because of the lack of resources available. This is an interesting and pretty surprising point made by a quite high number of students, considering the technological orientation of the school itself and the reported use (confirmed by teachers' interviews and questionnaires and by the class observations) of technology during the language classes. This result may indicate a lack of ICT training for pedagogical purposes on teachers' part as a later quotation by a 5th year student in School B also suggests (see page 120):

- *No, not at the moment. There are not many resources available (5th year female student, School A).*
- *I don't find it [ICT] helpful (3rd year male student, School A).*
- *No, we don't use it [ICT] that much (3rd year male student, School A).*
- *No, I never use it [ICT] for languages (5th year female student, School A).*

9.7% of students said that ICT was not essential but sometimes could help the language learning process:

- *No, but it helps in some cases (5th year female student, School A).*
- *Not as much in other languages but we use Moodle and school sites in Italian (3rd year female student, School A).*

The majority of students (61.1%) in School B did not think that ICT was essential for language learning. During the Italian and Irish language classes, digital technologies

were not used. Students relied on teachers and books for their learning. This seems to clash strongly with the Digital Natives claim proposed by Prensky, showing how students willingly depend and count on traditional methods of instruction even though they have technology at their disposal outside school:

- *I don't think it is. You can learn just as much reading a book and it takes the teachers a long time to make them use it (ICT) (3rd year student, School B).*
- *No, as I find it easier to learn from books and notes (3rd year student, School B).*
- *No, I rarely use it so it makes no difference (3rd year student, School B).*
- *No. I think you need to be taught how to speak a language. You can't learn from being on a computer (3rd year student, School B).*
- *No, we don't use it in languages (3rd year student, School B).*

25% of students agreed that ICT was important for their language learning. Particularly useful for them were, for example, online dictionaries, videos and PowerPoints as different tools for approaching the target language:

- *Yes, online dictionaries (3rd year student, School B).*
- *Yes, we learn a lot from slide shows (3rd year student, School B).*

13.8% of respondents claimed that ICT could be sometimes helpful, especially at home as an extra support for the language activities. As for School A, students in School B confirmed the use of translating websites outside classroom time. During the classroom time videos in Italian and Irish language were shown. In addition, School B students relied on the Internet when it comes to downloading material for exams:

- *Not really, in school we don't use it. At home I might look up words or phrases (3rd year student, School B).*

- *Not in school, sometimes at home to get exam papers (3rd year student, School B).*
- *ICT wouldn't be very important in my language learning. Sometimes I may use something like google translate but not often (3rd year student, School B).*
- *In school we don't really use ICT resources during language classes. For me, at home I do use the Internet to help me with languages (5th year student, School B).*
- *No, we use textbooks and notes copies. Occasionally I might use it to look up a word online at home or to download exam papers (3rd year student, School B).*
- *Not vital, television is used for certain parts of the course (5th year student, School B).*
- *No, not necessarily. We use it in oral classes to watch shows in Italian and Irish (5th year student, School B).*
- *Not really, but it is nice to look at power-points. I wouldn't do it at home (3rd year student, School B).*

5.2.4 Students' use of technology outside classroom to practice the Italian and Irish languages

The fourth question of the survey aimed to investigate the use of technology outside classroom time to practice Italian and Irish. As shown in Table 5.3, the majority of respondents (26 on a total of 41) in School A confirmed that they were using technology outside school to improve their Italian and Irish language learning. 8 students confirmed that they were not using any technology outside the classroom and an almost equal number stated they were returning to technology from time to time but not on a regular basis. In School B we see an interesting phenomenon as 14 respondents claimed that they were using technology regularly outside class and, almost the same number (13 students), confirmed that they were using technology at home not regularly but according to their educational needs. 9 participants openly

stated that they were not engaging with technology outside school to practice their Italian and Irish.

Would you use technology outside of classroom to practice Italian and Irish language learning?								
Answers	School A		School A Total	School B		School B Total	Grand Total	
	3rd	5th		3rd	5th			
No	1	7	8	8	1	9	17	
Sometimes	4	3	7	10	3	13	20	
Yes	4	22	26	11	3	14	40	
Grand Total	9	32	41	29	7	36	77	

Table 5.3: Use of technology outside classroom to practice Italian and Irish language.

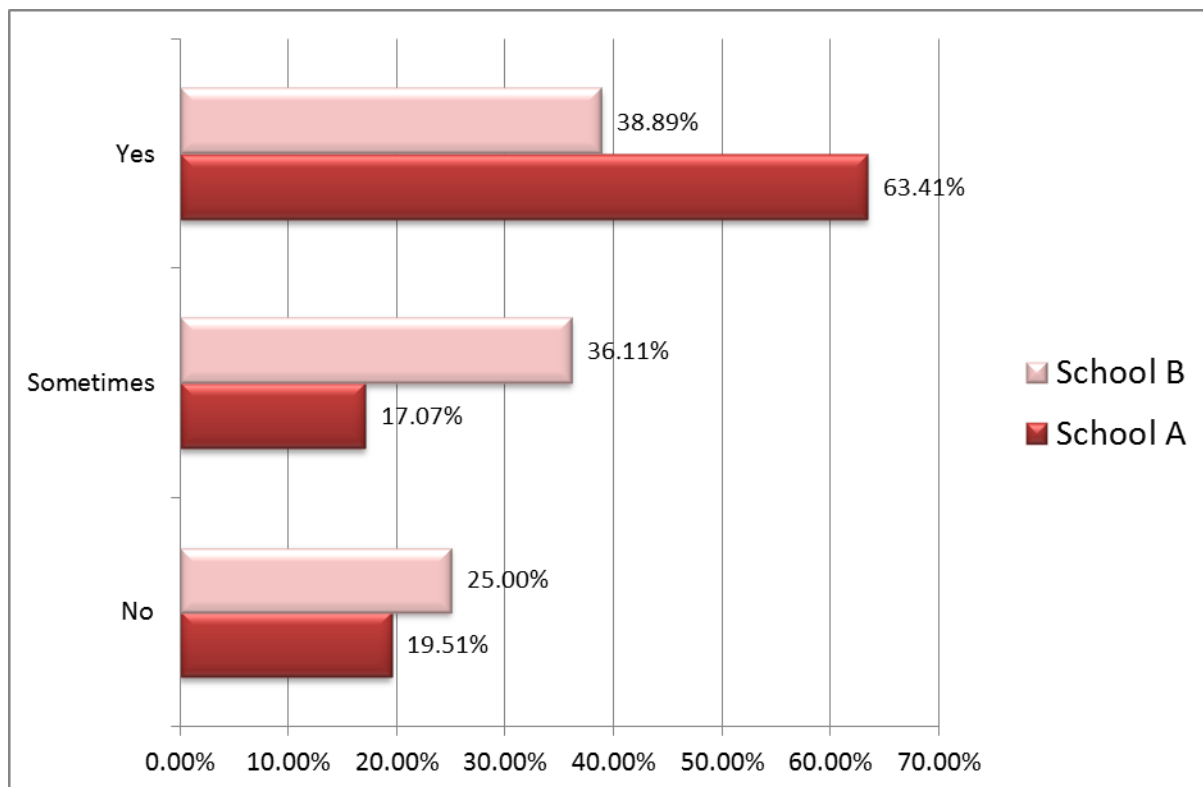


Figure 5.3: Use of technology outside classroom to practice Italian and Irish language.

Figure 5.3 confirms visually the data from the table above indicating that more than half of respondents (63.4%) in School A were using technology outside school to improve their language skills and to get to know more in depth the culture of their target language (Italian in particular). Technology is said to provide interesting platforms where to practice listening and speaking skills in an interesting and more engaging way:

- *Yes, I go online to look up words and do listenings (3rd year female student, School A)*
- *Yes, for Italian I use chat on and face-book to practice the language with my Italian exchange student (5th year female student, School A)*
- *Yes, it is a great help for practicing pronunciation and understanding different dialects (5th year female student, School A)*
- *Yes, I think it would be especially useful to use it to speak to people our age in Italy through Skype etc., to improve conversational Italian and to learn about the culture in a more interesting way (5th year student, School A)*

19.5% of respondents in School A argued that they were not using technology outside school for Irish and Italian preferring a more traditional book-based approach. Students appear also greatly concerned about the “distracting element” technology has and this is a recurrent element throughout the data collection. These points, which will be discussed in depth later in this chapter and in chapter 6, show again the importance of traditional methods of instruction for students and address some of the limitations of ICT:

- *No, I think it is better to study off a book than get distracted by technology (3rd year male student, School A)*

Finally, 17% of students confirmed that technology could be helpful for specific activities but not for everything. Irish language learning is said to be approached with technology in a more consistent way.

- *Sometimes it can be helpful with translations, but no other technological help (5th year female student, School A)*

- *Yes, for practising Irish listening but not for Italian (3rd year male student, School A)*

In School B 38.8 % of students access on-line dictionaries, podcasts and videos to practice their Irish and Italian. It is often confirmed by the students that they make regular use of specific web-sites where exam papers and marking schemes are available (i.e. examinations.ie). This indicates the importance of technology for the exam preparation:

- *Yes, Google translate and downloading exam papers (3rd year student, School B)*
- *Yes, I download papers off internet and I google words I don't understand (3rd year student, School B)*
- *Yes, I listen to Italian podcasts on my laptop and use examinations.ie to access exam papers and marking schemes (5th year student, School B)*
- *Yes, I would use sites to help me learn and marking schemes (3rd year student, School B)*
- *Yes, I would use it (technology) to help me with homework (3rd year student, School B)*
- *Yes, television programmes in these languages are very beneficial to me (5th year student, School B)*
- *Yes, I go on dictionary websites to look up words that I don't understand because sometimes they don't have the right word in the actual dictionary (3rd year student, School B).*

Quite a high number of students in School B (36.1%) argue that they do not use technology to practice Italian and Irish but they return to it when they need to get a word's meaning or answers to specific language issues and when they do have a test or an exam to prepare for. Furthermore, as confirmed by students, the access to specific language websites is always guided by teachers indicating a non-autonomous use of technology even when the latter is at the students' complete disposal. In relation to

this, the crucial importance of teachers' training which should aim to an effective integration and use of ICT for language learning needs to be also highlighted:

- *Not to practice but to get exam papers or aural exams (3rd year student, School B)*
- *Not usually, but if I don't understand something or need help I might use the Internet to search something (3rd year student, School B)*
- *Sometimes, when I am studying for a test, I may use test websites but only if it is a big test or I don't know my stuff (3rd year student, School B)*
- *I wouldn't usually but if we were told about proper websites for it maybe (5th year student, School B)*
- *No, but sometimes if I don't have my dictionary I might look up a word on Google translate (3rd year student, School B).*

25% of students in School B indicated that they do not use technology to practice their Irish and Italian and this is often due to the fact that technology is not used in class hence the use at home is seen as incongruous. Books are the tools more widely used and relied upon:

- *No, I just learn from my copy and my book (3rd year student, School B)*
- *No, because we don't use it (technology) in school for language so I don't use it at home (3rd year student, School B)*
- *No, I mostly use books (3rd year student, School B)*
- *No, because everything in our school is taken from a text-book (3rd year student, School B)*

5.2.5 Students' perspectives on technology and classroom activities

The fifth question focuses on investigating the relationship between technology and classroom activities hence the students' perceptions in relation to this. The results of the two schools show quite similar perceptions indicating a general positive attitude when it comes to integrating technology into the classroom activities. The majority of

School A respondents (31 of 41) agreed on supporting the use of technology in class; technology seems to act as a valuable facilitator during different classroom activities. 6 respondents in School A disagreed and 4 respondents confirmed that technology may help in some cases and in specific conditions. As mentioned above, almost all of School B respondents (32 of 36) indicated that technology may offer good and useful help for classroom activities while one only one student completely disagreed. Finally, 3 respondents stated that integrating technology may be of some help but only for certain activities.

According to these results, it can be easily suggested the importance of teacher education when it comes to integrate ICT into the classroom. On students' part there is in fact a general willingness to use technology in class despite the fact that teachers often are not fully integrating it. Therefore, it is paramount for teachers to receive appropriate support and training which should focus specifically on the pedagogical use and effective integration of ICT into teaching practices.

Do you think the use of technology may help in classroom activities?								
Answers	School A		School A Total	School B		School B Total	Grand Total	
	3rd	5th		3rd	5th			
No	1	5	6		1	1		7
Sometimes	2	2	4	2	1	3		7
Yes	6	25	31	27	5	32		63
Grand Total	9	32	41	29	7	36		77

Table 5.4: Students' perceptions on technology and classroom activities

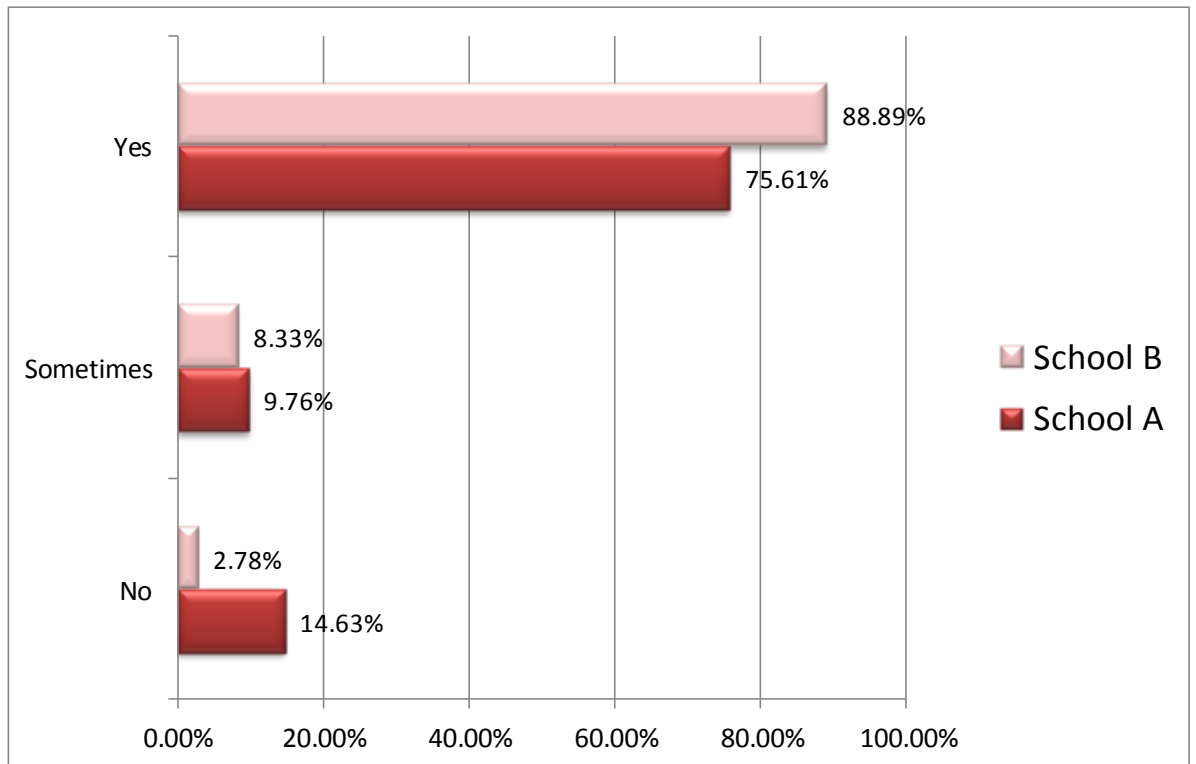


Figure 5.4: Students' perceptions on technology and classroom activities

Figure 5.4 shows clearly how School A and School B, despite the different technological orientations, agree on this matter. In fact, School B students together with the ones from School A, see general and language learning relevance of ICT but, in their case, the school does not always meet their needs, as it will be also confirmed in figure 5.5. The majority of the two schools' respondents express the importance of technology mostly in regards to its interactivity aspect that is invaluable and that it cannot be always provided by books. Specifically, 75.6% of School A respondents stated that using technology keeps the students involved and motivated leading to a more profound understanding of the subject (in this case, languages) being studied:

- *Yes, it would help to make languages more interesting and interactive (5th year female student, School A)*
- *Yes, it helps as it saves time of writing down notes and it would be very helpful and better teaching is done (5th year female student, School A)*
- *Yes, may encourage more involvement and interest in the language being studied (5th year female student, School A)*

- *Yes I do, it will be more of a demonstration which would enhance understanding* (5th year female student, School A)
- *Yes, interactive textbooks keep the class interested* (5th year male student, School A)

There are concerns though for 9.7% of students in regard to reliability, efficiency and correct use of technology. If those crucial elements are guaranteed, technology could help and enhance the effectiveness of classroom activities:

- *If technology is reliable and efficient, yes* (3rd year male student, School A)
- *If people co-operate it can be helpful* (3rd year female student, School A)
- *Yes, if it is used correctly* (5th year female student, School A)

14.6% of respondents in School A did not find technology a good facilitator for classroom activities being greatly concerned about the distracting element by which technology seems to be characterised and further concerned about its reliability:

- *No, it is distracting and doesn't always work* (5th year female student, School A)

88.8% of students in School B highlight the element of interactivity already mentioned by School A. Technology helps interactivity, encourages a learning by doing approach and provides intriguing and engaging visual and audio elements. Furthermore, using technology for classroom activities seems to make the learning easier and faster:

- *Yes, it would be easier to understand* (3rd year student, School B)
- *Yes, it would help with vocabulary and listening* (3rd year student, School B)
- *Yes, if we had the facilities to use I think it (technology) would help* (3rd year student, School B).

- *Yes, so pupils could access the same information at home as well as in the classroom. It would be more interactive (3rd year student, School B)*
- *I think it would help in classroom activities because students might focus better when they have something to watch/look at (3rd year student, School B)*
- *Yes, I do. When we use it in other subjects I find it very helpful (3rd year student, School B)*
- *Yes as you would learn from doing online games better than hearing (3rd year student, School B)*
- *Yes, because it would be more interesting and fun (3rd year student, School B)*
- *Yes, I do think it would. We usually remember the work if it is visual (3rd year student, School B)*
- *Yes, because I think it would be more interactive and interesting for the students and I think it would be a bit easier as well (3rd year student, School B)*
- *It would help doing things quicker because you can just pop the notes up onto the screen (3rd year student, School B)*

8.3% of students in School B argued that technology may be of some help for specific subjects (like Science and Geography) or certain language activities (like speaking or writing via online platforms) but always in moderation and when the efficacy and management of technological tools are guaranteed. Books are here considered the preferred media for learning:

- *Depending on the subject, for languages I think books are better (3rd year student, School B)*
- *Yes, in moderation. It would be helpful if we used a webcam to video Italian pen-pals to have a chat, to get used to talk in a foreign language (3rd year student, School B)*
- *Yes, I think so. It gives a good visual but I like working from books (5th year student, School B)*

- *In some subjects such as science and geography it helps to see things online or in PowerPoints, with languages I prefer to be taught (3rd year student, School B)*
- *It could help but it could also be a distraction to the students (3rd year student, School B)*
- *I think it would help but I don't think it should be used all the time (5th year student, School B)*
- *Yes, unless everything runs smoothly, I think it often leads to time wasting while the laptop is being set up etc.. (5th year student, School B)*

One respondent, who represents the 2.7% of the total in School B, considered technology useless for education hence worthless for classroom activities:

- *I can't see any reason for it to be introduced (5th year student, School B)*

5.2.6 Students' perspective on technology and language learning

The fifth question of the survey focuses on language and technology and the perception students have on this matter. In particular, the question was: *Do you think the use of technology may help your language learning experience?* As shown in table 5.5, the question provided quite similar reactions in the two schools. In School A, 32 respondents agreed on the usefulness technology has when learning a language, specifically, if well integrated, technology can enhance the whole learning process. 8 students in School A said that sometimes technology could help, keeping in mind that its use should be applied in small doses and in a reliable way. Only one respondent in School A together with one in School B expressed their disagreement in favour of a more traditional book based approach. In School B an even bigger number of respondents (31 of 36) compared to School A confirmed the importance of technology to enhance their language learning experience, indicating the valuable tools available

on the Internet to practice and strengthen the language skills. 4 students in School B stated that technology may be of some help but only for specific subjects and only when its use is regulated.

Do you think the use of technology may help your language learning experiences?								
Answers	School A		School A Total	School B		School B Total	Grand Total	
	3rd	5th		3rd	5th			
No		1	1	1		1	2	
Sometimes	3	5	8	2	2	4	12	
Yes	6	26	32	27	4	31	63	
Grand Total	9	32	41	29	7	36	77	

Table 5.5: Students’ perspective on technology and language learning

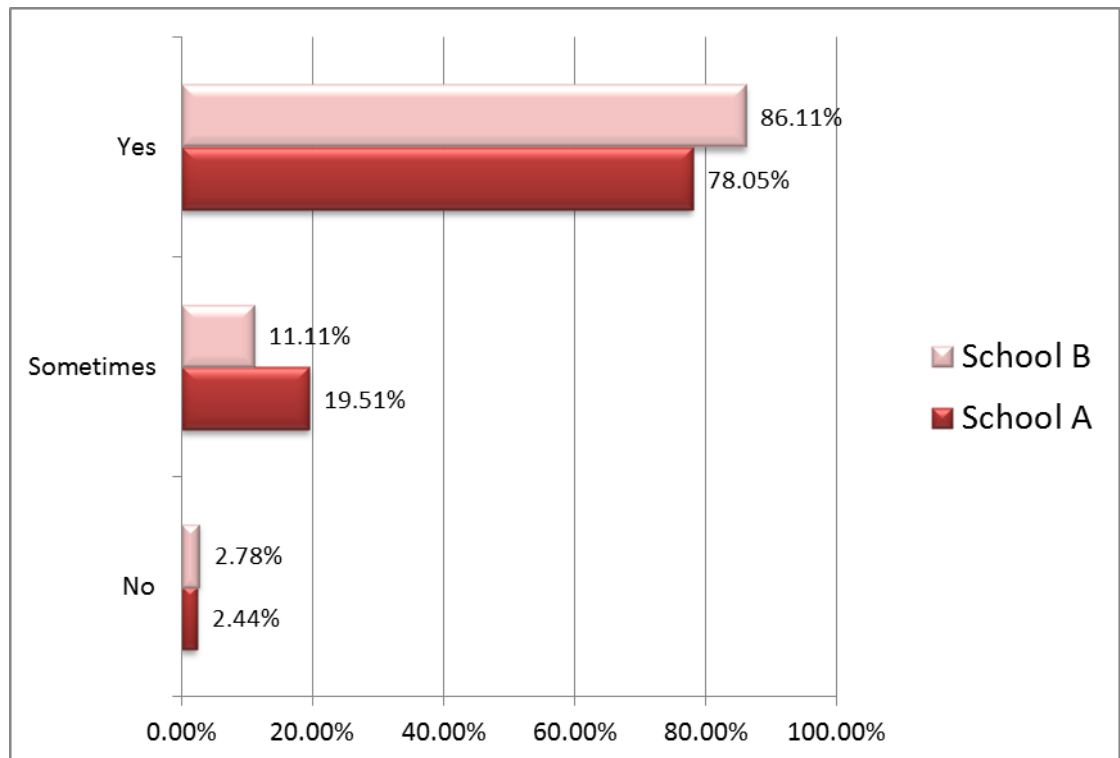


Figure 5.5: Students’ perspective on technology and language learning

As indicated in Figure 5.5, 78% of respondents in School A stated that technology is beneficial during their language learning process. Technology provides interesting and

engaging platforms for students to use and where to practice interactively their language skills. However, respondents also indicated that technology can lead easily to distraction making concentration on specific activities more difficult:

- *Yes, because it gives you a varieties of resources to help you in your learning like using podcasts for listening (5th year female student School A)*
- *Yes, to listen to pronunciation but I find it hard to concentrate with it (5th year female student School A)*
- *Yes, it is a lot more interesting than staring at a book (5th year male student School A)*
- *Yes, because you can use it to practice pronunciation (5th year female student School A)*

19.5% of students in School A confirmed that technology may help the language learning process but only in small doses, when it is used in an appropriate and innovative way and when it is reliable and efficient:

- *Maybe in some cases it could show us new ways to learn language skills (5th year female student School A)*
- *Maybe, experimentation may help (5th year male student School A)*
- *It may, if technology was better (3rd year male student School A)*
- *In small doses (e.g. helping with homework using translating tools) (5th year female student School A)*

As mentioned above, only one student in each school did not consider technology as an important and essential tool for learning a language. Books are considered more reliable and effective:

- *No, learning a language should be done using a book (3rd year student School A)*
- *No, books and notes are more effective (3rd year student School B)*

In School B, 86.1% of respondents stated that technology provides extra material that often books are not equipped with. Technology represents an engaging tool with which to practice and reinforce language skills (for example, via podcasts, videos or dedicated websites). ICT is said to offer a different learning experience for students which is more fun, more interactive and easier:

- *Yes, because you could hear different pronunciations so you can find it easier to understand listening tapes (3rd year student School B)*
- *Yes, as we could do activities online to help improve our language skills and it (technology) could also help with our pronunciation (3rd year student School B)*
- *Yes, I think it would because there are really good websites for language learning (3rd year student School B)*
- *I think it may help in some cases like with listening or grammar (3rd year student School B)*
- *Watching films/tv series in the language and listening to podcasts would help (5th year student School B)*
- *Yes, it could help provide more information than textbooks alone (3rd year student School B)*
- *Yes, because downloading papers and revision games can be a more interesting way of learning (3rd year student School B)*
- *Yes, because things are easier to understand when you see them on computers (3rd year student School B)*
- *Yes, because reading from books all the times is boring and ICT could be a different experience (3rd year student School B)*
- *Yes, because we would get more interested and the visual would go into our head better. Also if you don't understand something, the technology would help break it down for you to understand (3rd year student School B)*

11.1% of students in School B stated that the use of technology would be more appropriate for other subjects (like geography) and the over-use of it represents a constant issue to be well aware of:

- *I think it might if we don't over use it (3rd year student School B)*
- *Yes, you could go onto language sites, but it wouldn't be much help with languages, it would be better for geography etc.. (3rd year student School B)*

5.2.7 Students and the ICT policy

The last question of the survey aimed to investigate if the students were aware of an ICT policy being in place that would manage and instruct them together with their teachers on the use of technology. In both schools the majority of students, respectively 90.2% in School A and 69.4% in School B, stated that they were aware of such a policy which was available in their school journal. The same students confirmed that they were informed about the ICT policy but they would not know in much detail what this policy was comprised of. A small percentage (9.7%) in School A asserted that the school did not have an ICT policy while in School B 25% of students stated that the school was not equipped at all with an ICT policy. 5.5 % of respondents in School B admitted frankly that they did not really know what this policy was.

Does your school has an official ICT policy ?							
Answers	School A		School A Total	School B		School B Total	Grand Total
	3rd	5th		3rd	5th		
Don't Know				2		2	2
No	2	2	4	8	1	9	13
Yes	7	30	37	19	6	25	62
Grand Total	9	32	41	29	7	36	77

Table 5.6: Students' awareness on an ICT policy in place in their school

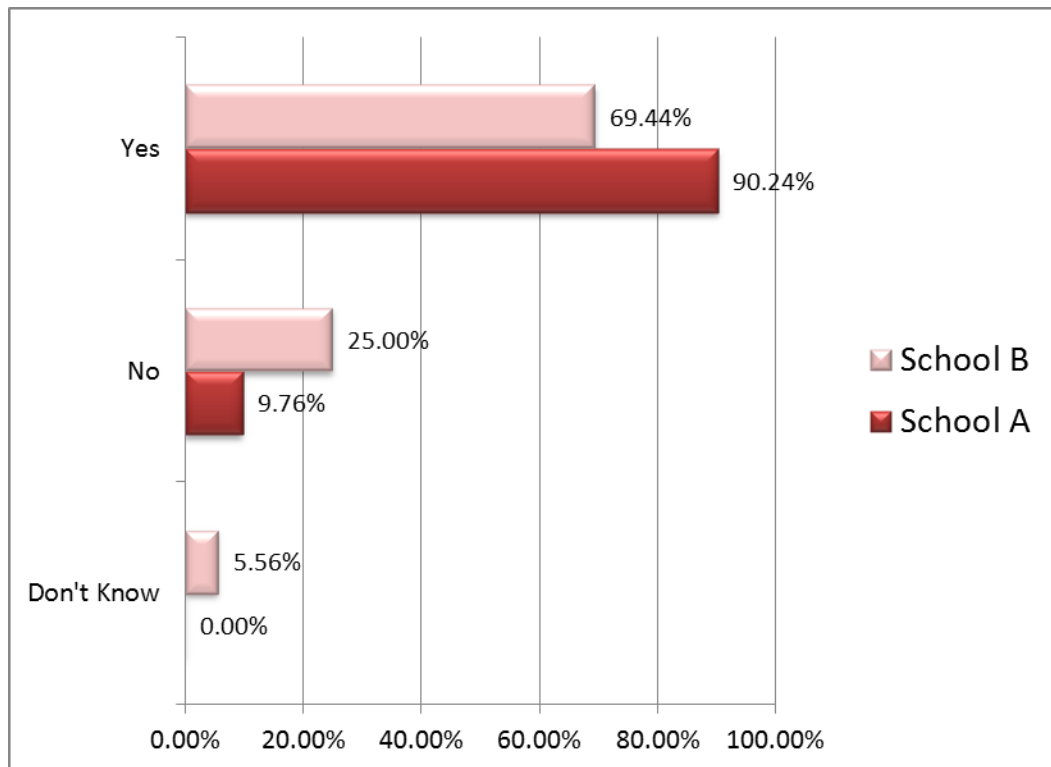


Figure 5.6: Students' awareness on an ICT policy in place in their school

5.2.8 Teachers and their perceived importance of ICT in the school

The first question put respectively to School A and School B teachers aimed to investigate the importance of ICT in their institution. After having answered the closed question, teachers had also the possibility to add comments, providing a more detailed answer. As shown in Figure 5.7, there is a quite big contrast between School A and School B respondents. School A respondents in fact highlight the great importance of ICT in their institution confirming that it is an integral part of their teaching methods. Nobody in School A gave a negative answer. In School B there were different answers. 66.7% of respondents confirmed the importance of ICT even though some concerns were still strongly expressed while 33.3% openly stated that ICT was not important nor essential in their institution. In this figure, can be also noted that School A teachers' see more relevance of ICT compared to their students (see figure 5.1). This may be due to the fact that they are more aware of the ICT policy in place however, specific issues

are reported (see overall results from questionnaires, interviews and class observations) in relation to the lack of regular training and technological support which results in an unsettled ICT integration.

Is ICT important in your school ?			
Answers	School A	School B	Grand Total
No		1	1
Yes	3	2	5
Grand Total	3	3	6

Table 5.7: Teachers and the perceived importance of ICT in their school

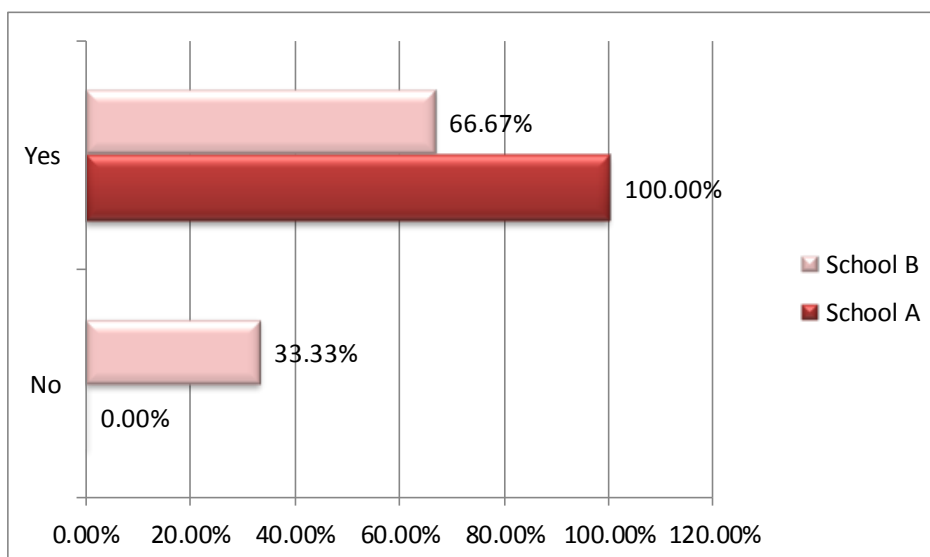


Figure 5.7: Teachers and the perceived importance of ICT in their school

The comments provided by the teachers offer a wider view on the relation between respondents, ICT integration and their educational environment. School A teachers stressed the importance of ICT for both Italian and Irish instruction. They go even further stating that ICT is one of the guiding beliefs that characterize their institution being also a tool to rely completely on:

- *It is essential; we entirely rely on technology (School A)*
- *Very important. It is part of the ethos of the school (School A)*
- *It is very important (School A)*

Two of School B respondents acknowledged the importance of ICT, however the lack of technology equipment represents a major barrier for its integration. Teachers have to use what they have at their disposal, which is often non technology related material. One teacher argues that integrating ICT in their practice would be desirable but currently unlikely considering the technology tools available in the school and the potential technical issues which can be often difficult to resolve in a timely manner:

- *Yes, ICT is important. However resources are limited, there is only one room that is fully equipped with computers to which pupils have access (School B)*
- *We endeavour to use ICT and work to the best of our ability with the resources we have (School B)*
- *We aspire to it but there is little available in terms of equipment and repairs are slow (School B)*

5.2.9 Teachers and the perceived importance of ICT in their teaching practice

Once the teachers were asked about the link between their school and ICT, the focus of the questionnaire moved to exploring the use of ICT for their personal teaching practice. Again the results were quite different. If on one side School A respondents appear completely dedicated to the use of technology into their teaching, on the other side School B respondents openly manifest their distance from a “technology-driven” teaching practice. One teacher in School B expressed the importance of ICT, however the integration in class was very limited and less visible.

Is ICT important in your teaching experience?			
Answers	School A	School B	Grand Total
No		2	2
Yes	3	1	4
Grand Total	3	3	6

Table 5.8: Teachers and the perceived importance of ICT in their teaching practice

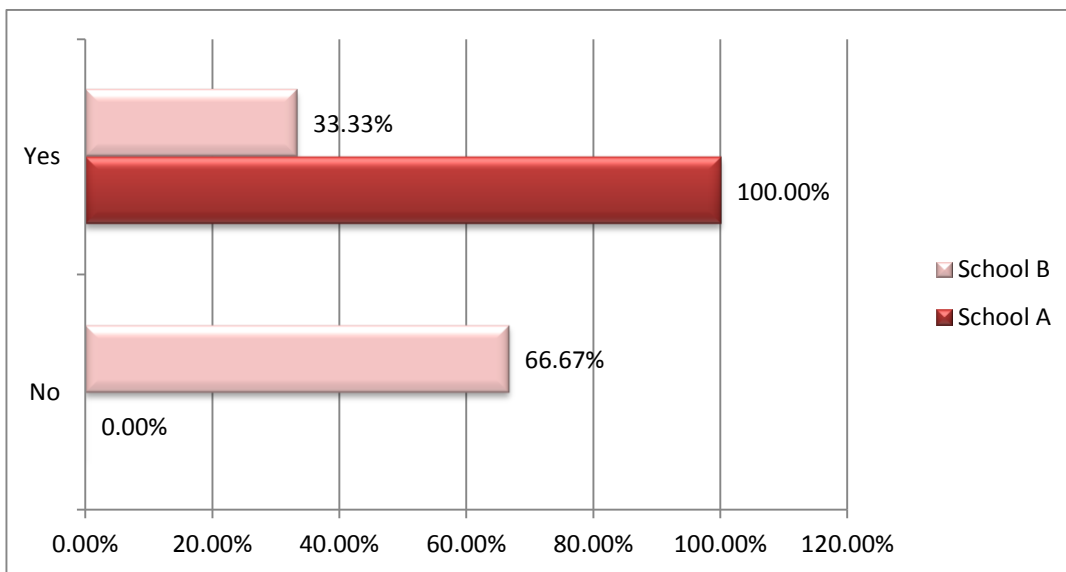


Figure 5.8: Teachers and the perceived importance of ICT in their teaching practice

School A teachers argue that they are using technology and diverse technological devices in their teaching on a daily basis. This use is equally important for each subject. Furthermore, those technological tools represent the preferred way to reach students as they appear to speak the language of technology:

- *It is. I use computer, iPad and ICT resources every day. I also use social networks and moodle (School A)*
- *Very important and used on a daily bases (School A)*
- *Very important. It is the conduit through which I can reach the students (School A)*

In School B teachers confirm relying on traditional methods (i.e. blackboard, books) for the vast majority of their teaching. Lack of resources is considered a significant obstacle quite difficult to override. One teacher recognizes the importance of ICT for her teaching practice but she states also that students often prefer traditional approaches as they do not always enjoy the use of PowerPoints or other technological media:

- *Not particularly. I depend on text and blackboard for the vast part of my teaching (School B)*
- *I do not make great use of ICT in my classes. I am teaching for over 25 years and tend to fall back to traditional teaching methods. Occasionally, I use ICT. Lack of resources is a definite obstacle (School B)*
- *Yes. However, students do not always enjoy the use of ICT. Some students dislike power-points and prefer if you do not use ICT (School B)*

5.2.10 Teachers and the ICT policy

The third question of the survey was dedicated to the ICT policy and if the teachers were aware of such policy and if this was in place in their institutions. All respondents were aware of such a policy however, there were some uncertainties on what this policy covers and entails:

- *I think we do. As far as I am aware we do, however I am unsure what it entails (School B)*
- *Yes, we encourage the use of technology as a learning and teaching resource (School A)*

5.2.11 Teachers and the use of ICT for Italian and Irish language learning

After having investigated the teachers' perceptions on the general use of ICT in the two targeted schools, the fourth question of the survey focused on Italian and Irish language learning and the role technology has within these two subjects. The figure 5.9, mirroring the results of the question above, indicates how predominant in School A the use of technology for Italian and Irish language instruction is whereas in School B there is not a full integration of technology into teaching practices.

Would you use technology to enhance students' Italian and Irish language and culture learning?			
Answers	School A	School B	Grand Total
Sometimes		1	1
Yes	3	2	5
Grand Total	3	3	6

Table 5.9: Teachers and the use of ICT for Irish and Italian language

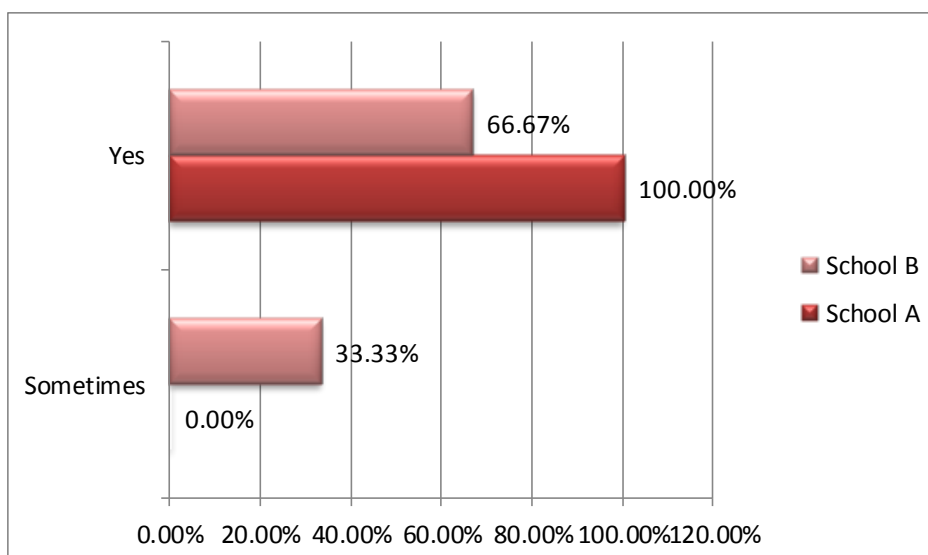


Figure 5.9: Teachers and the use of ICT for Irish and Italian language

In School A both Italian and Irish teachers confirm that technology is integrated and promoted everyday into language classes:

- *Yes, this is happening on an everyday basis (School A)*

In School B teachers recognize the importance of ICT when it comes to Italian and Irish language and culture acquisition but the issues related to its availability and use represent a crucial obstacle:

- *Yes, I think technology is an excellent tool in the enhancement of language and culture (School B)*
- *Most certainly if there was ease of access (School B)*
- *Occasionally. I have used You-Tube clips and power-points. However, technology does not always work and can be quite stressful in those situations (School B)*

5.2.12 Teachers and the use of technology for students outside the classroom

The fifth question of the survey was: *Would you encourage your students to use technology for language learning activities outside of classroom time?* Investigating the proposed use of technology outside the language class was an important aspect to be examined as it provides an indication of the teaching pedagogy and the role technology plays in it. The motivation teachers provide to students in embracing technology in their own time for educational purposes represents an important challenge. Specifically, this challenge has to be linked to the actual use teachers make of technology inside their language class. Is there a continuum, a conscious commitment on the teachers' part in facilitating the use of technology for students throughout their educational process? This will be discussed in more depth in the following chapter together with other student related issues (such as student autonomy

and the digital natives claim). Overall, all respondents confirmed that they encourage students to use technology, and specifically the Internet, during their educational time outside school. Teachers at both schools guided students to the use of specific language websites (i.e. *Abair Leat*) as part of their homework time, suggesting interactive activities to enhance their Italian and Irish. This happened even if technology was not embraced much during classroom time:

- *Yes, I give the students websites that are interactive and useful for learning and enhance understanding* (School B)
- *I have experience of the Abair Leat programme [this is the first social network dedicated to the Irish language] that was due to be rolled out in all schools and I thought it had great potential* (School B)
- *Yes, this is happening every day* (School A)

5.2.13 Teachers’ perspective on ICT and interactivity

The sixth question asked of teachers on the survey was: *Does the use of ICT help class interactivity?* This question focuses on the topic of ICT and interactivity, aiming to investigate teachers’ views on this matter. School A respondents positively agreed, claiming that technology helps to promote interactivity while in School B teachers’ responses were more diverse covering the “positive”, “negative” and “sometimes” option, as can be seen in the following table.

Does the use of ICT help the class interactivity?			
Answers	School A	School B	Grand Total
No		1	1
Sometimes		1	1
Yes	3	1	4
Grand Total	3	3	6

Table 5.10: Teachers on ICT and interactivity

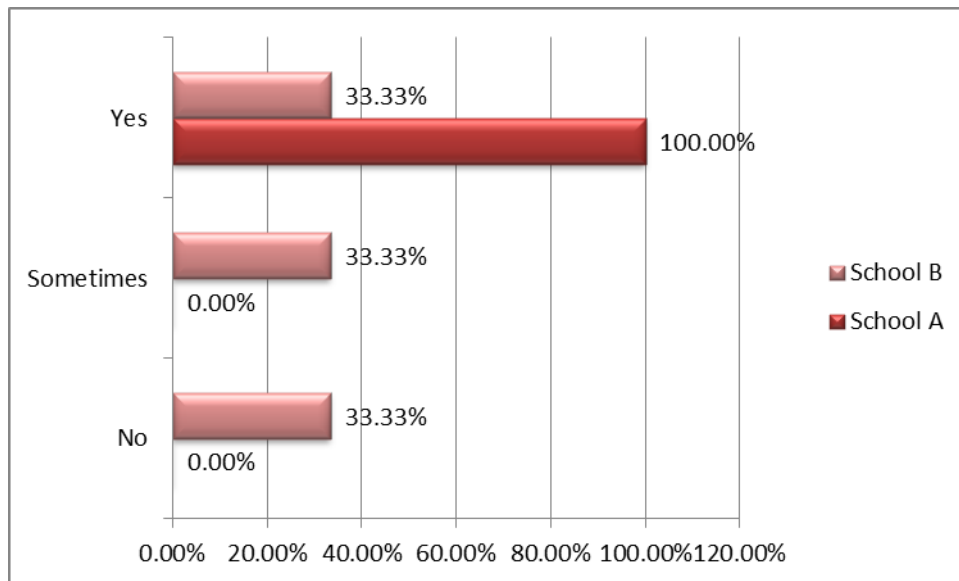


Figure 5.10: Teachers on ICT and interactivity

School A teachers firmly believed that technology helps classroom interactivity. This may be due to a stronger awareness they have towards ICT both on a policy level and on a personal learning and training level compared to School B teachers. They claimed also that technology encourages students' autonomy as it allows them to be in control of their own learning hence more motivated and creative:

- *Very much so. It empowers the student in the learning process* (School A)
- *It does and it also helps interaction, stimulates creativity and fascinates my students* (School A)

In School B, there was one teacher who considered ICT as a great help to promote interactivity hence communication among students and teachers. A second teacher stated that ICT could help but only on a specific level. Traditional group work in the language class is said to provide good interactivity anyway. Finally, the third teacher disagreed considering ICT not an essential tool to promote interactivity in class:

- *Yes, it promotes communication and interactivity* (School B)
- *On some level. However, group work and pair work or class discussion also provides this* (School B)

- *Interactivity between pupils? Not necessarily (School B)*

5.2.14 Teachers and the training in ICT

The seventh question focused on investigating if respondents had had regular and official ICT training during their teaching career. This question aimed to understand the support and guidance teachers have to integrate technology into their practice. Teachers in School A confirmed that they had some training during their teaching years except for one teacher who openly stated that he has not received any training yet. In School B, all teachers have received ICT training, attending courses in-house or in dedicated institutions.

Have you received teacher training in ICT?			
Answers	School A	School B	Grand Total
No	1	0	1
Yes	2	3	5
Grand Total	3	3	6

Table 5.11: Teachers and ICT training

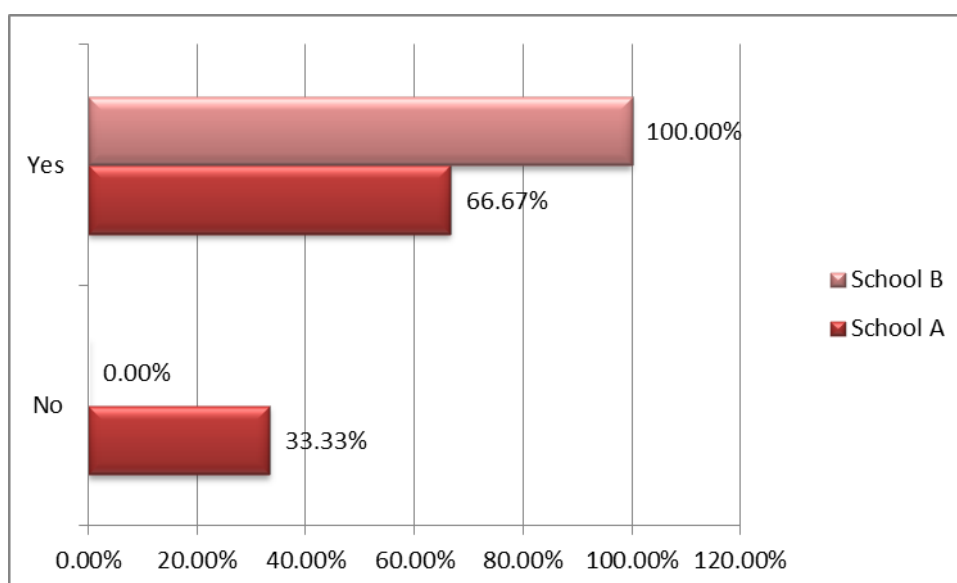


Figure 5.11: Teachers and ICT training

Except for one teacher, the other Italian and Irish language teachers in School A argued that they have received ICT training over the years however, the courses were not consistent. This is an interesting element considering that School A is a technology orientated school which expects the regular integration of technology among the different subjects. When it comes to technology, do the teachers have to often train themselves, spending valuable time in familiarizing themselves with technological tools and programmes? This question, from the data presented, will be re-approached and discussed in depth later in this chapter (through the semi-structured interviews) and in chapter 6.

- *Yes, but very little [training] (School A)*

In School B, teachers stated that they have received ICT training as part of their education and working programme however, it was confirmed that the training received was quite limited:

- *Yes, a number of in-house courses over the years (School B)*
- *I did some ICT training as part of my Postgrad in Education and a brief workshop. However, this is quite limited (School B)*
- *Yes, I attended a number of courses; one run by The National Centre for Technology and Education (8 weeks long) and others organized by Cork Education Support Centre (School B)*

5.2.15 Technology helps to improve Italian and Irish language teaching: Comments and ideas

The last question of the survey was designed with an open declarative statement and it was put to the respondents if they would agree with it or not. The above mentioned statement was: *Technology helps to improve Italian and Irish language teaching*; this was considered by the researcher as a final challenging statement that would allow on the one hand teachers to summarise their ideas on technology and on the other would

allow the researcher to outline a thread for each respondent to compare and contrast with the interviews. All respondents in School A agreed completely with the statement whereas in School B respondents agreed only partially.

In general, do you agree with the following statement: Technology helps and improves Italian and Irish language teaching			
Answers	School A	School B	Grand Total
Sometimes		1	1
Yes	3	2	5
Grand Total	3	3	6

Table 5.12: “Technology helps to improve Italian and Irish language teaching”: do you agree or disagree?

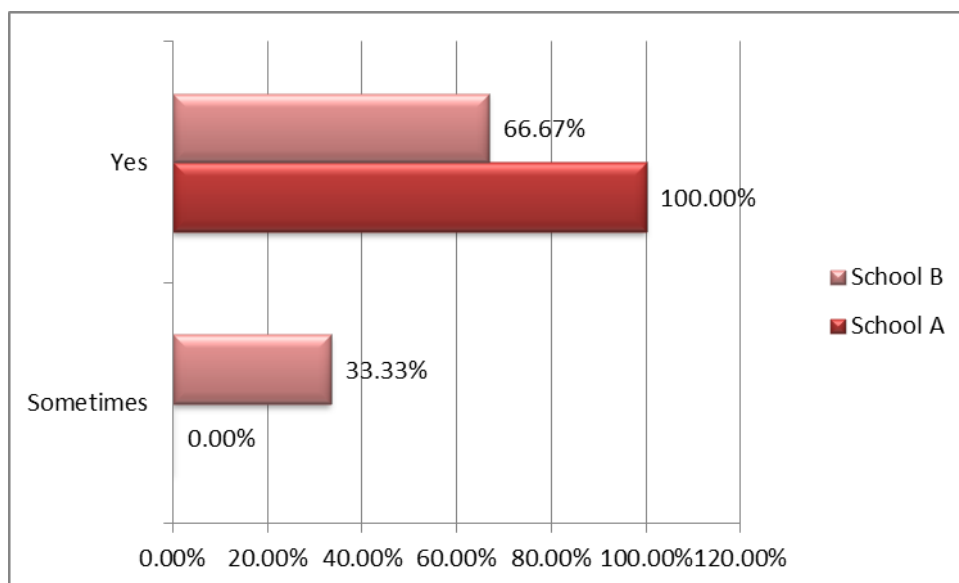


Figure 5.12: “Technology helps to improve Italian and Irish language teaching”: do you agree or disagree?

School A teachers were in agreement with the statement, confirming the important role technology plays in their teaching practice:

- *Yes, I strongly agree with this!* (School A)

School B teachers partially agreed arguing that on some level this statement could be true. They highlighted the fact that technology is the language spoken by students; students are said to be very confident when using it. This suggests a link and support for the digital native claim as will be discussed later in chapter 6:

- *Yes, technology is a language which speaks to the young person. They [students] understand and relate to it; they [students] are confident in its usage (School B).*
- *I agree on some level (School B).*

5.3 SUMMARY OF SECTION I

This first section of data analysis provides a wide and valuable amount of information. Two Schools have been presented comparing and contrasting the results of a questionnaire completed by both respondents: students and teachers. The first element that needs to be addressed is that in everyday life, all participants use many of the same technologies (e.g., mobile phone, tablets, Web 2.0, etc.), but the types of activities they are undertaking and the concerns they have are very different. This became clearer when approaching the educational environment issue. For some students, the idea of using technologies for language learning was stimulating, yet not essential. All teachers had a positive attitude toward ICT as a pedagogic method however, there were issues being reported regularly. Many teachers confirmed the lack of regular training being received together with the lack of technological support and this leads to an unsettled ICT integration. Specifically, in relation to the training, the results of the first set of data show that the training offered to the teachers should be less technical focusing more on the pedagogical use and effective integration of ICT into teaching practice. Teachers in both schools may exploit ICT for their own learning but when it comes to integrating it into their teaching practice they seem cautious as they are aware of the time involved in preparing ICT orientated lessons and the possible technical difficulties. Overall, teachers recognize the potential of technology

in stimulating students' learning, in making school studies relevant to real-life situations, in increasing students' creativity and autonomy but they still rely greatly on traditional, book-based, teacher-centred instruction echoing the findings of other researchers (Barak 2006).

In School B, there remains a very strong traditional book-based and teacher-centred approach; however, this does not reflect a negative attitude towards ICT inclusion. In School A, ICT is strongly emphasized, the school is well equipped and technology is more integrated into classroom activities. However, access to, support and appropriate training in ICT appears to be the greater concerns that link together both institutions.

Another aspect to be considered is that ICT is often seen by students of both schools as being important for specific subjects such as Geography or Science but for language learning it is often considered "fun" or engaging but not crucial to language learning. Students themselves have concerns about technology efficiency and reliability. In addition, students of both schools may use technology at home but the tools used and the activities undertaken are very limited to translating (using online dictionaries or, more often, google translator), going through PowerPoints and watching videos or visiting dedicated websites in the target languages following the advice of their teachers. The latter indicates a non-autonomous use of technology on students' part despite the fact that they have technological tools constantly available. Finally, in both schools, there appears to be some awareness on teachers and students parts in regards to ICT policies in place in their institutions, but there are also strong uncertainties on what exactly this policy refers to and entails exactly.

5.4 SECTION II -QUALITATIVE DATA FINDINGS (Semi-structured interviews)

This section presents the findings from the interview data collected from both teachers and students. As described in the methodology chapter, interviews were carried out with Irish and Italian language teachers (specifically, 1 Irish language teacher A-IR, 1 Irish and Italian A-IR/IT language teacher and 1 Italian language teacher A-IT in

School A and 1 Irish language B-IR teacher and 1 Italian language teacher B-IT1 and 1 Italian language teacher B-IT2 in School B) and their 3rd and 5th year students. For anonymity and practical reasons, teachers will be addressed in the interviews with the codes written in bold next to each instructor as indicated in the above lines. During the interviews, teachers were asked about 6 questions designed to cover a number of topics about their teaching philosophy and experiences in ICT use. In particular, these were:

- How do you perceive the use of technology for Education in general and language teaching in particular?
- Have you been using technology in your language teaching experience?
 1. If yes, how often?
 2. What types of new technologies are you inclined to use?
- What kind of barriers do you perceive when integrating technology into teaching practice?
- Do you feel that the use of technology can enhance language learning?
- Do you think your students are comfortable in using technology in their language learning experience (inside and outside the classroom)?
- Mark Prensky is an American writer and speaker on learning and education. He has coined the terms “Digital Natives” (referring to today's students that represent the first generation to grow up with new technologies) and “Digital Immigrants” (referring to people that were not born into the digital world but have, at same later stage in their lives, become fascinated and adopted many aspects of new technologies).
 - 1 Do you feel that the term “Digital immigrants” represents, in practice, today's teachers?
 - 2 Do you feel that the term “Digital Natives” represents, in practice, today's students?

The interviews were transcribed and read through carefully more than once. A coding scheme was developed (looking at themes and subthemes) by reading through the data and noting issues related to the use of ICT in the wider literature. The researcher was looking also at new issues that have not been covered by the literature, but which appeared to be of importance. The main themes, as well as the related subthemes, have been addressed here in accordance with the questions asked (Q.1 Theme: Personal view of ICT and language teaching – Sub-theme: useful, interactive, attracts students/help them pay attention). In each paragraph presented below the responses of both School A and School B teachers are outlined. Hence, a compare and contrast analysis is provided. A word cloud was then generated for each teacher to analyse visually the interview transcription, looking at the frequencies of occurrence within the body of text.

The same procedure has been followed for the students' interviews where the interview transcriptions were also coded according to themes and subthemes and the responses of different students were tagged appropriately (i.e. School A, 3rd year student 1). As for the teachers' interviews, each question is examined in the paragraphs below presenting selected quotations from both schools (year 3 and 5) and the related analysis. The researcher guided the interviews asking students 7 questions as outlined below:

- Do you have access to any of the following pieces of technology: laptop, computer, tablet (e.g. iPads), mobile phones?
 - If yes, how often do you use it/them (several times a day, once a day, once in a while when I need it)?
- Which pieces of technology are you inclined to use more often?
- Do/Would you feel comfortable in using technology for language learning (inside or/and outside the classroom)?
 - Do/Would you feel equally comfortable in using technology for both Irish and Italian language?
- Do you think there might be specific barriers/obstacles when using technology for your Italian and/or Irish language learning?

- Do you think the use of technology (using for example apps/social media) can facilitate and stimulate your Italian and Irish learning acquisition?
 - If yes, which skills of your language learning could benefit more from it (listening, speaking, reading, and writing)?
 - Do you feel any difference between Irish language and Italian language learning in this case?

5.4.1 Teachers' perceptions on the use of technology for education and language teaching

The first question asked to the teachers during the interviews was: “How do you perceive the use of new technologies for Education in general and language learning in particular?”. This question aimed to discover respondents' perceptions on the use of technology for educational purposes, giving them the opportunity to reflect and express their thoughts in a more detailed way. Teachers provided really interesting and inspiring ideas on the subject and were so enthusiastic and keen to talk about it that often they found themselves carried along by the conversation approaching also other related issues. In the table below the main themes are outlined on the left, which appear to recur regularly in the interviews and on the right the related sub-themes, which correspond to the responses given at each theme and/or issue arose.

THEMES	SUB-THEMES
Importance of technology	<ul style="list-style-type: none"> • Very important (A-IR; A-IT; B-IT2) • Vital (A-IR/IT) • Hugely important (B-IR) • “Nice treat” (B-IT1)
Benefits of technology	<ul style="list-style-type: none"> • Enhance interactivity (A-IR; A-IT; A-IR/IT) • It is the language spoken by kids (A-IR; A-IR/IT; B-IT1) • Bring instructors and students closer (A-IR/IT) • Flexible/useful (A-IR; A-IT) • Allow to explore (B-IR) • Good for listening (B-IT1)
Potential disadvantages of technology	<ul style="list-style-type: none"> • Technology can take over/must be able to control technology (A-IR) • Personal/professional barriers (A-IR/IT) • Potential technological gap with students (A-IR/IT; B-IT1) • Traditional learning and tools (books, pen and paper) may be at risk of disappearing (B-IT1) • Not as flexible as traditional tools (B-IT1) • Becoming dependant on it (B-IT1) • Reliability and efficacy difficult to ensure (B-IT1; B-IT2) • Distracting (B-IT1)
Role of the teachers	<ul style="list-style-type: none"> • No “expert teachers” (A-IR) • Material designer (A-IR) • Learning how to use different technological tools (A-IR; A-IR/IT) • On-going training as technology is changing fast (A-IR; A-IR/IT)
Role of students	<ul style="list-style-type: none"> • With technology they are able to produce (A-IT)
Lack of resources for Irish language Teachers	<ul style="list-style-type: none"> • Only books photocopied and put onto computers (A-IR)

Table 5.13: Technology and language learning (teachers’ perspectives-interviews)

When looking at the table, the thing that appears immediately and unsurprisingly clear is that School A has a better overview of ICT compared to School B. In fact, under the “Benefits of technology” theme, teachers from School A reported a higher number of comments related to the advantages provided by technology in fostering, for example, interactivity, flexibility and in getting teachers and students a little bit closer. On the other hand, School B teachers, under the “Potential disadvantages of technology”

theme, strongly emphasized the limitations and the more negative aspects of ICT focusing on the potential barriers at institutional and professional level, on the distracting element technology has together with the difficulty to ensure reliability and efficacy when using technological tools. Comments and responses from each teacher will now be reported and discussed accordingly.

The Irish language teacher in School A openly addressed the importance of technology not only for Education but also for the Working Sector (after school education). According to him, being technology literate is essential and, above all, it can't be avoided in this digital age. Furthermore, it is crucial to be able to control technology and to use it critically in order to construct, develop and progress with it:

A-IR: *I think it is very very important because we live in an age which is a technological age. Now for young people today to go through education successfully and to get employment later on, they must be technology literate, there is no way they can avoid it; as simple as going to university you must be able to use computers, you must be pc literate, you must have software and also, because the development of apps and things like that, you **must be able to control your technology**, it is not simply that you can use it but that you can construct with it, you can build and use it for referencing, use it for development, use it for progression [my emphasis in bold- these noted themes will be further discussed in the next chapter].*

The teacher states that, thanks to technology, there is no need now for an “expert teacher” who provides answers to any questions students may have, instead students can themselves look for the answers in their own way and in any place. There is a clear reference here to the notion of autonomy, which has been widely discussed in the CALL literature (Little 2003; Blin 2005; Alm 2006; Allford and Pachler 2007; Schwienhorst 2012) as an aspect characterizing the new pedagogy supported by ICT, and specifically to the fact that overall teachers recognize the potential of technology in increasing, among other things, students’ creativity and autonomy (Barak 2006; Lim 2007; Ferrari, Cachia et al. 2009). In this context, the teacher says that the role and use of the library has also changed:

*(...) so now instead of being in a classroom where you have "**expert teachers**" who are telling you the answers, you have now to find the answers to whatever problem you have ..and how do you do that? The day of the library is gone and it is not sufficient because you would spend all your life in the library just answering two questions ...so now you can stay at home and with your technology you can investigate engineering,*

you can investigate medicine, you can investigate any area that you are interested in and you can focus on [my emphasis in bold].

The teacher raises then an issue about students' awareness on the use of technology. Students in fact may be using technology on a daily basis but they have to be guided by teachers for a proper understanding and a suitable integration into different educational and non-educational areas:

(...) The problem is how educated are we to do that level of research or finding out ...so you can see kids they can use technology, they can play a game for hours but do they understand how technology is made? Can they use it for their benefit? So I would say there is a little problem there as well that we give them (students) the technology but we must teach them how to use the technology, they must see us using the technology so simply that it doesn't become a form of entertainment or a form of just watch and see where there is no interacting. So I always say that technology is generic, it doesn't care who is using it.

Regarding language teaching, the teacher argues that for Irish there is a lack of interactive technological material, having available mostly textbooks scanned and converted in a digital format. Because of that, the teacher finds himself producing often his own material which is then downloaded and regularly used by the students. As a senior teacher, he states that this proves to be a different approach compared to years ago when the platform used was solely the whiteboard and the type of activities were limited to listen and repeat without critical thinking behind it:

(...) in language teaching in particular we have been taught ourselves [teachers]...basically we learn, we understand the language, we impart by saying it and giving it written exercises and using books. Now the technology has come in but unfortunately I am a teacher of Irish, I am an Irish language teacher but the technology available to me is simply books photocopied and put onto computers. I'd see that we need to develop as a language more interactive stuff. Now I have tried it myself and for example in my Irish classes I would record my voice on a wav file with gaps in between it and the students have to download that file, play it, and fill in the gaps. Years ago I would have written on the board, I would have said the questions, they would have learnt the answers but there was no kind of thinking behind that.

Technology has also the benefit of bringing into the classroom the original places, the original sounds and people from the target language area (in this case the Gaeltacht region). Hence the material is proved to be authentic and highly engaging for students:

(...)for example I am teaching languages and I am talking about what we call the Gaeltacht areas in Ireland, Irish speaking areas....I can tell students about them but

they wouldn't understand because they can't visualise it, I can tell them about the beauty of Connemara and I can tell them about the rocks and the landscape, the smell of the sea and everything like that but I need to be able to open up YouTube and show them people from there, show them clips from there, let them see it, let them hear the sound. I find [it] very useful using dialects, we have three dialects: Donegal, the West, the South one and I find it fascinating. I would go there and record these people and I play it to them [students] and children in my class would say "what is that?" then I take the map out through my google maps and I say "let's zoom into Donegal", they would say "I was there last week" and there it becomes real, it's instant.

Another issue raised by the teacher is that technology is not affordable for some students and also, in some cases, it can be used as an excuse for not completing homework or general assignments (reporting technical or Internet related problems):

(..) Now the only thing I would say to you is that there is one huge "IF" there, If they are willing to use technology, if they have the technology, so some of them can't afford the technology but some of the kinds do not want to use technology unless it's for playing games or surfing the net is the other thing they would do.. so if I ask the kids in the class "I want you to research the Connemara dialect" they would say "no, my internet is broken or my laptop isn't working and it is so easy to say that so that's a difficulty when using a foreign language. What I would say overall it [technology] is a massive tool but I am still learning how to use it.

A-IR/IT:

The teacher of both Italian and Irish language expresses the great importance of technology for Education, considering it the means of communication today and the way to relate to students. However, the teacher highlights the fact that technology is moving very fast and that the efforts made by teachers to keep up and stay up with it are huge:

(....) I am only learning myself and trying to catch up, I did the H Dip (Higher Diploma) through Irish in Galway and that was only 5 years ago and I am already behind the time, so I am always trying to catch up, to keep up, it is constantly progressing.(...) I think it is vital (technology) , I think it is the way forward there is no point in burying the head in the sand. Technology is what the kids know, it is the way to relate to them, it means communication these days.

The teacher emphasizes the importance of using on-line platforms to meet people with the same interests and who share educational material. The value of social learning for teachers is here recognized suggesting a link to the wider literature and specifically to

the enormous advantages outlined when participating in online communities of practice where educators can share information, offer support and advice and create knowledge while learning from one another (Riordan and Murray 2012; Arnold, Ducate et al. 2013). However, the unfamiliarity with these tools and the reticence to use them due to a feeling of exposure, are important issues that the teacher addresses:

(...)Now I find that Twitter and the Edi chat on the Monday evening so again I am not brave enough to participate yet but I follow all that kind of stuff and I am following a lot of people now on Twitter even though it is all new to me and I am a little bit nervous, I wouldn't be putting things about myself anywhere you know, I have a Facebook account but I don't really put anything on it but it opens a whole new world and you are like meeting like-minded people who are interested in education at the same kind of level that you do, it is great for personal development, my professional development and as well as a means of communication with the students so it works in both ways.

In addition, the teacher confirms that there is a technological gap between teacher and students, as the latter appear to be more confident compared to their tutors. Her use of technology is not limited to PowerPoints or e-books, however she feels the need and urgency to explore and learn to use other resources extensively:

(...) I know that I am not at the students' level in using computers, I use the computer myself not just for PowerPoints presentations, I use online resources, e-books but I still haven't really used it extensively yet but it is a learning curve.

A-IT:

The Italian language teacher in School A expresses the importance of technology as the best option to have when teaching. Technology provides a wide range of resources: from videos, to podcasts, images and interactive activities replacing all traditional tools (such as tapes and cd-player) that, according to him, are obsolete and not used anymore. Technology is flexible and useful and allows students to produce something while enjoying the learning process:

*(...) **technology is the best option to have**, nobody now is using tapes or cds or things like that and also with the huge amount of resources like YouTube and podcasts available on-line is just fantastic..you can use a lot of material, you can change also the level according to the ages of the students that you have in front of you and also*

you can do very interactive things for example you can create, this is the project we are doing at the moment, we are doing cultural comics so we are using obviously computers and new technologies for doing that and this gives a new perspective on teaching language because obviously is not the usual thing you know you go to class, open the book, exercise number 1, number 2.. “do it, in class” it's you know, you are actually asking to the students to do something with the language and they are producing something and they enjoy it, for that point of view definitely technologies are extremely flexible and useful [my emphasis in bold].

B-IR:

In School B, the Irish language teacher confirms the importance of technology especially because it is a tool regularly used by her students. The teacher, being a senior one, admits her unfamiliarity with technology but, at the same time, she recognizes the potential it has:

I think it's very important, not that I've been using it a lot myself but I do think it's very important because I think that, you know, the more I learn about the girls the more I see how much they use technology; particularly with my senior classes, 5th year and 6th year, you know the 6th year now they're telling me about using Twitter and that and I think that you could have a whole avenue to explore there because one of the girls in my own leaving cert class was involved in debating, she was saying to me that she started tweeting in Irish here and there and that as a consequence she got those followers that because they thought she must be a real Irish speaker kind of person but I thought you know gosh that's great avenue to explore so it's hugely important .

B-IT1:

The senior Italian language teacher argues that technology provides students so many opportunities and a different way of communication. However, when it comes to education, she highlights the importance of a traditional book-based approach. Learning to use and read a paper book is a skill which is important to develop and preserve firmly:

(...) I think the notion of technology speaks very much the language of the child because they are very in tune with technologies and I suppose somebody, I don't think teachers of my age, can really understand how in tune, how much better they are with technology that we could ever imagine. I see my own daughter at home, they are just

on a different sphere, their mode of communication is totally different. In terms of Education I feel slightly different about it, I suppose I come from the old school, I like the concept of book, I like the concept of paper, I like that kind of tactile element of having a book, I like the idea of reading from a book I think this is a skill, I think it is an important skill to have, I don't think it should be lost

The relation between the student and the screen compared to the student and the book is said to be completely different, a totally different learning experience. In fact, students may write critically notes on books while listening to the teacher; the information is then scanned and re-interpreted by the pupil but the same, according to the teacher, cannot be done on the computer:

(...) I think the soul has to be connected with the outside world so it is the matter of going to libraries and in the working place as well I think that's a skill in itself just reading a book that and then adding to that, I'm setting up a written exam so the importance of reading, reading from papers, the relation with the screen I find it is totally different compared to the book. On the books students can write their own little additions, their own notes, I can speak to them individually, I might say something in class and the child might twist it and turn it in their own way and write it on the book in their own way that they can understand, while in the screen, as far as I know, you don't have that facility, well you can take notes but there is that disconnection there you know, so I can see (technology) has its space but it is ancillary.

Regarding language teaching, the teacher argues that technology may be used as an ancillary tool, specifically it can represent a treat for students but ultimately, it cannot substitute a lecture. Technology can be useful for listening activities but it is proven to be a disaster when using on line translators.

*(...) Regarding language teaching I remember 20-30 years ago we had language labs at school, it was a form of technology, sometimes it was very beneficial and sometimes it wasn't, I think kids enjoy languages on line but ultimately I find that the acquisition of the language lowers as well, in terms of how much they learn, what they learn, they might spend a whole 40 minutes on "Buongiorno e ciao" whereas I would use it during a conversation within a conversation in shorter length of time but **I think it [technology] is nice as a treat**, they enjoy it you know also with the 4th year we use technology to introduce film and that is nice but it can't substitute a lecture. The 4 steps when learning a language are listening, speaking, reading and writing and the writing it is also the last to come and I definitely think that technology would help the listening you know, but I see disasters when kids are using google translator and they become dependent on it [my emphasis in bold].*

In addition, technology may affect the way classroom teaching is conducted as it can be quite challenging and stressful for a teacher talking to a student who is looking to a screen:

(...) teachers may find very hard to talk with a child who is looking at the screen whereas my own kids at home when they are studying I take their phone, I take their laptop and I give them back when they have finished their homework as a treat, so it is a discipline thing as well.

B-IT2:

The junior Italian language teacher in School B states that technology is very important and that she occasionally uses PowerPoints and videos, however she underlines the fact that often students themselves do not enjoy the use of technology. In addition, technology has to be efficient and reliable in order to be successfully integrated into education:

Technology is very important in education and language teaching although, you know, students do not always enjoy the use of technology for classroom activities. I use PowerPoints and show videos from time to time in class but some students dislike those tools and they seem to prefer their textbooks and having the teacher in front of them. Technology is potentially a very powerful tool for education and language learning, but it has to work well also otherwise there is no point

5.4.2 Teachers' experiences on the use of technology for teaching

The second question asked to the interviewees aimed to investigate their use of technology in class and during their teaching experience in general. Furthermore, teachers were asked about the frequency of usage and the types of technology they were more inclined to employ in their teaching practice. The responses were diverse and strongly related to the ICT integration in their institutions. The themes highlighted cover the tools and the web platforms used together with their advantages and

disadvantages, while the subthemes list the teachers’ responses according to the main themes.

Themes	Sub-themes
Tools Used	<ul style="list-style-type: none"> • Laptop (A-IT; B-IT2) • Data Projector (A-IT; B-IT2) • Text-book (B-IT) • Tape-recorder (B-IT1) • Exam papers (B-IT1)
Websites and platforms used	<ul style="list-style-type: none"> • e-books (A-IR;) • you-tube (A-IR; A-IR/IT; B-IT2) • Power-Points (A-IR; B-IT2) • Recordings (A-IR) • “Coniughiamo” (Italian language website) (A-IR/IT) • TG4 (Irish language website) (A-IR/IT) • Vifax (Irish language website) (B-IR)
Positives	<ul style="list-style-type: none"> • Authentic material (A-IR; A-IR/IT)) • Challenging for students (A-IR/IT) • Possibility of sharing material for both teachers and students (A-IR/IT)
Negatives	<ul style="list-style-type: none"> • Non-interactivity (A-IR) • Lack of confidence on teachers’ part when sharing their own material (A-IR/IT) • No control of the class (B-IR) • Potential technical problem (B-IR; B-IT2) • Lack of experience (B-IR; B-IT1) • Lack of facilities (B-IR; B-IT1)

Table 5.14: Technology in the language teaching experience (interviews)

As for the table 5.13 presented in paragraph 5.4.1, the table above shows how School A highlights more positive aspects when discussing the use of technology for language teaching compared to School B. The “Positives” theme outlined in the table presents in fact comments of School A teachers which focus on the advantages provided by technology in regard to the sharing and challenging aspects together with the

authenticity of the material ICT can offer. On the other hand, School B respondents focused more on the negative aspects commenting on the issues related to the lack of institutional support and teachers' confidence while openly expressing the fear they have of losing control of the class.

The Irish teacher in School A argues that he is using several technological tools for different activities and teaching approaches. The e-books are used regularly in his institution however, he often states during the interview he does not find them particularly useful as they are, in his opinion, simply a copy of the paper textbook scanned into a computer. He claims that e-books do not provide interactivity and he has some concerns also on the use of PowerPoints. The teacher uses PowerPoints only to highlight words or specific concepts serving, in that way, as a tool which captures effectively students' attention. Audio recording is a tool often used by the teacher as, according to him, it has a great potential: he produces authentic material recordings of Irish speakers from Donegal or the Gaeltacht region and he stimulates his students to record themselves also in order to compare and contrast their Irish with that of the other speakers. The use of i-Pads or i-Phones is not as strong as notebooks and laptop computers are the tools with which students are equipped and more familiar:

A-IR:

*We have introduced **e-books** and, as I was saying, I am very disappointed with those because basically it's the book photocopied and put on the computer, I don't see the difference there, I would prefer more interactive stuff, I would use films, YouTube films, I can do it in an instant, I can do it in my classroom straight away and I would certainly be using power point but I am very weary of the concept of **death by PowerPoints** so I try not to.. what I use PowerPoints for. I would say "here there are key words I am doing today" and I would flash those up, I would flash them constantly, I would put images like a huge question mark "today we are going to do questions". I would also use **audio recording** because it is a massive way of teaching, I would record the kids, I would get them to record themselves and play it back; now they absolutely hate that because they don't like to hear their own voice so I say to them "Do it at home, in the bathroom on your own, I have no problem" but I get them into the idea and they listen back and they can hear and say "Oh, I see that pronunciation" and then I would say "Here there is a file of a friend I met in Donegal or in Munster with very good Irish...here is the script now record your voice and compare the differences between the two". Now they are tuned immediately into the music of the language, the pace of the language, the rhythm of the language and I could be talking for ages about that but I never get them to that level. I don't use i-pad*

and i-phone a lot, it would be more pc or most of them would have laptops and I find that very very good [my emphasis in bold].

A-IR/IT:

The Irish and Italian teacher in School A confirms the use of technology for her teaching; particularly she avails of online exam papers, PowerPoints to highlight topics and themes and specific websites (such as TG4- Irish language TV broadcaster- or “Coniughiamo”- Italian language web-site) to present authentic material. She explains that students feel challenged and positively engaged when they practice their target language through these online activities. The teacher underlines also the importance of the sharing concept in the technological world. Sharing teaching material is a great advantage however, not everybody feels confident enough to share and this may be a significant barrier:

*I would use the **exam papers** available in the system, I would use **PowerPoints** to get across topics and themes and I would also use Internet for authentic texts, like **TG4** so going for authentic sources and they like being realistic so if we are doing transports then we go to the Italian site and they look up the trains and they see that it goes from “Binario” whatever you know and we would do web task based search but also use “**Coniughiamo**” for the grammar part and they like it and it is good because you can see the results there (on the website) there is a percentage there, you can use your topic, fantastic for pronunciation, you have time to go and speak to people individually those who are struggling with the present tense, for example. **They (students) like a little challenge**, they can set their own time (on some website) and they compete with each other if they want to so I find that very good for Italian. For Irish, I find that the Internet is amazing, I am amazed for Irish because I am only teaching Irish this year, I have been teaching in a gaelscoil [Irish medium school] but I didn't teach Irish there and there are so many resources available for Irish on the web and even **sharing notes, sharing resources, people share everything** whereas obviously **for Italian those things are not there** we are trying with the PPLI [Post Primary Language Initiative] I've spoken to them as well and said: "I should be the one to blame" I wouldn't like things put up in my name but I am happy to share. **I am all for computer technology and things like that but people don't have always the confidence** to say "my things are good enough to be put up" whereas in the face to face you may talk it through saying "I did this" and people "oh yes, it may be useful, do you mind if I take that" [my emphasis in bold].*

A-IT:

The Italian language teacher in School A confirms the regular use of technological tools in his teaching practice; he goes even further, stating that he could not teach a single day without using technology. The teacher argues also that students are so used to different technological materials and resources that they expect from their teachers the same type of confidence and usage. Students without technology are lost:

*I everyday use technologies, **I couldn't teach a single or even a day without using my computer, projector, multimedia material** and actually it was funny my computer was broken for two weeks and it was very very difficult to handle it ...because also the students, they are also used you know, once you start to use technologies and you use them to use technology thenthey get just used to that and **if they don't have the technology in front of them, they just get lost. They [students] are used to different material, different resources so they expect that from teachers as well** [my emphasis in bold].*

B-IR:

In School B, the Irish language teacher confirms the very poor use of technology in her class mainly for two reasons: (1) the lack of technological facilities at her disposal in the school, (2) her personal teaching method which is mostly conducted in a traditional way being the teacher in control of the class:

*Very little because mostly for two reasons: number one **if I had my own classroom and I had access to my own laptop, my own tape recorder, my own projector..everything, I think then because I like to be in control in the classroom and I find, you know, even if you are doing something very simple like showing a DVD you are going to the room and there is a scart lead missing or there is no remote control and you waste ten minutes trying to find it and it just annoys me so much but so.. in that sense I haven't** [my emphasis in bold].*

The teacher states that at one time she delivered her language classes in the computer room using specifically *Vifax*, an Irish programme where news and activities in Irish were available for students and teachers, and this proved to be particularly interesting for final year students. Even though the teacher is not integrating technology in her

practice for the above mentioned reasons and her addressed status of “senior-teacher”, she appears to be very open to it:

*Now at **one time** I did classes in the computer room because there is a programme that's available and it's called Vifax and it is produced by the Maynooth University and there is access; what they used to do there was using Irish news that are on TG4, RTE and they present news but then there is a whole lot of exercises on it....there are **ready resources** there is not as if you have to work on it, there are questions on it and, you know, it's a lot of work we do on 5th and 6th year level, the topics are current, they [topics] are up to date, suitable for the orals, suitable for us as well but my own experience of using technology is very limited really for those two reasons; I don't have my own room and I suppose partly because I didn't start out with it [technology] as well you know, because I'd be a senior teacher now in the school. I'd be very open to it. [my emphasis in bold]*

B-IT1:

The Italian teacher in School B states that she brings her students to the computer room only to give introductory Italian classes and to show them some useful Italian websites. The teacher confirms that she has never brought a laptop computer into her language class mostly because the lack of technological equipment available in the school and the strong beliefs she holds toward a traditional book-based approach. She reports also that younger teachers may use technological tools during their classes:

*No, generally speaking, my only experience would be bringing the kids to the computer room and giving there the Italian introduction class and I would bring them there to show sites [in Italian] available for them and they enjoy that but **from my own experience no, it's the text-book, the tape recorder and the exam papers** and they would cover all aspects of language learning within that but no, **I don't think that I have ever used a laptop in class**, it seems very sad isn't it? **We don't have it here, our school isn't geared to it but I noticed that the new teachers coming up they are using the projector** but I don't know sometimes a well kept copy book and notes, I know I sound old fashion, but I find them the perfect tool [my emphasis in bold].*

B-IT2:

The second and newly qualified Italian language teacher argues that she uses technological tools and resources during her language classes however, the lack of

technological support and reliability of the tools at their disposal may result in a very frustrating process:

I would use PowerPoints to show students some vocabulary and related images. I then use video clips. The problem is that technology does not always work and it can be very stressful for the teacher and the students as well....and you may be ending up wasting a lot of time...

5.4.3 Barriers perceived when integrating technology into teaching practice

The third question put to the interviewees was: “What kind of barriers do you perceive when integrating technology into teaching practice?”. Through this question the researcher aimed to get more in depth information about the barriers and related issues on the integration of technology for teaching practice. As the table below indicates, general themes related to supports, barriers and issues have been recognized together with subthemes addressed by each interviewee.

Themes	Sub-themes
Barriers/ Issues	<ul style="list-style-type: none"> • Time consuming (A-IR) • Training (A-IR; AIR/IT; B-IT1; B-IT2) • Technology is evolving fast (A-IR) • Age (A-IR; B-IR) • Copyright on material (AIR/IT) • Child safety (AIR/IT) • Possible technical problems (A-IT) • Non-working technology as an “excuse” for not do homework (A-IT) • Technological availability at home (i.e. Internet connection) (A-IT) • Being in control of the class (B-IR) • Attitude towards technology (B-IT) • Poor technologically equipped institution (B-IT1; B-IT2) • Final exams in paper (B-IT1)
Support	<ul style="list-style-type: none"> • Students (A-IR) • Well- technologically equipped institution (A-IR; AIR/IT) • Platform in development to monitor students’ activity (A-IT)

Table 5.15: Perceived barriers when integrating technology into teaching practice (teachers’ perspectives - interviews)

A-IR:

The Irish language teacher in School A starts by discussing the age factor and explaining that he sees it as a challenge rather than a barrier for embracing technology. One of the barriers he mentions is time; learning how to use and integrate technology is a time consuming process with the necessary support not always available:

*I am certainly **not young** and one of the oldest people using technology here **but I see that as a challenge**, there is nothing stopping me from learning this (...).Now the only major problem I would see in schools for me especially is **time**, I am not given any time in school to learn technology, I am not really taught technology, when I came to the school it was a cultural shock, they handed you a laptop and I put all the stuff into*

it but no one said "this is how to use it, this is when you use it, this is why you are using it" [my emphasis in bold].

The teacher reports also that some schools, like School A, are extremely technology orientated to the extent that sometimes it is very hard for teachers to keep up with it. He reinforces then the concept of time and how much time technology can take when setting it up for class:

*So I think there is a problem there like some schools, like this school here, are **hyper about technology** to the extent sometime you say "whoa..stop, stop a little bit" now, having said that there are solid reasons behind that, I like it but I know some people are quite intimidated because when you go into the classroom, when I go into the classroom "How do I connect up to the technology in the classroom? What do I plug in to what?" and if I don't know, it will take me up to half of my class to do it so that's a big fear and I know a lot of people saying "I won't do it" and it is because "what do I do? What do I plug in to?" types of thing you know, but I think time for me is the big one, I have to learn myself when I can if I can [my emphasis in bold].*

The lack of training in ICT is another barrier addressed by the teacher. Technology changes on a daily basis and the training provided to teachers should move hand in hand with the technological developments of their institution. Students appear to often instruct their teachers on technology usage and that maybe is sometimes a serious issue:

*Now they do courses within the department, they are an hour, sometimes the department might bring you away for half a day but you are teaching for 30 years or something like that. I think would be a wonderful survey to go to the teachers and ask "How much have you done exactly?" and I say the majority would say "I did that once, I did a course once not sure..a couple of years ago"..a couple of years ago? Technology is changing every day like the kids come to me and say "Sorry, do you know how to use that?" and I say "No" and they go "You need to do this and that" so **they are my teachers** and that's a little bit of a problem as well [my emphasis in bold].*

A-IR/IT:

The Irish and Italian language teacher in School A confirms the quality of the technological equipment available in her institution however, there are always concerns about reliability and possible technical problems that may arise during the class:

*Here luckily technology is good because we have the support and that but I know, I mean, **you are worrying about the Internet going down, you are worrying about wires going missing** for overhead projectors etc..I mean this is the reality but, as I said, we are lucky here, we do have that support but that is reality in classroom you know [my emphasis in bold].*

The teacher reports barriers in relation to child safety policies or copyright issues and she addresses the lack of awareness on those specific subjects. The lack of awareness may cause nervousness which may be transferred into teaching practice:

(...) Another area that I wouldn't be very kind of aware of and again I got tiny bit of coaching on that in modern languages, would be all the copyright issues and all that kind of things. My other nervous thing would be again all that child safety and policies for that, that is vital you know and again that everybody understands and is clear on that you know I think everything has be stated very clearly and there has not to be any grey area, it's black and white? It's a whole area and it is one of those areas where people are nervous about, it's the brave ones who want to go there, who kind of experiment, trying other things.

A-IT:

The Italian language teacher in School A states that one barrier for technology integration into teaching practice may be represented by potential technical problems that may arise in class or outside class (Internet connection down, the device is not working properly ect.). This can also be used as an excuse by students that are not particularly keen to work at home:

*That's my problem because I love technology and students love technology but sometimes there are problems there for example if their computer is broken for example, they are just unable to access the resources or, for example, if they don't have Internet at home for example that's a big problem..and that's a problem that, to be honest, I didn't come up with a solution with. Sometimes you need also to create alternatives, traditional resources that just in case something like that happen you are able to switch to the traditional ones but it is very frustrating. I have to say so ideally using technologies is perfect, it is flexible, interesting and everything but you know, when you have a problem it's very difficult to handle it especially because they [students] are so used to technology and if we have a problem then it can confuse them...and sometimes obviously certain students are not particularly inclined to work at home so they just find that (**Internet connections problem etc..**) **as an excuse***

sometimes they say "I couldn't work at the project because I didn't have Internet at home" or "My computer is broken" so that's an easy excuse to find or maybe you [teacher] send an email with some material and they say "oh, I didn't get it" [my emphasis in bold].

The teacher reveals also that, in order to control the problem of broken technology as an excuse, the school is developing a platform which will check the time students spend on their online homework activities:

But, as I said, we are developing a new platform and this platform would actually see if students had access to the resources that you put in the platform and how much time the students spend on the platform on that specific resource obviously it doesn't guarantee that the students did their homework, the project but at least it gives you an idea for how long the students have been working on the project, how long the students has been accessing the material that you put in there; it's not the solution but it gives you indicators whether the student is working or not .

B-IR:

In this answer, the School B Irish language teacher reinforces her positive attitude towards technology even though she is not integrating it into her practice. The barrier here is considered to be the teacher herself and her teaching methodology together with the previously mentioned lack of technological tools available in the school. The teacher is aware of adopting a teacher-centred approach as she is in control during her classes and reluctant in letting her students be responsible for their learning:

*(...) I am a little bit inclined to be, you know, the teacher and to control and I am reluctant..I think well... a fault on my part is that **I don't think I always put enough responsibility back to the girls, to take responsibility for their learning** so I think for me that would be a kind of barrier...but I mean to a large extent I would be very positive towards it [technology] and I think now for Irish teachers particularly there are loads of resources with TG4, even I use things from radio na Gaeltacht as well so I think the resources are there and now with i-pads you can just do simple little things [my emphasis in bold].*

B-IT1:

The senior Italian language teacher is on the same line as the Irish one. She states that barriers for technology integration are represented by the lack of tools available in the school and the attitude and teaching methodology she adopts herself:

*The barriers would be in terms of just **availability for the school** and I think **I am the barrier** and my own attitude towards the use of technology would be a barrier, I probably need to be maybe educated more, training for teachers would be needed to show how beneficial it can be. I would use applications from the Internet in language teaching **but they would be ultimately in paper form** when I hand them to the kids [my emphasis in bold].*

She makes also another interesting point stating that ultimately students have to face paper format exams hence, if technology aims to be an integral part of the education process, they need to be adapted and changed accordingly:

*(...) the fact as well that **we need to bring exams in line with technology**, we can't just have the kids here immersed in technology and ultimately they are facing the same exam that I did 40 years ago, it doesn't make any sense whatsoever, so I think it is a process a very slow process [my emphasis in bold].*

B-IT2:

Finally, the School B newly qualified Italian language teacher confirms that one of the barriers for ICT integration is represented by the lack of available facilities in their institution adding also that the training received in ICT is very limited:

(...) Well.... I think one of the barriers is represented by the lack of equipment and facilities in the institutions. The lack of training as well is definitely a barrier. I did some ICT training as part of my Postgraduate course in Education and some workshops but, overall, the training received is very limited.

5.4.4 Technology as a tool to improve language learning?

Interviewees were then asked about the link between technology and language learning and, specifically, if technology facilitates the language learning process. Despite the very different technological orientation of the two schools, the responses were unanimous and very positive towards technology integration. The table below presents the main themes gathered from the interview transcriptions and analysis from both schools which include the benefits and possible risks when integrating technology into language learning; related sub-themes are then displayed in the other column.

Themes	Sub-themes
Does Technology enhance Language Learning (LL)?	<ul style="list-style-type: none"> • Absolutely (A-IR ; A-IT; B-IR; B-IT1) • Technology has a role to play (A-IR/IT)
Benefits technology brings to LL	<ul style="list-style-type: none"> • Interaction (A-IR) • Flexible (A-IT) • Possibility to approach in a different way language skills (B-IR) • Technology can make a subject more interesting (B-IT1)
Possible risks when integrating technology in LL	<ul style="list-style-type: none"> • Technology may be distracting us from the traditional educational values (A-IR/IT)

Table 5.16: Technology to improve language learning (teachers' perspectives - interviews)?

A-IR:

As confirmed in the other responses, the School A Irish language teacher firmly believes that technology enhances the language learning process. He highlights the fact that he is still learning how to best integrate technology into teaching practice and that it is important to be always in control of technology:

Absolutely, I'm still learning how to do it, but I find that everyday now.. you have to be very careful not to let it take over.

The teacher mentioned specifically one Irish culture class where the topic was Irish traditional dance. The classroom was equipped with cameras, amplifiers and i-Pads; students were actively engaging with technology, being at the same time autonomous and focused participants of their learning process. This resulted in a very entertaining and engaging language class:

*I have 4th year, 4th year it is what we call transition year so we try to expand things for example I did Irish dancing and they looked at me saying "we are going to do what?" so now I have amplifiers and sound and cameras with i-pad we film me dancing with the students, it was hilarious and they were all "yes, this is great fun"; **there was technology all over the place but it wasn't technology making the fun it was them interacting with technology** [my emphasis in bold].*

A-IR/IT:

The Irish and Italian language teacher in School B argues that technology has an important role to play in the language teaching process however, it should not replace the traditional educational values represented, for example, by good and meticulous grammar teaching. Technology has to work together and be in balance with the traditional approaches and this has to be ensured by teachers in every single subject:

*I think technology has to play a role and you know **we have to make sure that there is a balance as well** that is not the older generation have a very good grammar, they are meticulous for teaching Irish grammar, the young teachers coming in focus on computers and forget the basics of the language you know, so we have to make sure that, the same with every subject, while we are incorporating technology, technology doesn't replace the educational value and that is the fear sometimes that people **get distracted by technology** [my emphasis in bold].*

A-IT:

The Italian teacher in School B strongly supports technology as a tool to enhance language learning. He states that technology is very flexible and, among all the

subjects taught in the school, its usage seems particularly appropriate for language instruction as technology can facilitate greatly not only the acquisition of the target language but also the culture:

Absolutely, technology is very flexible and there is so much you can do really.... maybe in some areas it could be very difficult to use technology you can't be particularly flexible but definitely in languages it is absolutely flexible, as I say, you can use any sort of thing, you can just show them that film or movie and you can work on that..so it is extremely flexible because at the end of the day when you are teaching a language you are teaching them the culture, the real life in that country so you can just bring in TV, radio, music, any sort of resource really.

B-IR:

In School B, the Irish language teacher states that technology can greatly enhance language learning and it may be particularly important for developing the listening skill:

Yes, very much. I think it would be a huge advantage because I can see, you know, they like even to hear the accents rather than to hear the teacher's accent only, you know different styles.

B-IT1:

The senior Italian language teacher describes technology as something beneficial particularly for the activities outside the classroom. In addition, the teacher argues that there is a difference between Italian and Irish learners: Italian learners have consciously picked that specific foreign language to be studied during their schooling years whereas Irish is a mandatory language and, in that sense, technology can help in making the learning of Irish language more engaging, appealing and interesting:

*Absolutely and I think it is something that can help the learning at home and can enhance that, they [students] can go on the Internet there and watch the Italian TV, they can listen to the radio you know that aspect is very very beneficial and I suppose certainly, you see we don't have any reluctant learners here so the kids want to learn Italian whereas for Irish, for example, there are a lot of reluctant Irish learners so **I think technology could spice it up** and there are some excellent Irish websites there,*

so the students can enjoy it a little bit more, but there isn't only enjoyment when there is a course to be covered [my emphasis in bold].

B-IT2:

The second Italian language teacher of School B agrees on the fact that technology can enhance language learning mainly because it allows interactivity and provides authentic material. She agrees with the senior Italian language teacher on the fact that technology can be a great support for activities conducted both in school and outside school:

Yes, I think technology can help interactivity and also, you know, it can be a great help in providing authentic material. So, yes, technology can be a very good tool for enhancing language learning not only in class but also at home.

5.4.5 Teachers' perceptions on students' use of technology for language learning

Teachers were then interviewed on the perceptions they have about students' use of technology. Are students, in their opinion, comfortable in using technology for language learning both inside and outside classroom? The responses revealed a general sense of easiness on students' part to technology usage for language activities even though some barriers and issues were highlighted by the interviewees, as shown in the table below.

Themes	Sub-themes
Students' confidence in using technology	<ul style="list-style-type: none"> • No issues for them (A-IR) • Comfortable with technology (A-IR/IT; A-IT; B-IR; B-IT1; B-IT2) • Far ahead compared to their teachers (A-IR; A-IR/IT)
Students' weaknesses in using technology	<ul style="list-style-type: none"> • They need to be taught how to use technology/Technology integration into education (A-IR/IT) • Differences among years (1st, 2nd and 3rd year more technological orientated compared to 5th and 6th year) (A-IT; B-IR) • Teachers (B-IR) • Technology as a private space (preferably non-educational related (B-IT1; B-IT2)

Table 5.17: Students use of technology (teachers' perspectives - interviews)

A-IR:

The Irish language teacher in School A strongly stated that students are completely at ease in using technology, they do not seem to have any kind of issues. On the other hand, the ones struggling seem to be the teachers themselves as they have constantly to catch up with new technological tools and applications. Despite the strong technological orientation of School A, it has been here stated that half of teachers in the school employ a traditional “chalk and talk” method which is said by this teacher of Irish to be easier to apply and extremely boring. Finally, the teacher highlights the fact that students see technology as a tool that adds fun and flexibility to the education process:

There are no issues at all for them (...)

*We had an event last year, the graduation, where we took photographs, we put photographs up and there were 20000 hits within two days, it went viral, all other schools were looking at our photographs, we quickly recognized that **we should be using Facebook and Twitter to talk to them**, the older people like myself think "Oh*

*God, how many more things do I have to learn?". I just spent a year using Moodle and I struggled but I forced myself and I learnt Moodle and I had the kids putting up things into Moodle and I was doing feedback through it and they loved it and I put stuff out there, recordings, they do little recordings themselves and they put them out there and now Moodle is gone for us, we have something new coming on and I say "Can I transfer my Moodle stuff to the new tool?" and they say "maybe" so that's very frustrating. **Yes, kids can Moodle, doodle whatever they wish.***

*We are doing languages today and we are doing Italian culture with language and dialect, Sicilian dialect "would you go to that file and play that sound file, put your earphone in please, now save that onto your phone and put it up into your Moodle, just store it there and put it under Sicilian dialects" **they [students] would see that as fun, as a computer game and they are now using the technology. I would tell you that 50% in this school is still chalk and talk, it is easier and horrendously boring** [my emphasis in bold].*

A-IR/IT:

The Irish and Italian language teacher in School A confirms that students are comfortable in using technology however they seem to lack in confidence when asked to produce something autonomously. They are the generation that easily approach *Google* looking for answers or any type of information but when it comes to producing something orally, for example, they do not show the same kind of easiness. It is then one of the teachers' duties to guide them to the best use of technology:

*I suppose it's a sign of the generation, they want to Google things, they want to search **but they are not great at the production**, hand them something and say "record an interview" and they freeze and it is the same with the oral production, there is that fear of making errors, producing, there is this constant barrier that you try to overcome and breakdown and presenting skills, communication skills I think all of that is something that needs to be worked on but they are perfectly comfortable with using computers but even if **they know a slide and a PowerPoint we need still to teach them how to present something** [my emphasis in bold].*

The teacher highlights often throughout the interview that technology is the language of students' today and teachers have to catch up with it in order to align with their students and successfully facilitate the education process. Fear of technology on the teachers' part is a barrier that should not be underestimated:

There are so many other things that we [teachers] need to learn but unless we know ourselves we can't pass them on. A lot of teachers would be totally blank about technology because of the total fear; they are just paralysed by it because they know their students are so far ahead and it is like they [student] have an other language.

A-IT:

The Italian language teacher argues that reaching the comfort zone in using technology for educational purposes is an on-going process. There is, in fact, a substantial difference between those students that have started their schooling years with technological tools at their disposal and those that have embraced them in a later stage:

They are becoming comfortable. If you compare within the years you may find a huge difference for example, in 5th year, 6th year technology is still not particularly perceived as something which is relevant to the learning but if you actually have a look at the 1st year, 2nd year, 3rd year even some of the 4th year they just totally depend on technology but this is due also because, you know, the policy of our school changed in the last 5-6 years so obviously 6th year they are not using the computer, it's pretty normal they were used to something which is like traditional but now any teacher has a laptop, an i-pad or tablet and they know how to use it and they use it.

B-IR:

The Irish language teacher in School B argues that students are very comfortable in the use of technology for language learning highlighting often that she represents a barrier herself for technology integration. The teacher would also see technology as particularly useful for more mature students:

*Yes, they would..**I would be the problem not them**_. They are very comfortable. Even yesterday I was talking to a girl in 1st year and I was asking her "Do you know how to use Twitter?" because I just had an interest in Twitter because they were telling me in 6th year about it [about the debate earlier mentioned] and she said "oh yes, I do " you know and I think even if you could get them to be in contact with other schools or do tweets in Irish ... **Particularly the more mature students would have an interest** [my emphasis in bold].*

B-IT1:

The senior Italian language teacher in School B argues that students are completely at ease when using technology but when they have to use it for learning purposes different issues may arise. Students see *Facebook*, *Twitter* as their private spaces where to “like”, “share”, “comment” various things but when it comes to use those platforms for education they appear to be more sceptical and cautious:

*Absolutely, they have laptops, i-pads, they Facebook each other, they use Twitter. They are immersed in technology. I think when they (students) use Facebook, Twitter, **that is their own space** and when it comes to learning it is different [my emphasis in bold].*

B-IT2:

The second Italian language teacher in School A confirms that students are overall very comfortable in using technology but, as the senior Italian teacher stated, they are often reluctant in using social platforms, for example, for language learning. In addition, she highlights that in this digital age, teachers have, among other things, the crucial role to guide students to a critical approach and use of technology:

Yes, students are comfortable in using technology, however they need to be guided for a critical integration. Students are often uncomfortable in using social media such as Facebook for learning a language.

5.4.6 On Digital Natives and Digital Immigrants

Teachers were then interviewed on the Digital Natives and Digital Immigrants claim and, after explaining what this claim consisted of, interviewees discussed and expressed their thoughts and ideas in this regard. The main themes recognized in the interviews transcription were the Digital divide, the Digital Immigrants and Digital Natives status with their relative subthemes appropriately addressed:

Themes	Sub-themes
Digital divide	<ul style="list-style-type: none"> • Certainly is changing (A-IR) • Yes, in a way (A-IR/IT; A-IT) • In some cases (B-IR; B-IT2) • Makes no sense (B-IT1)
Digital Immigrants	<ul style="list-style-type: none"> • Age (older teachers vs newly qualified teachers) (A-IR; A-IT; B-IR; B-IT2) • Keeping up with technology (A-IR/IT)
Digital Natives	<ul style="list-style-type: none"> • Trendy name (A-IR) • Born with technology (A-IR) • Technology is using them (A-IR) • Dependent on technology but not aware and critical with it (A-IR/IT; B-IT1; B-IT2) • They are more advanced in the use of technology (A-IT; B-IR)

Table 5.18 : Digital Natives/Digital Immigrants

A-IR:

School A Irish language teacher confirms that a digital divide exists as newly qualified teachers start their career being familiar with technology while some senior teachers embrace it with big efforts later on and others, as it seems easier, just consciously avoid it. Regarding Digital Natives and Digital Immigrants, the teacher openly expresses that this is only a trendy name; Digital Natives is a term that may address people born in the digital age however, this is not a definition for the skills students seem to have; it is often the case in fact that today's students are using technology passively without actively and critically engaging with it. This leads us to think that technology is using them. On digital immigrants:

Certainly it is changing because newly qualified teachers are not immigrating towards it [technology], they're there really. But certainly we still have the older teachers in teaching struggling, either avoiding it or catching up or learning like myself.

On digital natives:

*In my opinion it's **just a trendy name** and I hear this a lot; if you want to put a title on it, well they are digital natives because they are born with it, it is in their environment, they are using the technology but **the technology is using them as well**; it is not the case for them to be productively using the technology or choosing and controlling the technology that, to me, would be a Digital Native, whereas a lot of people are just passive [my emphasis in bold].*

A-IR/IT:

The Irish and Italian language teacher argues that the Digital Native and Digital Immigrants claim seems quite controversial as the age appears to be the main variable. The age, according to the teacher, cannot be considered the core element of this claim as there are older people that have embraced technology in a later stage of their life becoming perfectly confident as the natives are supposed to be. The newly qualified teacher may be considered natives in the sense that they are familiar with the technological tools however, technology is moving so fast that it is a big challenge for everybody keeping up with it. On digital immigrants:

I think it's very tricky because overall I would say "yes, we are digital immigrants as a full body" and unfortunately a lot of people see it as an age thing as well and people think older teachers don't have the technology younger people do which isn't true either, there are fantastic older people who have gone back and made the effort, they have become a native like and they have put an awful lot of work and embrace it and it was work for them you know; I mean because they would have been from the era of "Chalk and talk" and writing on the board and lecturing and it was a huge change for them but that's it, I think teacher education has changed and has a break for technology so I think the newly qualified teachers when they come out are natives, they are taught to be prepared for the world that they are in at the time now this been said, technology moves so fast that it is up to everyone to keep up to date.

The teacher disagrees on the definition of Digital Natives considering instead students as really dependent on technology without an awareness of their actions in the digital

world. Students seem to lack of that critical thinking process that would allow them to employ technology at its best. Teachers should be the ones providing that guidance and support. On digital natives:

*I actually don't think they are natives, I think **they depend on the Internet**, I think they know social media **but they don't have awareness**, they don't understand the reality, the consequences, they don't realize the impact of "liking things", the cyber bullying, the Internet safety, the putting up your own information, they don't have that awareness and again that it is back to all of us to pass on [as teachers] but I think if they were natives that would be all intuitive, they would know that whereas they don't. The only thing that it is familiar to them now is "Google has the answer for everything" and they don't even always have that questioning analytical thought process of knowing how to analyse what they are finding, finding out if it is a reliable source or not [my emphasis in bold].*

A-IT:

The Italian language teacher in School A expresses his support for the Digital Immigrant claim stating that senior teachers appear less flexible in the use of technological tools. He is a young teacher, at the beginning of his teaching career but interestingly enough he considers himself a Digital Immigrant. The age is certainly an important variable for defining this claim but the approach to technology and the skills possessed to use it appear to be much more important. On digital immigrants:

Yes in a way I would agree with that obviously senior teachers have more problems in approaching technology I am not saying that they don't use technology they do but sometimes they are not particularly flexible in using a variety of technologies maybe we just may find senior teachers using computer, maybe audio-files but no more than that. I haven't seen so far senior teachers using apps for doing comics or radio projects or things like that; obviously younger teachers they can be defined as "digital natives". I think I can't define myself as a "native" but definitely an "immigrant" you know I like technology and I like to use it.

The support to the Digital Natives-Digital Immigrants claim is openly supported here as the teacher sees his students as completely immersed and comfortable in the use of any technological tools and, above all, much more advanced compared to their teachers who appear to be always a step behind. On digital natives:

*They really are "digital natives" and sometimes you realize that when doing something you are an immigrant, you are learning how to use the technology because you need to work with that and enjoy it for different reasons but sometimes they know more than you do..so definitely **they are more advanced** even if I am not that old but they are more advanced in that sense and sometimes they teach you how to use certain things. For example for the apps we are using for the comics I needed to check how it actually worked to see what different options were and the students when you just spend 5 minutes telling them "look you have to do a comics etc.." they just come out with something spectacular after 15 minutes where I have to spend 1 hour or 2 to figure out how that worked and I didn't figure out how it worked totally so I had a problem today and one of the students solved the problem [my emphasis in bold].*

B-IR:

In School B the Irish language teacher does not consider all teachers today as Digital Immigrants. There are mainly two variables she considers: (1) the age and (2) the interest in embracing and using technology. Certainly younger teachers are well equipped with technological tools but there are senior teachers "technologically gifted" as she points out and inclined to use technology for different purposes. On digital immigrants:

Not all teachers because I see here even maybe teachers certainly in their twenties but maybe even in their thirties and I see them with their smart phones and I am still going around with the old fashion little phone that doesn't have a camera; so I think that is changing as well and I think even that there are some teachers in my age having embraced [technology] more than I have..it could be maybe the way they see themselves more technologically gifted or something like that whereas it is kind of a sexist thing to say as a woman you know the way I don't worry about things like that, my car just goes to the garage or whatever..so I don't think it is true for all teachers...

Regarding students today, she agrees completely with the definition of Digital Natives they have been given. If students are completely comfortable with technology some teachers, she restates, are concerned and nervous about the regular use of technological tools in case technical issues arise. On digital natives:

I think they would be. My impression is that they are really because you know the way even sometimes if I show them a DVD rather than trying to do another thing...I might have some problems.... and they say "hands up" and they do it straight away and maybe that's even what sometimes puts me off and then I say: "Oh my God, they are

grand, they are easy with that and I am not and I am a little bit nervous...it is not going to work etc.."

B-IT1:

The senior Italian language teacher in School A completely disagrees with the Digital Natives-Digital Immigrants claim. She claims that people may be interested in or engaged with technology or not. Being born in a digital era does not automatically make our students today's digital natives. Being born in a digital era doesn't mean that technology is automatically absorbed and understood:

I'm not one for tags, It's unfair. You are what you are. Digital Native and Immigrants makes no sense, you're not labelled because of your date of birth. There are many people who are engaging technology and they have become literally dependent on it. Many people are just not interested in technology. They [students] have not been trained. My own daughter she was born with the computer but that doesn't necessarily mean that you assume all this automatically just because you're born next to a computer. That doesn't necessarily mean that you understand it.

B-IT2:

The younger Italian teacher in School B agrees on the fact that newly qualified teachers are more inclined to integrate technology into their teaching practice; this suggests that age is an important variable in her digital divide perspective. Students, in her view, can partially be considered natives if it is true that they are regularly connected with the Internet, they are not however always eager to employ these tools for educational purposes:

Well, newly qualified teachers are maybe more inclined to use technology but, having said that, the training received and the technological equipment available for teaching have an enormous importance. Students, may be considered in a way natives because they have always technology with them, they are constantly connected but they do not always like to use technology for education purposes, they don't always interact consciously with it, often they just receive and share information.

5.4.7 Word Clouds

This section provides a visual representation of the teachers' interviews. Specifically, the interviews' transcriptions have been turned into word clouds where words were individually sized to highlight the frequencies of occurrence within the body of text. The software used is named *Tagxedo* and it is a free platform where the researcher uploaded the interviews' transcripts and designed the related word clouds. When setting up the word clouds, the researcher allowed for the combination of identical and related words. The most frequently used words have been emphasized in accordance with the tightness and the overall word count. These clouds provide an interesting visual analysis of the data presented and examined in the above paragraphs summarizing, in a way, the teachers' thoughts and perceptions. It is acknowledged that there are certain limitations to this approach (Heimerl, Lohmann et al. 2014) however, it does offer a summative and visually informative representation of the key words in context in the teachers interviews.

This analysis has been provided and considered appropriate for teachers' interviews only as interviewees were approached singularly having the chance to talk at length, while students' interviews allowed for an open group discussion.

As shown in Figure 5.13, during the Irish language teacher interview, the word "technology" recurred regularly together with the words "school", "use", "students", "teachers" and other key words such as "moodle", "game", "record", "good" confirming the familiarity with technological tools, the importance technology has in his teaching practice and, overall, a general positive attitude toward ICT.

In Figure 5.14, the Irish and Italian language teacher frequently uses the words "know", "think", "technology" and "education" highlighting the importance of the cognitive and thought processes while reflecting on how best to use technology for education purposes. In addition, she confirms the fundamental need to gain confidence and familiarity with different technological tools. The words "students" and "teachers" are at the core also of the interview proving how these two figures have been discussed in some depth looking at the changing role of teachers and the current educational and digital status of students today.

In Figure 5.15, the words highlighted in the Italian teacher interview are “students”, “know”, “technology”, “platform” indicating how technology and different platforms are at the core of his students’ education. Technology is considered “flexible” as it provides “different” “resources” and “material”. During the interview, the teacher mentioned often the “Comics” project as an example of language activities conducted through the use of technology which allowed students to be more autonomous and creative.

The word cloud of the Irish language teacher in School B (Figure 5.16) highlights the words “technology”, “*Twitter*”, “tweeting” and “Irish”. This confirms the support she expressed openly during the interview the use of technology and social media platforms, such as *Twitter*, for Irish language in particular for older students. Words such as “maybe”, “little” and “control” emphasized here address a lack of clarity and tentativeness and are linked to the actual teaching methodology where technology is not regularly integrated into teaching practice and a traditional frontal/teacher centred instruction is in place.

The senior school B Italian teacher word cloud (Figure 5.17) has the word “technology” frequently together with “know”, “Education”, and “understand” and often mentioned hence highlighted. Technology is at the centre of the discussion and its importance is recognised however, key words indicate the need to foster critical thinking processes often associated with traditional methods. Words such as “paper”, “exam” and “notes” bring attention to traditional tools supported and regularly used by the teacher.

As shown in Figure 5.18, the word cloud of the newly qualified Italian language teacher has emphasized words such as “technology”, “students”, “language”, “teaching” and “tool” supporting her expressed familiarity with technological tools specifically “videos” and “PowerPoints”. However “training”, “barriers” and “equipment” words are often mentioned throughout the interview as the variables for a successful technology integration into teaching practice.



Figure 5.13 School A, Irish language teacher



Figure 5.14 School A, Irish and Italian language teacher

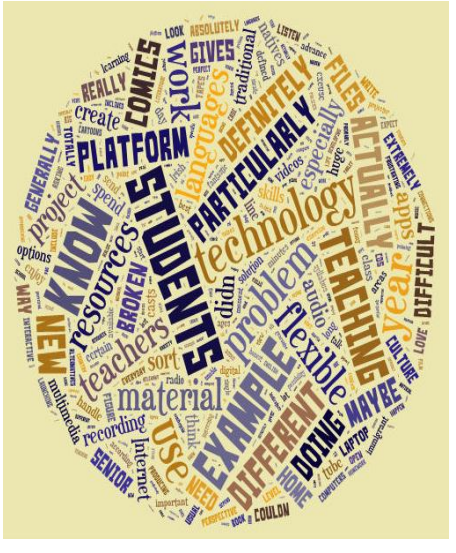


Figure 5.15: School A, Italian language teacher



Figure 5.16: School B, Irish language teacher

School B students highlighted the fact that they had access to digital devices only outside school confirming that personal laptops and mobile phones were not use in class for educational purposes:

School B, 3rd and 5th year Students' group: *we do have access to technology but not when we are in school. We do have access to it several times a day outside the school.*

School B, 3rd and 5th year Students' group: *We do have access regularly to mobile phone with the Internet access.*

According to the responses, it appears that students come from media-rich homes having often at their disposal more than one technological device properly equipped with Internet connection. Overall, younger people have a great range of ICTs available and tend to use technological tools and the Internet regularly especially for activities that are not school-related. When it comes to education in fact, the use of technology appears to be more cautious and less instinctive, and the boundaries between technology for learning and technology for personal use seem to stand higher and stronger.

5.4.9 Students' perceived comfort in using technology for language learning

Exploring the digital status of our students today is one of the main objectives of this research and moreover, exploring the comfort shown by the students when/if they are using technology for language learning. Hence, the second question put to the participants addressed the technology usability issue in order to go beyond and analyse further the initial enthusiasm expressed by students when asked for opinions about technology and Italian and Irish language learning. Themes and sub-themes have been identified in the interview for transcriptions and listed accordingly in the table below. The themes range from the expressed easiness and comfort when using technology during the language learning process to the differences between Italian and Irish language learning when applying technology to these different subjects. The sub-themes report the students' opinions ("group opinion" when the majority of

respondents agreed on one statement and “selected opinions” when one student clearly stated a different and distinctive thought) in accordance with the related themes.

Themes	Sub-themes
Comfort	<ul style="list-style-type: none"> Easier to study with technology (School B, 5th year group)
Technology as an ancillary tool	<ul style="list-style-type: none"> Teachers are essential, they can't be replaced by technology (School B, 5th year S. 1)
Italian Language	<ul style="list-style-type: none"> Easier because “bigger language”/more common/more resources available (School A, 3rd year group; School B, 3rd and 5th year group)
Irish Language	<ul style="list-style-type: none"> Easier because more resources available (School A, 5th year group)

Table 5.19: Students’ perceived comfort in using technology for language learning inside and outside classroom

Both 3rd and 5th year respondents in School A stated that they feel at ease when using technology for language learning without reporting any specific issues or major discomfort. Technology is a tool available every day in school and outside school, used regularly by their teachers and it represents a media for practising and exploring their target languages. Technology is therefore very familiar to them both inside and outside school:

School A, 3rd year Students' group: *We are comfortable in using technologies both for Italian and Irish*

School A, 5th year Students' group: *yes, very comfortable*

In School B respondents from both 3rd and 5th year often used conditional statements implying a scarce and sometimes (as confirmed also by the questionnaires) absent use of technology. Despite this, the majority of students see themselves at ease in the use

of technology for language learning, adding also that technology may help greatly during the acquisition process as it makes the learning easier. Corroborating an issue already raised in the questionnaire analysis, one senior student firmly emphasised the central role of the teacher in the education practice, highlighting that tutors cannot be replaced by technology. Hence, the general enthusiasm towards a possible yet non-existent full technological integration into their educational experience is accompanied by a general fear of losing the traditional teacher figure with his/her strong support and central role:

School B, 3rd year Students' group: *yes, we would be comfortable in using technologies for language learning, both inside and outside the classroom.*

School B, 5th year Students' group: *it would be easier studying a language using technology*

School B, 5th year Student 1: *I think you would need a teacher and technology can't replace a teacher*

Students expressed then their thoughts with regard to Italian and Irish language learning and the differences technology may or may not bring to these languages. Interestingly enough, large differences are reported between the two languages. 3rd year School A students stated that the use of technology is more appropriate and generally easier for Italian. The use of popular websites such as *Wordreference.com* is said to be simpler for other European languages including Italian, French or Spanish but for Irish the difficulties are considered bigger. It is important to say that the Irish language option is not available on *Wordreference.com* but there are plenty of on-line dictionaries and translating tools for Irish. This suggests a lack of awareness on the students' part regarding basic on-line tools being available and ready to use also outside school and this putative lack of resources may lead to a general negative attitude towards the language itself:

School A, 3rd year Students' group: *it's easier for Italian because it's a bigger language. If we have problem with an Italian word we go to Wordreference.com, they do Italian, Spanish, German, French but it's more difficult for Irish.*

School A, 3rd year student 2: *In Italian, it is easier using technology, in Irish it is more complicated. We are generally comfortable in integrating technology with our learning during the class and outside the classroom.*

On the contrary, senior students stated how easier using technology is for Irish compared to Italian. According to them, there are a variety of on-line resources available for Irish that Italian does not seem to have. The different perspective stated between 3rd and 5th year students may be affected by the final exams, the related on-line material available and also their years of experience in language learning:

School A, 5th year Students' group: *no, there are differences between the two languages. It is easier for Irish*

School A, 5th year student 1: *Irish has way more resources than Italian*

Both 3rd and 5th year School B students confirm that technology would help more Italian language learning as more resources are said to be available. The Irish language is considered a minor language by the students while Italian seems to have different and more positive connotations. There is a link between Irish as a less common language and the use of technology. In this case technology would not make the learning of Irish easier or more interesting as the students themselves consider that the lack of on-line resources a crucial issue:

School B, 3rd year Students' group: *it would probably be better for Italian, for Italian would be easier as Italian language is more common, Irish is not.*

School B, 5th year Students' group: *it would be easier using technology for other languages like French and Italian but not for Irish because there are more resources for those other languages*

5.4.10 Student's perceived barriers when using technology for language learning

Students were then interviewed about the barriers they may perceive when integrating technology into language learning. Throughout the data collection process it has been noticed that not only teachers but also students have great concerns about technology and education. The themes identified and outlined here included barriers on a technical level (such as Internet connections or lack of technological devices), barriers on an

educational level (such as a passive approach and lack of critical thinking fostered by technology), barriers on an attitude level (where technology represents a distraction when language learning takes place) and finally barriers on a language level (where language is seen as the main barrier which cannot be overcome not even by technology).

Themes	Sub-themes
Technical level Barriers	<ul style="list-style-type: none"> • The screen may cause tiredness (School A, 5th year S. 1) • Facilities not always available (School B, 3rd year S. 2) • Possible technical problems on the computers (School B, 3rd year S. 4)
Educational level barriers	<ul style="list-style-type: none"> • Technology doesn't foster critical thinking (School A, 3rd year group) • Unreliability of Internet material (School A, 3rd year S. 3; School B, 3rd year S. 5) • Active communication not guaranteed (School B, 3rd year group)
Attitude level barriers	<ul style="list-style-type: none"> • Easier to get distracted (School A, 3rd and 5th year group; School B, 3rd year S. 3)
Language level barriers	<ul style="list-style-type: none"> • Pronunciation (School A, 3rd year S. 2)

Table 5.20: Student's perceived barriers when using technology for language learning

Both 3rd and 5th years of School A respondents highlight the fact that technology can be very distracting as it may facilitate an easier loss of focus while studying. In addition, despite the wide use of e-books for various subjects, these tools are not popular among students that prefer instead a more traditional note taking and paper book reading approach. Another important barrier addressed by the majority of 3rd year students was the passivity and the lack of critical thinking which seem facilitated and fostered by technology. This disadvantage together with the “distracting” element of

technology was already recognized by teachers confirming a common ground and awareness among teachers and students:

School A, 3rd year Students' group: *The problem when using the computer when studying is that you get distracted. We don't like particularly e-books we would prefer a paper book.*

School A, 3rd year Students' group: *we think it's easier to learn from somebody that is talking with you or showing rather than figure it out for yourself. **Most of the time if you are using computer you know it's just copy and paste whereas if you are writing down you are actually thinking about what you are doing, you are not just taking a block of words and putting them in** [my emphasis in bold].*

School A, 5th year Students' group: *it could be a distraction using technologies. Concentration is a problem. Sometimes also the Internet is very slow.*

Some students responding individually stated that the language itself with all the related skills is the main barrier and that technology does not represent an obstacle. Another 3rd year student stated that the Internet offers a large amount of material and options and that could be overwhelming for the learners; in that sense, teachers represent a more reliable and accurate source of information. Finally, a 5th year students reported the difficulty that using and learning from a computer can bring as looking at a screen may easily cause tiredness:

School A, 3rd year student 1: *The language is the barrier.*

School A, 3rd year student 2: *Pronunciation and things like that are the barrier.*

School A, 3rd year student 3: *you know for languages you want something accurate, you want actually to talk to a teacher but on the Internet it could be anything, like there are different forms of Italian, different forms of Irish.*

School A, 5th year student 1: *Sometimes you get tired of learning by looking at the screen.*

The majority of School B respondents openly stated that the learning should not be in front of a computer and specifically, a couple of students imply that some language skills such as speaking or listening can be effectively taught and fostered only by teachers. Students addressed then some technical concerns in relation to the Internet and the fact that it may not be ubiquitously available and it may be easily subjected to possible technical problems. As for School A respondents, School B students reported

the distracting factor of technology as an important barrier to be considered. Finally, reliability of both technological tools and on-line platforms (such as *Google Translator*) is repeatedly tackled throughout the interviews and considered a deep concern:

School B, 3rd year Students' group: *We don't think learning should be in front of a computer, we wouldn't learn much Italian by being on a computer.*

School B, 3rd year Student 1: *you need to communicate, to speak Italian, you need to be able to talk like if you go to Italy you need to be able to talk, you can't learn that by being in front of a computer*

School B, 3rd year Student 2: *you know, not everybody may have the Internet at home and if technology breaks that would make things more difficult, that doesn't happen with the books*

School B, 3rd year Student 3: *with technology it is hard to concentrate*

School B, 3rd year Student 4: *the books are more reliable, what if technology breaks?*

School B, 5th year Student 5: *translations sometimes are not reliable like when you are using Google Translator you may have some translations that are wrong.*

5.4.11 Students' perceptions on the use of technology to enhance language learning

After having explored the relationship between students and technology in the educational field and, specifically, the comfort or discomfort students may feel when integrating it into language learning, the researcher moved to the investigation of technology usage to enhance Italian and Irish language learning. Therefore, the question asked to the students was: “Do you think the use of new technology can facilitate and stimulate your Italian and Irish language learning?”. Respondents' perspectives and thoughts on the matter were then gathered and divided in relation to themes and subthemes. As shown in Table 5.21, when approached the general topic “technology enhances language learning” students discussed the advantages of using

technology together with the disadvantages. They focused also on the language skills that would benefit most from the use of technology and the on-line tools that proved to be particularly useful for language learning. Finally, as discussed in the previous questions, the differences between Irish and Italian language learning were highlighted by the students looking at the benefits technology may bring to these two languages.

Themes	Sub-themes
Advantages	<ul style="list-style-type: none"> • Enhance language understanding (School A, 3rd year S.1) • Learning more interesting/fun (School B, 3rd and 5th year group) • Helps interactivity, exchanges and to think better (School B, 5th year S. 4) • Practical (all in one place) (School B, 5th year S. 5) • Learning less stressful (School B, 5th year S. 6)
Disadvantages	<ul style="list-style-type: none"> • Technology is too complicated/detailed (School A, 3rd year S. 2) • Lack of technological facilities (School B, 3rd year group)
Language skills	<ul style="list-style-type: none"> • Speaking and Listening (School A, 3rd and 5th year group; School B, 3rd year group)
Tools	<ul style="list-style-type: none"> • Translators (School A, 3rd year S.4; School B, 3rd year S. 2; School B, 5th year S. 1) • Exam papers/exam keys (School B, 5th year S. 3)
Italian language	<ul style="list-style-type: none"> • Many resources available (School A, 3rd year group)
Irish language	<ul style="list-style-type: none"> • More difficult (School A, 3rd year group)

Table 5.21: Students' perceptions on the use of technology to enhance language learning

The majority of 3rd Year School A respondents openly supported the use of technology for language learning. They stated that technology helps greatly in the language learning process as, like one student confirmed, it allows a deeper understanding of the workings of a language. One student expressed his concern about technology applied to language learning. According to him, technology provides too much information, often too detailed and difficult to approach and select. The student in this case reported the difficulty in moving around the Web in search of the information needed; the

overwhelming aspect of the Internet is presented here again as a pressing issue that may affect negatively the use of technology also outside class when teacher guidance is not in place.

School A, 3rd year students' group: *Technology could help a lot.*

School A, 3rd year student 1: *It could help us to understand more the language.*

School A, 3rd year student 2: *I don't like it, it is too complicated for reading, and find what you want can be difficult, it is too detailed*

According to the students, the language skills that could benefit most from the use of technology are the oral ones. In addition, the Internet is considered an important tool to practice the target language, to look for specific information and to resolve doubts about specific grammatical topics. As confirmed by the questionnaires, the on-line tools most used by respondents are electronic translation aids; they recur to them especially for homework activities outside the classroom:

School A, 3rd year student 3: *If you look for resources online you can practice your language. If you want to know about different verbs and tenses you can find information on the Internet.*

School A, 3rd year Students' group: *Speaking because you can get pronunciation from other people and listening.*

School A, 3rd year Students' group: *it could be handy for the oral part*

School A, 3rd year student 4: *yes, we use Google Translator.*

Regarding the benefits technology may bring to Irish and Italian acquisition, 3rd year students confirmed what they said in the previous questions: there are many more resources available on-line for Italian compared to Irish; one student used also the word “creepy” in relation to the use of technology for Irish, this confirms that the language is perceived in a completely different and unique way, almost like if technology represents a modern tool which cannot be applied to a traditional minority and heritage language. 5th year students agree on the fact that technology can enhance language learning particularly for activities that focus on pronunciation:

School A, 3rd year Students' group: *For Italian yes, there are many resources available online, it's easier. For Irish is more difficult, it's creepy.*

School A, 5th year Students' group: *Yes. Pronunciation can be enhanced with technologies for both Italian and Irish. If you want to research certain topics technologies are very good.*

3rd and 5th year students in School B agreed on the fact that technology can facilitate and enhance language learning. They strongly believed that technology can help make the learning more “fun”; when using technology, the learning becomes a game and the topics together with the acquisition process itself become more interesting, engaging and less stressful. In addition, one 5th year student highlighted the fact that technology gives the possibility to share and discuss different topics (i.e. Irish poetry) with students all over Ireland and far beyond. However, students regularly reported that they do not have the necessary facilities at their disposal hence technology remains an ancillary tool to be used mostly outside classroom:

School B, 3rd Students' group: *using technology would make the learning of Italian and Irish more interesting, it is like a game*

School B, 3rd year Students' group: *yes but we don't have the facilities*

School B, 5th year Students' group: *technology can make learning fun*

School B, 5th year Student 6: *technology can make learning less stressful*

School B, 5th year Student 4: *and you know with technology we can talk with different students in Ireland and talk with them about Irish poetry for example and that helps us as well to think better*

One 5th year student highlights the practicality of using computers and technology in general. According to her in fact, technology allows students to have and keep everything in one place (dictionaries, documents, books, newspapers etc.) without having to bring different traditional tools:

School B, 5th year Student 7: *you know also with technology we can have everything in one place, books, newspapers etc..instead of having different pieces to bring.*

Both 3rd and 5th year students in School B agreed that technology could be particularly useful to enhance oral skills, as also School A respondents stated previously:

School B, 3rd year Students group: *It could facilitate the speaking.*

School B, 5th year Student 2: *for the oral part of the final exam technology would be very good because we would have something to listen to.*

Confirming what it has been stated in the questionnaires, students reported that one of the benefits technology offers is using on-line translators which also often provide the correct pronunciation of a word. In addition, translators and on line dictionaries may help in the construction and interpretation of a phrase. These are important aspects that can be linked to a behaviouristic use of ICT as students obtain timely feedback which allows them to identify correct paths to follow without the teachers' presence (Dalgarno 2001; Pitler, Hubbell et al. 2012). School B students throughout the data gathering process openly expressed the importance of having access to exam papers online together with the related keys, this is said to be an excellent facility that technology provides which allows students to practice and prepare themselves for the final leaving cert exam:

School B, 3rd year Student 2: *and then online there are tools where if you don't know a word you can look for it and they can say it as well.*

School B, 5th year Student 1: *technology can help a lot with translations like on my phone I have a translator and you can get any language, you can write your sentence in English and then pick what language you want to translate it into and like if you have a question on a poet and if I don't know how to put the actual question I am saying in English into Irish so I type it in and it gives me the question and this helps a lot.*

School B, 5th year Student 3: *but you know also for the exam papers and stuff on the internet and all the answers are there.*

5.5 SUMMARY OF SECTION II

This second section presented and discussed the data gathered from the teachers' and students' interviews. The analysis is outlined in order of data collection, starting with the teachers' interviews and continuing then with the students' ones. Themes and sub-themes have been identified by the researcher and summarized in tables hence discussed in more depth through selected quotations. Teachers' interviews highlighted

important and interesting issues that often went beyond the topics suggested by the interviewer and the same happened during the student interviews. This proved to be the result of a comfortable atmosphere created during the process; the participants were all very enthusiastic and keen to express openly their thoughts about the topics presented. During the teachers' interviews a general positive attitude toward ICT was reported despite the very different technological orientation of the two schools. Technology is said to be flexible, to provide authentic material, to foster interactivity, collaboration and creativity however, there were concerns about the lack of ICT training for teachers, the lack of technological equipment (especially in School B), possible technical problems that may affect the course of the class, the time consuming aspect of technology both for familiarizing with technological tools and integrating them into teaching practice and, the risk that technology may not be used actively and critically by students. Finally, strong differences have been addressed by teachers in regards to Irish and Italian and the use of technology. Many resources are said to be available for the two languages however, they are not always suggested and used inside and outside school. Technology is said to have a great potential in relation to Irish as it provides that “fun”, “modern” and “interactive” element which makes the language more interesting and appealing.

Students, on the other side, agree completely with teachers on the fun, game-based element that technology seems to add to language learning. Students also listed some disadvantages that technology has, among these the distracting aspect which characterizes it, the reliability of the devices available and of the on-line material and, in agreement with their teachers, the passivity and lack of critical thinking which seems to be fostered particularly by ICT.

Overall, there are significant points of contact between teachers' and students' perspectives and those will be discussed in more depth and linked to appropriate theories in the following chapter.

The following and final section will present and discuss the data gathered from the class observations.

5.6 SECTION III - QUALITATIVE DATA FINDINGS (Non-participant class observations)

This section is dedicated to the analysis of the non-participant class observations. As described in the methodology chapter, six non-participant class observations were carried out in each school, three for each subject and year. The non-participant class observations were used as a data collection method to allow the researcher to examine *in situ* the integration of ICT in a natural setting, looking at different elements such as the layout of the rooms, teachers' role and behaviours, students' activities and behaviours and resources used. This analysis allows also a triangulation together with the data gathered from the questionnaires and those from the interviews. The class observations took place after the interviews offering, in that way, a follow up method of investigation. The notes, completed during the classes, were recorded in a pre-organized schedule where different actions were observed and described. Each of Italian and Irish language classes lasted roughly 50 minutes each.

Tables 5.15 and 5.16 present a sample of the schedule used to record the data. The schedule was divided in two parts: on one side the themes to be observed and analysed and on the other the related actions undertaken during the class. The same type of schedule was used for both School A and School B.

In the following paragraphs, specific details will be provided in accordance with the themes and the actions observed.

Themes	Actions observed
Lay out of the room	<ul style="list-style-type: none"> • Number of students 15-25 • Teachers' desk and chair are located on one side of the room, right in front of the whiteboard • Students are seated in desks facing the whiteboard and divided in 2-3 rows with an isle in the middle • There is no interactive whiteboard; teachers use a marker and whiteboard. • A pull-down projector screen is available • One projector available, operated by the teacher • No computer in the room but facilities are available (i.e. plugs allocated near the whiteboard and on the teachers' desks) where to plug a laptop computer brought by the teacher • Students' desks are equipped with plugs for their technological devices (i.e. notebooks, digital tablet)
Use of ICT	<ul style="list-style-type: none"> • Both teachers and students bring and use a notebook and/or digital tablet during their language class • E-textbooks are used by both teachers and students for Italian and Irish language learning; the e-book is displayed in the participants' personal devices (although the paper book is always at hand) • Links to tracks or videos are displayed in the projector • 50-60% of the students complete exercises and assignments on the computer
Flow of the lesson	<ul style="list-style-type: none"> • Settling the class • Roll call • Logging on to the computers • Homework correction • Presenting lesson objectives • Instructing (i.e. explaining grammar rules, writing examples on the whiteboard or on a word projected document) • Students' Activities

	<p>Irish language is the medium used during the language class (very rarely teachers and students recur to English)</p> <p>Italian language is often accompanied by English during class. Specifically, English is widely used to explain grammar rules and to provide instructions.</p>
Use of pair work/group work	<ul style="list-style-type: none"> • Students work in pairs to answer the questions of the e-textbook or handout • Students are often engaged with group discussion on specific cultural topics of the target language • Students may be singularly questioned by the teacher to answer specific questions
Teacher Role	<ul style="list-style-type: none"> • Teacher centred approach • Facilitating the use of technology • Encouraging students using positive motivational phrases • Checking students' understanding
Student activities	<ul style="list-style-type: none"> • Listening to the teachers when explaining; • Answering teachers' questions • Asking teachers questions • Talking to peers when completing the activities on the textbook or handouts • Using technology for language activities and helping often each other and the teacher if technological problems arise
Resources	<ul style="list-style-type: none"> • Textbook • E-book • Links to tracks and videos available in the e-book • Handouts • The Internet was used to show videos in the target language • Power-points

Table 5.22: Actions observed- School A

Themes	Actions observed
Lay out of the room	<ul style="list-style-type: none"> • Number of students 15-25 • Teachers' desk and chair are located on one side of the room, right in front of the whiteboard • Students are seated in desks facing the whiteboard and divided in 3 rows with an isle in the middle • There is no interactive whiteboard; teachers use a marker and whiteboard. • A pull-down projector screen is available (although not in all classrooms) • One projector available, operated by the teacher (although not in all classrooms) • No computer in the room but facilities (i.e. allocated plugs near to the whiteboard) where to place a laptop computer brought by the teacher • Traditional students' desks, no plugs for technological devices available
Use of ICT	<ul style="list-style-type: none"> • Teachers sporadically bring and use a personal laptop computers during the language class; when technology is available the activities undertaken are the following: <ul style="list-style-type: none"> - Power-points on different grammatical and/or cultural topics (i.e. Passato prossimo in Italian) are presented to the students - Videos are shown to students on cultural aspects of the target language (i.e. Easter in Italy, current Irish affairs)
Flow of the lesson	<ul style="list-style-type: none"> • Settling the class • Roll call • Homework correction • Presenting lesson objectives • Instructing (i.e. explaining grammar rules, writing examples) • Students' Activities

	<p>Irish language is the medium used during the language class (very rarely teachers and students recur to English)</p> <p>Italian language is often accompanied by English during class. Specifically, English is widely used to explain grammar rules and to provide instructions.</p>
Use of pair work/group work	<ul style="list-style-type: none"> • Students work in pairs to answer the questions on the textbook and/or handout • Students are often engaged with group discussion on specific cultural topics of the target language • Students may be singularly questioned by the teacher to answer specific questions
Teacher Role	<ul style="list-style-type: none"> • Teacher centred approach • Encouraging students using positive motivational phrases • Checking students' understanding
Student activities	<ul style="list-style-type: none"> • Listening to the teachers when explaining; • Answering teachers' questions • Asking teachers questions • Talking to peers when completing the activities on the textbook or handouts
Resources	<ul style="list-style-type: none"> • Textbook • Handouts • Newspaper in Irish or Italian Language • Sometimes (very rarely) the Internet was used to show videos in the target language • Power-points

Table 5.23: Actions observed- School B

5.6.1 Layout of the room and ICT equipment available

School A and School B presented a very different layout of the classrooms. In this respect, it is important to note that School A is located in a relatively modern building while School B is in a much older one and this may have some effects on the technological adaptation the classrooms have experienced. During the School A non-participant class observations, the researcher visited two different classrooms where Italian and Irish languages were taught. The layout of both classrooms included, on one side, a desk and a chair for the teacher to sit in, placed specifically in front of the whiteboard. There was no interactive whiteboard in both classrooms; teachers used a marker pen to write on a traditional whiteboard. A pull down projector screen was available in the rooms together with a projector. The number of students in each class ranged from 15 to 25 and they were seated at desks divided in 2-3 rows with an aisle in the middle facing the whiteboard. There were no computers in the rooms but both teachers and students were bringing their own devices in class. Teachers' and students' desks were equipped with sockets to charge their notebook and tablet computers. During the classes, teachers had always their devices together with the majority of students, the rest used the traditional paper text-book and exercise book instead.

In School B, the researcher visited 5 different classrooms in total. The layout of all the rooms was quite similar with the teachers' desk and chair on one side of the room in front of the whiteboard. This school was not equipped with an interactive whiteboard and teachers relied completely on marker pen and traditional whiteboard. Three of the classrooms were equipped with a pull-down projector screen and a projector, while the others did not have such facilities. In the classrooms there was not any fixed computer but there were sockets and facilities to accommodate a laptop computer brought by the teacher. The number of students was similar to the one in School A ranging from 15 to 25 and pupils were here divided in 2-3 rows according to the class size; an aisle in the middle of the room which divided the desks was in place in each classroom. Students' desks were not designed to accommodate technological facilities. During the classroom observations, the researcher has never seen students bring and use any technological device for classroom activities and on one occasion only an Italian language teacher brought her laptop computer to show a video and a PowerPoint.

5.6.2 ICT resources used

As was described in the methodology chapter, School A and School B were targeted by the researcher according to their different technological orientation. Hence, when we look at the integration of ICT into teaching practice, we have very distinctive perspectives. In School A teachers bring to the class their own laptop; they use e-textbooks for both the Italian and Irish language and prepare their own PowerPoint slides either to back up explanations of grammar structures or to introduce cultural topics through images and descriptions in the target languages. Teachers use the projector, linked to their laptops, to show students images, videos, PowerPoints and the e-textbooks allowing them to follow each step of the lesson. The majority of students have notebook or tablet computers with them, the others are equipped with traditional paper textbooks and exercise books. The students with computers follow the lesson on their devices using the e-book whilst taking notes on a word document. Although equipped with technological tools, the majority of students have also a paper text copy and exercise book next to them. During the observations, the researcher noted that students have completed part of their homework exercises in a word document and this was confirmed by teachers who said that 50-60% of the assignments are completed on computers and sent to teachers for correction. During the 3rd year Italian class observations, the teacher based the classes on the e-book, following the book activities and discussing orally the grammatical topics. The 5th year Italian language classes focused particularly on the oral skills for the preparation of the final exam. Hence, topics on Italian culture and traditions were introduced to students through images projected on the screen to allow group discussion. During 3rd year Irish language class, grammatical topics were presented through PowerPoints and textbook, activities were then completed by the majority of students on computer. The communication between students and teachers and among students themselves was in Irish and the aural activities were implemented particularly in 5th year allowing the preparation for the final exam. In 5th year language activities proposed by teachers included videos and podcasts on Irish culture to watch to and discuss on (for example interviews to people from the Gaeltacht region were proposed and those interviews were often digitally recorded and edited by teachers themselves).

Overall, the use and access to ICT resources appeared to be very easy. During the observations, teachers did not experience technical problems with their devices as well as their students. Some time (10 minutes roughly) was spent at the beginning of the class to set the devices and have all the students ready to start the lesson. This proved to be a little more complicated as not all the students were equipped with technological devices hence teachers had to give precise instructions on how to follow the lesson using both the e-book and the paper book copy. Students seemed at ease when using technological devices to follow the lesson or to complete language activities (there were just a few technical questions on where to find specific information or on how to access the e-book or other programmes) although they strongly relied on pen and paper as well (just 2-3 students per class, usually male, did not have any paper tool at hand). The use of ICT during class observation seemed to support students collaboration through the technical help pupils provided to each other and the activities they were completing in pair or groups. It is important to note also that School A has a very active website where there are available links to the school *Facebook* and *Twitter* Page together with *YouTube* channel, *Flickr* account and a School blog. Students give their contribution to those platforms as part of their educational activities carried out in the school.

In School B the ICT resources used during the Italian and Irish language observations were very limited. On one occasion, during the 3rd year Italian language class observation, the teacher used a PowerPoint and a video to present vocabulary and images in relation to Easter and the Italian traditions. The use of technology in this case triggered great interest in the students as they seemed caught up by the Italian native speakers and background images which were shown. Pair and group discussions on the topic followed together with related activities printed in handouts (i.e. small reading comprehension, cloze exercises). During the other class observations, technology was not used much except for the cd player brought by the teacher for listening activities in the target language. Even though technology was not embraced much by the language teachers, the atmosphere in the classes was very relaxed and collaborative. Students gladly relied on books and teachers for their language learning and this resulted in a general positive attitude toward the language learning process. As confirmed in the questionnaires and interviews, some technological tools were used by

students at home as an aid for their assignments (i.e. online dictionaries) but all the homework and essays were completed on paper. School B has a quite basic website with sections dedicated to the school background, school life and calendar and parent information. The school website is not linked to any social network and students do not contribute to it.

5.6.3 Flow of the lesson

The Italian and Irish language classes lasted roughly 50 minutes each in both schools. It is important to note that the Irish classes were conducted in both schools without any use of the English language, the sole medium of communication between students and teachers and students among themselves was Irish. Furthermore, Irish was used outside language class to communicate with the teacher. This aspect is not as strong for Italian, especially in 3rd year. Italian language in both schools was used by teachers to provide examples, to complete language activities but when instructions and grammatical explanations were provided, teachers recurred often to the English language and students themselves only rarely communicate with each other and the teacher in the target language (i.e. the questions students asked were often in English). In 5th year this phenomenon was not as strong as students had to focus on the preparation for the final oral exam.

In School A all the lessons started by settling the class, doing the roll call, logging on to the computers and correcting homework. In this school students availed of an e-book for both the Italian and Irish language but they also always had the paper textbook with them. After having completed the actions described above, some minutes were spent opening up both the paper and e-book copy together with a word document and/or a paper sheet in which to write notes. The teachers used then a frontal approach outlining the lesson objectives, explaining grammatical rules and writing structures on the whiteboard. Often, during the class, tracks and videos with native speakers' dialogues were played; the links to those activities were provided by the textbooks or sometimes indicated by teachers. Language activities (i.e. reading comprehension,

cloze exercises, ordering and sorting and matching) were completed on computers when available otherwise on the book. The language classes focused generally on one topic (i.e. future tense in Italian, past tense and vocabulary acquisition in Irish) practising one or two language skills per class such as listening and reading. Speaking was particularly emphasized in the Irish class. Communicative approaches were also used in both classes focusing on authentic texts and dialogues (for example listening to conversations among people leaving in the Gaeltacht region for Irish or conversations in a restaurant in Italy), reflecting on the learning process by discussing the different grammatical topics and analysing students' perspectives, learning to communicate through interaction in the target language, specifically for Irish and finally, linking the activities completed in class with those to be completed at home often using technological tools and platforms (50-60% of assignments and essays were completed by students on the computer).

In School B Italian and Irish language classes started by settling the class, doing the roll call and correcting homework. Teachers then used a frontal approach outlining the lesson objectives and explaining and writing grammatical rules and structures on the whiteboard. The second part of the classes focused on the completion of language activities. Textbook and handouts were the main tools used by students and teachers. Teachers used also a communicative approach in Italian and Irish class, engaging students with authentic texts and situations (for example, during a 5th year Irish language class, an Irish newspaper named "Seachtain" was brought by the teacher in order to let the students reflect and discuss on different political and current topics, practising reading and speaking skills at the same time; during a 3rd year Italian language class, students listened to tracks taken from a cd which accompanied the Italian textbook, focusing on Italian food and traditions and completing the related exercises), emphasizing the importance to communicate through interaction in the target language (specifically in Irish) and linking classroom language learning with language activities outside classroom (listening to radio and TV programmes in Irish and Italian as part of the homework). As part of the communicative approach, often at the beginning of lesson, short warming up activities (5-8 minutes long) were carried out where the students were encouraged to talk in pairs about what they did during the weekend, their favourite hobby, their favourite countries and cities and so on. It is

important to note that in School B all the assignments were always completed in a traditional paper format.

5.6.4 Use of pair and group work

In both School A and School B pair and group work activities were carried out. Language exercises, presented in the textbooks, handouts or e-books for School A, were often completed by students working in pairs. Students were also singularly questioned by teachers to answer specific questions about grammatical rules. Group discussions were used to reflect on cultural topics using different media according to the school: in School A videos or podcasts were often used to introduce a topic whereas in School B newspaper articles or radio and cd tracks were used. The collaboration among students and teachers was encouraged in both schools. In School A students worked together to create podcasts, videos and blogs while in School B students worked together in preparing debating competitions (specifically one national debating competition in Irish was won at the time of the data collection). Pair and group work helped to promote more autonomous learning which was reinforced by the above mentioned activities carried out also outside classroom time.

5.6.5 Teacher Role

The teachers approached by the researcher were both senior and junior instructors with different education and teaching experiences. Regardless of age, the experience or the use of technology, teachers' instruction appeared to be very traditional in both institutions, as the teachers appeared very much in control of the classes. During the class observations in fact all teachers relied mostly on a frontal type of instruction, where the teaching activities took place from the front of the classroom (teachers provided all the necessary grammatical information and let the students follow their

instructions), combining it with some collaborative and participating instruction using pair or group work or facilitating learning reflection. All teachers regularly praised students motivating their learning and facilitating the communication in the target language.

In School A the Irish language teacher was a senior instructor who had developed his practice over the years. He used technology regularly not only for teaching but also for organizing his work. He appeared to be very flexible in the use of different tools and aware, at the same time, of the time involved when integrating technology into teaching practice. He questioned singularly students and reinforced students' understanding with language activities. The same can be said for the Italian and Irish language teacher who also integrated with the textbook, PowerPoints and authentic material taken from the Internet. This teacher, together with the Italian language one, has 3-5 years of teaching experience. The Italian language teacher regularly used the e-textbook, questioning singularly the students on the different topics and giving immediate feedback. He was quite confident in the use of technology although the tools used were limited to PowerPoints and e-book. All the teachers in School A recognized the efficiency of the ICT facilities in place in their institution which made their instruction and the technological integration much easier.

In School B the teacher of Irish was a senior instructor, she relied completely on traditional teaching methods using books, newspapers and whiteboard. During her classes students were constantly praised and engaged with questions, activities and discussions. Students were often invited to write Irish words and phrases on the whiteboard to discuss and reflect together with the class on the vocabulary, pronunciation and grammatical construction. Especially in 5th year, the teacher engaged students in oral activities focusing on organizing a structured debate on specific topics. The teacher was very comfortable with the tools at her disposal and particularly enthusiastic in her teaching, this resulted in a very relaxed and participatory atmosphere. The Italian language teachers were respectively a senior and a junior one. The senior teacher did not use any technological device except for a cd player for listening to Italian dialogues or interviews. She relied strongly on the textbook and she questioned singularly students on specific topics motivating them with encouraging feedback. She used the listen and repeat method quite often during the classes (specifically, she pronounced a certain word that the class would then

repeat back) and she used the whiteboard to explain and reinforce Italian vocabulary and grammatical rules. In this case also, the teacher appeared very comfortable with the tools at her disposal. The third teacher was an Italian language one and a junior teacher. She was the one that integrated most technology into teaching practice using PowerPoint and videos. She organized her work using her computer and she seemed comfortable in using ICT during class although a little bit concerned about the facilities and the possible technical issues and delays that may occur. She used regularly the white board and provided handouts with activities that she asked students to complete in pairs.

5.6.6 Student activities

Overall, during the classroom activities, students in both schools were positively engaged. In School A, the use of ICT allowed students to collaborate and help each other when setting up the computers or looking for specific elements in the programmes available however, this also proved to be a distraction as regularly some time was spent by teachers to resume the lesson. During the lesson, students focused on teachers' explanations and on their devices where they followed step by step the e-book. Rarely did they ask questions of the teacher but they were often questioned. Collaboration with peers was in place when completing language activities on the textbook or e-book. In School B students actively participated in language activities with discussions and reflections on the language process. Collaboration with peers was ensured through activities on the textbook and handouts. The students' behaviour was very positive and disciplined.

5.6.7 Resources used

The resources used in School A and School B have a strong connection with the ICT facilities in place. As we have mentioned above, School A teachers and students use on

a daily basis notebooks or tablet computers, projectors and e-textbooks. Students are equipped with technological material and access to specific websites that may be used in class (school website and school blog for example) together with more traditional paper based resources.

In School B students rely completely on the textbooks and handouts, teachers use often cds for their listening activities. The cd is an integral part of the textbook. Hence a cd-player is often brought and used in the language class. As confirmed by the class observations, only sporadically laptop computers have been used by teachers to show power-points or short videos.

During the classroom observations, teachers of both schools regularly used the whiteboard for writing words or grammatical rules and structures even when the computer was at their disposal.

5.7 SUMMARY OF SECTION III

This section presented the data gathered from the non-participant class observations. A reflection on a total of six lessons was provided confirming some of the issues raised in the surveys and interviews. In particular, findings show the regular use of technology for language instruction in School A which was facilitated by an ease of access for both teachers and students. However, the use of technology coexisted with traditional methods of instruction: e-books were used together with paper books and assignments were completed both in paper and digital format. PowerPoints, e-books, podcasts and videos were the technological tools predominantly used and the lessons were organized in parts which included the logging in, the instruction, the practice and the feedback. Pair and group activities were conducted and the use of ICT was encouraged outside of class for completing assignments and other language activities. In School B, a more traditional book-based approach was confirmed. The classes started with an instruction phase, followed by practice and feedback. There was observed use of pair and group work together with discussion and reflection on grammatical and cultural topics. The use of ICT was very limited and overall the

teachers seemed at ease with the traditional tools at their disposal. The technological equipment was very poor and a laptop computer was brought by a teacher to show a PowerPoint and a video for the Italian language class. Teachers were well aware of the technological limitations in their institution which sometimes made the already poor use of ICT challenging. Assignments and exercises were all completed on paper inside and outside classroom times.

5.8 ICT POLICIES

This last section presents the ICT policies in place in the two schools. A detailed description of the two policies and what they cover and entail is provided in order to have an overview of the strategies employed in the institutions to maximize learning opportunities and reduce risks associated with the Internet. As confirmed by questionnaires, students and teachers of both schools are well aware of the fact that their institution has an ICT policy but they have often doubts about its content. However, it was evident that, during the data gathering phase, all participants, maybe instinctively, abided by the rules of the policies.

School A and School B policies are outlined respectively in the following paragraphs. In addition, please see Appendices F and G for anonymised copies of the full ICT policies for each school.

5.8.1 ICT policy School A

The ICT policy in School A is very detailed as it covers different aspects such as the access to the Internet, the use of emails, personal devices and school website. The policy is available on the School website itself where the parents or guardians can read it, download it and sign it off.

The following are the general points of the ICT policy:

- Internet sessions will always be supervised by a teacher
- Filtering software and/or equivalent systems will be used in order to minimise the risk of exposure to inappropriate material
- The school will regularly monitor pupils' Internet usage
- Students and teachers will be provided with training in the area of Internet safety
- Uploading and downloading of non-approved software will not be permitted
- Virus protection software will be used and updated on a regular basis
- The use of personal floppy disks, memory sticks, CD-ROMs, or other digital storage media in school requires a teacher's permission
- Students will treat others with respect at all times and will not undertake any actions that may bring the school into disrepute.

Regarding the access to the World Wide Web, students were advised to use the Internet for educational purposes only; to not copy information into assignments and fail to acknowledge the source (plagiarism and copyright infringement); to not disclose personal information and finally to not intentionally visit Internet sites that contain illegal, obscene or otherwise objectionable materials.

When using email facilities, students were asked to access only approved email accounts always under teachers' supervision; students will not reveal any personal details or arrange a face to face meeting with someone they only know through emails or the Internet; chat rooms, discussion forums and other electronic communication forums will only be used for educational purposes and will always be supervised.

Students have the opportunity to publish projects, artwork or school work on the school website always under the supervision of teachers and in accordance with the policies and the approval processes regarding the content that can be loaded. The school website is regularly checked to ensure that there is no content that compromises the safety of pupils or staff. Students' work is protected by copyright and all the material published is subjected to prior parental approval. Pupils' personal information is omitted from school web pages.

Students are requested not to bring mobile phones to school. If parents feel it is necessary for his/her child to have a phone then the phone must be powered off (and not put on “silent”) at the gate and not powered on again until the student leaves the school grounds.

5.8.2 ICT policy School B

The ICT policy in School B covers the rules of Internet usage. The document is available in the students’ school journal where parents can read it and sign off on it. Together with the Internet acceptable use policy, there is a section reserved for the permission to include pupils’ photos in the school newsletter; this has to be signed by parents or guardians. The ICT policy is mentioned in the school website together with other policies but it is not available on-line. It is important to note that some of the on-line tools mentioned in the policy are quite old (i.e. BEBO) which probably means that the policy is not updated regularly. The rules for internet usage include:

- Internet access is provided only as an educational resource
- Computer room and Internet access are supervised by teachers
- Uploading and downloading non-approved material is not permitted
- The use of personal floppy discs, memory sticks, CD-ROMS, or other digital storage media in the computer lab requires the teachers’ permission
- Pupils are not permitted to use any web tools such as BEBO or INSTANT MESSENGER
- Pupils are not allowed to receive or send emails
- Pupils are not allowed to access chat rooms
- Pupils cannot give out personal information over the Internet
- Pupils cannot make any purchases online.

5.9 SUMMARY

In summary, this chapter has presented and discussed the findings gathered respectively from the questionnaires, interviews and non-participants classroom observations. The findings have been divided in three sections according to the outlined research methods. Many issues in relation to the attitudes, usage and awareness towards ICT from both teachers and students have been raised and confirmed in each set of data. In the last part of this chapter, the ICT policies in place in both schools have been outlined, describing in details what they cover and entail to while highlighting the main differences.

In the following chapter the findings of this study will be summarized and linked back to the theory.

CHAPTER 6 - DISCUSSION OF FINDINGS: LINKING BACK TO THE THEORY

“You will never know the moon or stars, unless you breathe in their solar system and inspect it from many diverse vantage points as possible.”

Shannon L. Alder

6.1 INTRODUCTION

This chapter summarizes the findings of this study in accordance with the main research questions and sub-questions outlined in Chapter 1. In addressing each question, the findings from each method of data collection are compared, looking at the consistency, contrasts and similarities. These results are then linked back and compared to the wider literature. The main research objectives of this study were to examine the status and use of ICT in secondary level environments in Ireland together with the students’ and teachers’ digital status and attitudes towards ICT integration into the language learning process. To this end, the following questions were posed:

1. How strong and is the use of technology in secondary level institutions and what are the teachers’ and students’ attitudes toward technology?
2. What are the impacts and challenges for Irish and Italian language teachers when integrating ICT into their practice? How are technologies used in the language classes and to what extent?
3. Does the current evidence resulting from this study validate or dispute Prensky’s digital natives-digital immigrants claim?
4. Do the students feel comfortable in using new technologies and Web tools within their language learning experiences in school and out of school? How do the students’ skills, as allegedly digital natives, work in relation to their language learning processes?

The questions are integrated and discussed accordingly in the following paragraphs.

As described in Chapter 4, a mixed method approach was used to gather data and determine the answers to these questions. The data collection process started with the distribution of questionnaires in both School A and School B to 3rd and 5th year students and their Italian and Irish language teachers. Semi-structured interviews were then conducted, interviewing singularly the teachers and in group the students. Finally, six non-participant class observations were carried out in each school, three for each subject and year. The three different methods of data collection served to address triangulation. This concept allows validation of data through cross verification from three different sources. By combining multiple methods and empirical material, the researcher hopes to overcome the intrinsic biases and weaknesses that may come from a single method. The data gathered and analysed were divided accordingly in specific sets represented by questionnaires, interviews and class observations and the results proved, in several cases, to point towards the same direction revealing strong consistency throughout the study.

The research findings will now be discussed in more depth in relation to the research questions and the literature review.

6.2 QUESTION ONE: How strong is the use of technology in secondary level institutions and what are the teachers' and students' attitudes toward technology?

The first research question focused firstly on investigation of the use of ICT in secondary level environments. This, according to the literature, is a quite unexplored area as the majority of the existing studies focus on tertiary level education (Liu, Moore et al. 2002; Zhao 2003; Felix 2005). In recent years there have been an increasing number of initiatives for the integration of technology in secondary schools and Ireland, as outlined in Chapter 2, has experienced this phenomenon through diverse and important projects such as the *IT2000* or the *Blueprint for the future of ICT in Irish Education* initiative. Those initiatives aimed to ensure that all students achieved computer literacy and that teachers were supported in renewing skills which would enable them to integrate ICT into the learning environment. However, the

results reported by this study do not always confirm the success of the above mentioned initiatives, showing technological weaknesses and lack of support in the two targeted institutions.

The second part of the research question focuses on the attitudes teachers and students have toward technology. If, on one side, ICT is said to motivate, facilitate and engage students promoting deep learning and allowing schools to respond better to their varying needs (Godwin-Jones 2005; Barak 2006; Lau and Sim 2008), on the other, students respond to this alternating between a general enthusiasm toward ICT integration and deep concerns in regards to quality and reliability of the technological tools available. Teachers appear generally open to ICT integration into their teaching practice although deep concerns on ICT training, support and best integration methods are in place showing a common ground and strong link with their students. Furthermore, even when technology is integrated into teaching practice, changes in the pedagogical practices have not been detected confirming still a strong and dominant traditional approach to teaching.

6.2.1 Do teachers and students use technologies in the classroom?

The use of technology in the two targeted schools is strongly related to the technological orientation of the institutions themselves. When talking about “technological orientation” the researcher refers to the technological equipment available in the school together with the school ethos which may be more or less inclined and favourable towards ICT integration into education practice. As in Chapter 4, School A has invested greatly in ICT, providing laptops and notebook computers to both students and teachers and equipping the majority of classrooms with overhead data projectors and facilities for the devices (for example, students’ and teachers’ desks are designed to accommodate computers). On the contrary, School B has very few technological facilities with one computer room available and rarely used. Here students and teachers are not equipped with personal devices to be used in class and this is due also to the fact that classrooms themselves do not have facilities in place

(just some of them have overhead data projectors). Having ease of access to technology certainly facilitates its integration into teaching practice, as teachers of both schools stated from different perspectives: School A teachers refer to ICT as something regularly used in their language classes whereas School B teachers reported a sporadic use conducted mostly by younger teachers.

However, it is important to note that teaching methods do not differ much between the two schools, in fact a traditional frontal/teacher centred approach is still employed, as will be analysed in more depth in the following paragraphs. The majority of School A students talked about ICT as something being strongly emphasized in their institution and regularly used for different subjects. Both students and teachers highlighted the fact that the school is well equipped from a technological point of view even though a minority group of students perceived ICT as something being imposed by the school and yet this presumes an unbalanced and well blended integration of technology into the curriculum and teaching practice. In School B students and teachers reported a poor ICT use due mainly to the inadequate infrastructure. Younger teachers appeared to be more confident in the use of technology to present authentic material or introduce specific topics however, it is often their responsibility to bring their own device and prepare extra material in addition to the one provided by the textbook. Therefore, it can be argued that the use of technology is strictly linked to the facilities available in the institutions but it is important to note also that even when the facilities are in place, the concerns and the approaches of the two schools appear the same. However, issues on the support provided both at technical and training level, on time involved, rigidity of the curriculum and teachers' beliefs, arose constantly during the data elicitation process, indicating how strong the impact of those elements still is for the technology integration process. Those barriers have been widely addressed by the literature (Ringstaff and Kelley 2002; Hayes 2007; Baek, Jung et al. 2008) and specifically divided in two different orders. First-order barriers are the most visible ones and they can be easily removed, those include elements such as equipment, time, training and support. Second-order barriers, on the other hand, are more difficult to address as they interfere with the process of change; those include teachers' beliefs about teacher-students roles, teaching methods and organizational and management methods (Ertmer 2005). Although the first order barriers are considered to be easily eradicated, this

study confirms that much more work is needed to bring all the institutions if not to the same technological level, at least to a suitable enough one. In addition, second level barriers depend enormously on the first level ones hence, for example, if regular training on ICT use is not provided in order to encourage and boost teachers' confidence, the use of technology in class may have irregular and often inappropriate outcomes. It is therefore essential that technology is approached in a wide and reflective way motivating and supporting regularly teachers and allowing students to experiment and produce autonomous work with the essential guidance of their tutors.

The government initiatives described in the literature review, specifically the *IT2000* and the *Blueprint* one, raised significantly the profile of ICT in education in Ireland. They focused on supporting schools in developing their ICT infrastructure, increasing ICT use in the teaching practice and providing training for teachers in three distinct areas: ICT skills and awareness, professional skills development in ICT, and pedagogical skills development (Freeman, Holmes et al. 2001; McGarr 2009; Donnelly, McGarr et al. 2011). Overall, the results provided by this study confirmed an increased awareness of technology and its educational use however, strong inconsistency regarding technological accessibility, training and support among institutions are still perceived and openly addressed by both teachers and students. In order to be successful, those initiatives have to be nurtured constantly by the government and the schools should be critically engaged and helped in renewing not only in their technical equipment but also their teaching and learning processes. In order to do that, it is important to keep in mind that: “new technologies seriously challenge the old school tradition of observing the world through abstract concepts and abstract language only. Instead of asking the pupils to read, write and talk about their surrounding realities, they should be guided and supervised to actively take part in them” (Taalas P., et al. 2008:240).

6.2.2 Students' and teachers' attitudes toward technology.

During the data elicitation process, participants reflected on and discussed in depth their attitudes towards technology. The results were very interesting and often students' and teachers' thoughts proved to point towards the same direction.

Students in both schools reported a general enthusiasm toward the use of technology for education. The majority of them stated that technology enhances interactivity, promotes deep understanding and facilitates learning making it also more interesting, engaging and fun. This aspect supports the findings outlined in the literature where it has been reported that ICT motivates and effectively engages students, promotes deep learning and also allows schools to respond better to the varying needs of the pupils (Jones 2004; Barak 2006). This sentiment of strong enthusiasm expressed by the students often went beyond the technological facilities in place in their institutions; it was more a general enthusiastic response to a tool (technology) with which they were all quite familiar and they were confident in their personal non-academic use of such tools. As a consequence, the association suggested between technology and education always appeared very positive to them. As a matter of fact, the comfort they had when using such tools was somehow transferred to the educational part of their lives. In addition, according to them, all the above mentioned benefits that technology provides cannot be found in the traditional textbooks. Interestingly enough, when was discussed further, students began to express openly some concerns which appeared diverse and deeply rooted in their beliefs. According to them, technology was of course a good and effective tool to bring into the education system however, they reported that it could be also quite distracting and sometimes even unreliable (both on a technical level- problems with Internet connection or the device itself- or on a content level- the resources found in the Web that can be inaccurate and untrustworthy). In addition, the amount of information available on the Web can be overwhelming and for them there is the risk of being too passive when using technology, and also the risk of being too much at ease in constantly receiving stimuli to which it is easier to react with a simple “like” or “share” action. Critical thinking could be jeopardized by technology. These were common thoughts in both schools which were expressed by students in School B with slightly stronger feelings and this may be due to the fact that they were more exposed to traditional book-based learning approaches.

Such arguments were put forward by teachers of both schools as well confirming repeatedly that students today are often passive when using technology as they do not actively and critically engage with it. Nowadays, students are constantly exposed to technology but, according to them, it is often the case that “they are using regularly technology but technology is using them as well” (Irish language teacher, School B-

interview). With these results in mind, it is necessary to stress the importance for students to receive strong guidance, in order to ensure for them an appropriate use and integration of technology in their learning process. Particularly among School B students, there was also a significant sentiment which was openly expressed: the importance of a traditional education approach, represented first and foremost by the teacher. Students felt reassured by having the teacher in control of the class (this happened repeatedly during the class observations in both schools and this method was also confirmed by School B teachers) and the same sense of confidence was felt by teachers as well. In this sense, technology can undermine this “sense of control” empowering students and letting them become authors of their own learning. This supports the results of several studies (Law, Pelgrum et al. 2008; Taalas, Tarnanen et al. 2008; Ertmer and Ottenbreit-Leftwich 2010) confirming that even if there has been an increase in the actual use of ICT in schools, very few changes have been perceived in the actual classroom practices.

Teachers reported a general enthusiasm for the integration of ICT in their teaching as it seems to facilitate sharing and interaction, it provides authentic material and overall it is “the language spoken by our students today” (Irish-Italian language teacher, school A- interview). However, they perceive and address specific barriers that hinder the integration of technology into education. Teachers have in fact great concerns about potential technical problems that may easily arise during the classes leading to wasted time and increased frustration; the appropriate use of ICT and the resources available; the poor ICT training received and the large amount of time involved when dealing with technology both inside and outside the classroom. Those are the same barriers that have been extensively outlined in the literature review chapter, where many studies on the factors for low level of ICT impact in the classroom have been approached and discussed (Ringstaff and Kelley 2002; Levin and Wadmany 2005; Hayes 2007; Baek, Jung et al. 2008).

From the perspective of ease of access to technology, teachers in School A considered themselves very fortunate whereas School B teachers considered the poor condition of the technological equipment in their institution a crucial limitation. The lack of ICT training received is often at the centre of the discussion, this means that teachers have to familiarize themselves with ICT tools in their own time if they want to integrate it

into their practice feeling, at the same time, pressure from technological-driven institutions. This element is strictly connected to the time-consuming issue clearly visible in the time spent outside school to prepare and investigate technological resources, and inside school with the time spent to set up the devices and overcome possible technical difficulties that may arise. Finally, teachers in School B reported a deep concern regarding technology and final exams. It has been properly argued that the final exams are all in the paper format hence, incompatibility is perceived between technology-orientated methods of instruction which seeks to use and implement digital educational processes and the Junior and Leaving Cert Exams.

According to the teachers, if we want to integrate successfully technology into education, digital changes need to happen accordingly in all areas (such as curriculum, assessment, equipment) without leaving any aspect behind; in this way teachers may feel more confident having technology as a perfectly and legitimately blended part of their practices. Students therefore, may experience a more balanced educational process having technology widely integrated in their educational process. As confirmed by this research, we are still in a transition phase where traditional approaches and tools coexist with new technological pedagogies and digital devices. In this crucial phase, the need to be aware of the current status of the educational system both at a traditional and digital level is more urgent than ever in order to move towards a critical blended pedagogy.

According to Taalas (2008) and in line with the results of this research, it seems clear that today's teachers have a very challenging role as: "they need to develop cognitive learning and creativity among pupils, while at the same time drawing on research findings, being team workers and teaching their pupils to work in a multitude of networks and teams, promoting their pupils' problem solving skills along with critical thinking, risk-taking and trust in the various collaborative learning processes and succumbing to the various forms of national and international assessment. Along with these pressures, the teachers themselves also need to pursue their own professional learning and to nurture the ability to cope with change and commit themselves to the continuous development efforts of their own organizations" (p.243).

It can be said that overall, teachers recognize the potential of technology as a pedagogic method and incisive stimulus for students' learning as it makes school studies relevant to real-life situations, but they do not often agree on the fact that ICT is preferable for class-based instruction for promoting cooperation and reflecting on learning, echoing the findings of other researchers (Barak 2006). In School B, there remains a very strong traditional book-based and teacher-centred approach; however, this does not reflect a negative attitude towards ICT inclusion.

In the light of the current discussion, ICT is seen as a significant and stimulating “extra support” for learning and teaching, an extra tool to which learners can easily refer (when completing language learning activities at home for example, using online dictionaries) but it is not yet considered essential. We are still quite far from the concept introduced by Ertmer (2010:255) where he proposed a change in the teachers' mind-sets in order to include the idea that: “teaching is not effective without the appropriate use of ICT resources to facilitate student learning”. Traditional pedagogical approaches still hold great importance as new pedagogy supported by ICT often struggle to assert itself confirming, for example, still a high teacher control in class versus a high learner control, limited resources presented to the students versus unlimited and updated resources, end-task assessment versus authentic assessment and linear presentations versus hypermedia presentations (see Table 2.1 for an overview on traditional and new modes of instruction). Therefore, the challenges characterizing the 21st century pedagogy are significant, disclosing a strong need to work regularly on building digital awareness while critically developing digital skills.

6.3 QUESTION TWO: What are the impacts and challenges for Irish and Italian language teachers when integrating ICT into their practice? How are technologies used in the language classes?

The second research question addressed by this study focused on Italian and Irish language and the role technology plays within their instruction. As discussed in chapter 3, Italian and Irish offer two completely different perspectives on the language

learning process. On one side there is Italian, a foreign language not widely studied and embraced by Irish institutions however, the language enjoys an enthusiasm amongst current learners that is very strong and promising for future developments. It is important to highlight that the study of a foreign language is not mandatory in the Irish secondary school curriculum nevertheless, the majority of students undertake the study of an European language during their schooling time. On the other side there is Irish, the official language of Ireland but spoken in reality by a minority of Irish people; in this case, the study of the language is mandatory and accompanies the students throughout their schooling time. The Irish language has a complex and controversial history characterized by several issues which include its status as a minority language not widely spoken in the country and outside of it, the way it has been “imposed” and taught to its speakers over the years and, above all, the fundamental role it holds as keeper and perpetrator of Irish identity.

This study shows that technology, when in use, provides different approaches to Italian and Irish teaching and learning, enhancing specific skills and affecting perceptions on the target languages as well. It has been proven also that ICT plays different roles according to different subjects and the academic year in which the students currently find themselves. ICT is recognized also as a faithful companion for language activities outside school, even when its usage is not experienced in classrooms. Overall, technology has allowed a critical reflection on the learning and teaching process, discussing specific aspects of the target languages together with possibilities and challenges that may be otherwise overlooked.

The following paragraphs will discuss the link between technology and Italian and Irish language, looking at the challenges, benefits and impacts in place for both teachers and students. In this regard, the two languages will be compared and contrasted, hence a discussion and reflection on the types of technological activities undertaken will be critically analysed.

6.3.1 Irish, Italian and technology

The results of this study show specific links between the Italian language, Irish language and technology. The link between Italian and technology appears to be different compared to the Irish and technology one; the link between technology and language learning appears to be unique in each school and so the link between technology and the language activities conducted in classroom and outside classroom. The scenario depicted is therefore complex and needs to be discussed approaching both students' and teachers' perspectives and then relating everything to the wider literature.

The data collected and analysed reported that in School A technology was regularly used during the Italian and Irish language classes whereas in School B technology had a quite marginal role being employed sporadically and only for certain language activities. Despite this technological difference, students in both schools considered ICT a great facilitator for the language learning process as it is said to allow a deeper understanding of the workings of the target language, making the learning more interactive and enjoyable and allowing, at the same time, greater participation and collaboration. As mentioned in the above paragraph, these results were widely supported by existing research (Jones 2004; Barak 2006; Lau and Sim 2008). It can be said that overall the perception on the use of technology for language learning was very positive among students. However, diverse sentiments were expressed by learners when associating technology with Italian or Irish acquisition. It has been in fact acknowledged that the use of technology “is more appropriate and generally easier for Italian” (3rd year School A student) as more resources are said to be available on the web. In addition, some web platforms (i.e. online dictionaries) are not available in the Irish language (i.e. *Word Reference*) and, as a result, it is considered often easier to use traditional book-based tools for this language. Irish is perceived by the majority of younger students as a fading language which cannot be often used and practiced outside school, a language that is strongly related to a traditional method of instruction. This perception affects greatly the relationship with technology: technology represents the daily modern life, the living language of today's world whereas Irish is often perceived as something irremediably linked to the past; it is the language of the past that can be reconciled with the present only with enormous and often unsuccessful

efforts. On the contrary, older students expressed a more defined support towards Irish language; they perceived technology as a source of authentic material for Irish acquisition, there are plenty of online resources, according to them, that can be used to deepen and share their knowledge beyond the schools' borders. The older students appear to have a more critical awareness of the tools available on line and the impact technology may have in revitalizing the Irish language. The negative attitude toward Irish characterized more younger students which, at that age, felt a stronger sort of "imposition" when learning the language compared to the open choice they were exposed to when they took Italian.

As discussed in chapter 3, the negative attitude towards Irish was openly recognized by few government initiatives (above all the *Official Language Act* in 2003 and the *20 Year Strategy for the Irish Language* in 2010) which, as a matter of fact, focused on reversing these negative attitudes by increasing the use and knowledge of Irish as a community language, by ensuring the support within and outside the educational system and, overall, by creating: "positive circumstances for greater use by our people of the language ability that they have and for a real increase in that ability over time" (20 Year Strategy, 2010:7). The success of these policies and initiatives depends on various things including the ability: "to encourage maintenance of the language amongst existing speakers (the so-called "native" speakers of the language) and its revival amongst individuals in the community who no longer speak it and who have become 'native' speakers of another language, typically, the dominant language" (O'Rourke, Ramallo 2011: 2). The empirical data gathered from this study shows that there is not a unified bilingual speech community and that the negative attitude towards Irish is still widespread and strong among students. They often do not fully perceive the value of the Irish language if not for passing exams or accessing specific courses or schools. In addition, the fact that Irish is a compulsory subject in school may prove to be counter-productive and associated with the negative attitude some students hold for the language. Students in fact may feel alienated by what it is presented to them as mandatory and this may lead to an inevitable cultural backlash. Overall, it seems that the language has to be "re-discovered" and "re-claimed" by their learners and, in this sense, the government initiatives have provided some support over the years but there is still a lot implementation and support needed in the educational system.

Being an “outsider”, in the sense that this researcher is not an Irish native neither has she completed her junior and senior cycle in Ireland, put her in a very distinctive position as she could see things more objectively without being affected by specific cultural and educational bias. What was clear to her throughout the data elicitation phase and the data analysis was that even if the learning of Irish is still subjected to the presence of deep-rooted stigmas, the language itself is also perceived and considered a treasure by its students, a treasure that needs to be protected but also regarded as a dynamic and flexible element of the society they live in. Government initiatives have recently revised the syllabus for the Leaving Certificate increasing oral interaction in the classroom and allowing for an increase in the marks for oral assessment (IN 2003;Ireland 2010) and this is a very interesting action which could also benefit the communicative and interactive nature of technology. Irish language represents the identity of this country but students need to build awareness around it and, in this sense, technology could play a crucial role, as some students and teachers have already anticipated in the questionnaires and interviews. Technology has in fact the potential to promote the language, making it more interesting, engaging, popular and attractive even for new learners but, in this process, the guidance and expertise of teachers, the flexibility of the curriculum (that may be adapted accordingly blending traditional and technological approaches) and the support of the institutions are all essential.

Italian language represents a voluntary choice that students have taken at the beginning of their secondary school cycle when they had to select a foreign language to study for their Leaving Cert exam. The study of Italian, together with other European languages (such as Spanish and German), was implemented in the past few years by different government initiatives as a response to the growing hegemony of French (RIA 2011). Italian is often perceived by its learners as an “exotic” and fascinating language which discloses a rich and ancient culture. The curiosity and the preliminary notions students may have about Italian culture, food, art, history and traditions make the approach to the language easier and in that sense, technology represents the tool through which all those aspects can be easily discovered. According to the majority of students, it is easier to use technology for Italian acquisition. Italian has more material available online and it is easier to approach the language and the culture because of the popularity of the language itself (even though Italian is not widely taught in Irish secondary level institutions). It is immediately clear that students have a general

positive attitude towards Italian and this attitude can be also enhanced by an appropriate use of technology. *The Post-Primary Language Initiative* launched in 2000 provided an important support to the language both on a pedagogical and material level. However, when targeting the schools for the study, it was very difficult to find institutions where Italian was taught; this means that the number of schools offering the language in Ireland is still very low (see Chapter 3) and regular efforts have to be made if we want to foster the enthusiasm already in place and ensure the availability of this language.

The use of technology outside the classroom has similarities among students of both schools. The majority of students in fact employ technology to complete language activities at home and to practice their listening and speaking skills. Podcasts, videos and especially *Google Translator* and online dictionaries are frequently accessed by students for Italian and Irish language however, the lack of technology use during school hours has an impact also outside school. A good number of School B students in fact limit the use of technology to online dictionaries as they do not feel the need to approach other resources or platforms not being those used during the regular class activities.

Teachers, as discussed in the earlier paragraph (6.2.2), have a general positive attitude towards technology use however, the role ICT plays in each language seems to be quite distinctive. It has been openly confirmed that Irish is often perceived by students in a negative way and technology, even if not in use in one institution, may have the great potential of making the language more interesting and engaging: *we don't have any reluctant learner here so the kids want to learn Italian whereas for Irish, for example, there are a lot of reluctant Irish learners so **I think technology could spice it up*** (senior Italian language teacher School B). Plenty of good resources are available on the web and often some teachers produce valuable resources themselves (i.e. recordings of people talking in the target language with different accents, videos on cultural aspects or traditions). These approaches to web-sourced and self-produced materials are however strongly linked to the actual use of ICT in the institutions. School A teachers addressed the importance of technology for promoting Irish, for discovering the language and the traditions of this country using, for example, videos and interviews to the people of the Gaeltacht region, for approaching Italian and its culture, for practising language skills, for challenging students through on-line games

and activities. These methods, in use in one institution in particular, show the essential role technology has in providing authentic material that motivates students at a much deeper level. It is important to say that while stating all those benefits, teachers kept on addressing concerns and listing the barriers on the use of technology for education. In School B the Irish teacher expressed her enthusiasm towards technology, she often mentioned *Twitter* and the amazing feedback she had from students when they used this tool for debating in Irish. She clearly saw the advantages that technology could bring to Irish language teaching and to her students (sharing information, being active participants in discussions, being in contact with people from all over the world, letting the students be more autonomous in their learning). However, the barriers addressed namely the lack of support and technological equipment and personal expertise and confidence, would let her fall back to traditional teaching methods. The senior Italian teacher highlighted the benefits technology would bring especially to Irish but she was more critical towards ICT use in general stating that the value of traditional methods and tools should not be undermined. Hence, technology could add some value to the teaching of Irish, but it is still often considered an ancillary element that should be used in a critical and cautious way.

6.3.2 Use of technology during the language classes

The second part of the research question focuses on the actual use of technology in the language classes looking at the tools and platforms regularly employed.

The first element that distinguishes School A from School B is the use of e-books. In School A, students and teachers are in fact equipped with e-books for both Italian and Irish language and e-books are available also for various subjects taught in the institution. The school aims to replace, step by step, traditional text-books and tools with digital devices and platforms but, as confirmed by the class observations, we are still in a transition phase as the majority of students bring to class their computer and e-book together with the paper text-book. During the classes, students seem to prefer pens and paper to write notes and complete exercises even though they have their computers at hand; only a very small number of students have a word document open

to take notes. Teachers, on the other hand, use the whiteboard to write words or grammatical elements that need to be highlighted without ever typing on their devices. This shows also that the use of technology is not fully embedded and invisible in the learning and teaching processes. Technology has not reached its fullest possible effectiveness yet as it has not arrived “at the stage of ‘normalization’, namely when it is invisible, used automatically and without our being consciously aware of its role” (Thomas, 2010:266). It has been shown in fact that technology is used for basic activities during classes (e-book reading, Power Point presentations, showing videos) and the traditional pedagogical tools (textbooks and exercise books) still hold great importance being the main point of reference for both students and teachers. This study reports that students have many concerns about the use of e-books and they do not particularly enjoy it. Using e-books, according to them, is distracting as it is easier to jump out of the e-book page and browse around the web: *No, I think it is better to study off a book than get distracted by technology* (3rd year male student, School A). The reading and comprehension process itself is perceived as more challenging and disrupted when approaching e-books.

Research confirms that readers remember the location of information simply by page and text layout and this plays a key role in the comprehension but it is more difficult in screens, primarily because the time spent reading online is usually devoted to skimming and scanning with little time for mental markers. In addition, it has been shown that readers spend little more than one minute on Web pages, and only 16% of people read word-by-word (Woody, Daniel et al. 2010; Baron 2014). This behaviour illustrates the different use of educational skills when approaching printed materials and digital ones and this may lead to important consequences for education and learning in general and students’ performances in particular. Finally, students reported that studying whilst looking constantly at a screen is more tiring than using textbooks and exercise books. The same kinds of concerns were raised by School B students when a potential introduction of e-books for their Italian and Irish language learning was discussed. Overall, the cons against the use of e-books in education largely overtook the pros. However, one benefit was stressed by students of both institutions: using e-books could be positive only for practical reasons as students can avoid bringing in school different text-books, dictionaries and other printed material having one device which contains all they need for classes.

Beside the e-books, the use of technology was displayed in the Power Point Presentations, where teachers highlighted grammatical concepts and specific words or sentences; in the presentation of videos, podcasts or web-sites in the target language where teachers engaged their students in the completion of oral (discussions on different proposed topics) and written language activities (cloze exercises, reading comprehensions, quizzes, matching exercises) previously prepared and arranged. These activities were conducted regularly in School A whereas in School B only sporadically but, the digital platforms employed (videos and PowerPoints above all) were exactly the same. It appears then that despite the technological orientation of the two institutions, technology is not exploited at a deeper level. Traditional educational tools have not been replaced by technological ones and they actually hold great importance not only for teachers but also for students who, as this researcher believes, currently seem to trust the paper more than the screen.

Regarding the students' use of technology outside classroom time, it can be said that this is limited to the use and access to on-line dictionaries, translators, web-sites previously indicated by the teachers, videos in the target language and, frequently enough, access to online exam papers. These activities were conducted by both School A and B students despite the different role of technology in their institution. Furthermore, it was noted that students confined themselves to engage with web-sites which were previously indicated by their teachers, they rarely browsed autonomously looking for different resources or materials. Even though technology is said to foster students' autonomy and creativity (Lim 2007; Ferrari, Cachia et al. 2009) , learners seem to not experiment much in the educational field nor explore independently the target culture and language through technological platforms. They show in fact completely different concerns when using technology for educational and personal purposes contrasting a cautious attitude to a more open and relaxed one. This may be the result of a lack of awareness they have towards ICT which may be strongly linked to both their teachers' and institutions' attitudes and uses of technology into the pedagogical practices. These elements will be discussed in more depth in the following paragraph.

6.4 QUESTION THREE: Does the current evidence resulting from this study validate or dispute Prensky’s digital natives-digital immigrants claim?

Approaching the Digital Natives/Digital Immigrants claim was one of the challenges of this research. The findings gained from the interviews, questionnaires and class observations contributed to understanding the relationship students and teachers have today with technology for educational purposes. The secondary school educational environment is experiencing important changes from a digital point of view; technology is recognized as a significant element of the educational process however, its role is not yet definite or settled. This can be defined as a “Transition phase” where students’ and teachers’ technological skills, attitudes and concerns are developing on a daily basis and where traditional pedagogical elements and approaches still have a central undiscussed position. The empirical results of this study seem to fit only partially with the digital definitions and characterizations widely discussed in the literature, proving that a critical reflection on the actual digital natives-digital immigrants issue is needed in order to avoid dangerous misconceptions.

During the last 10-15 years we became accustomed to hearing definitions such as “Millennials” (Strauss and Howe 2000), “Net Generation” (Tapscott 1999; Oblinger, Oblinger et al. 2005), “Generation Y” (Jorgensen 2003; Weiler 2005; McCrindle 2006), and finally “Digital Natives, Digital Immigrants” (Prensky 2001a) used to describe the digital status of today's students and teachers. The idea behind these terms is that there has been a fundamental break between young people and previous generations and, consequently, between students and their teachers. Specific technological phases seem to characterize our recent history and, above all, the generations which grew in it. Each generation in fact appears to have its unique technological experience which goes from the use of television to the developing of apps, as figure 6.1 below outlines. Starting from the left hand side the figure presents the first phase or the “Baby Boomers” phase which goes from roughly 1946 to 1964 being characterized by the advent of television (Hilt and Lipschultz 2005). There is then the phase of the so called “Generation X” or “Digital Immigrants” which goes from 1965 to 1985 when the emerging technology saw the first computers turned into desktop appliances (Prensky 2001a; Oblinger 2003). The third is the “Net-Generation”,

“Digital Natives” or “Millennials” generation phase which goes roughly from 1986 to 2000 when the use of the Internet and various technological tools became widespread and consistent (Oblinger, Oblinger et al. 2005; Prensky 2005; Jones and Fox 2009). Finally, in line with the recent technological developments and definitions already introduced, a potential “Generation Next” has been suggested which is the demographic cohort that follows the “Generation Y” and refers to those people generally comfortable with the use of the Internet, of various web-applications and devices employed regularly and for different purposes (Taylor 2006).

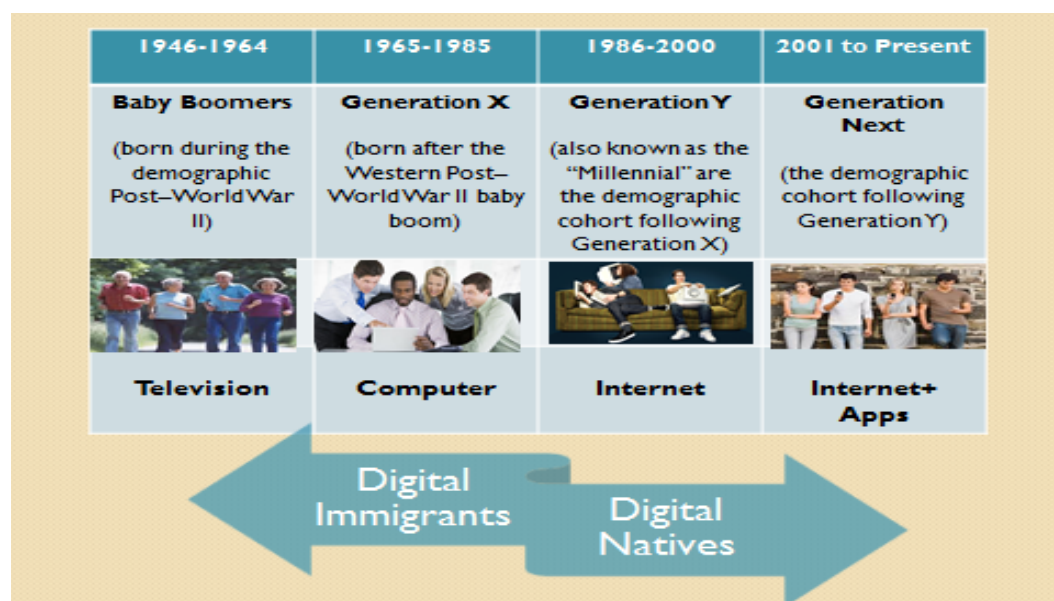


Figure 6.1: From the “Baby Boomers” to the “Generation Next” through the Digital Native-Digital Immigrant divide.

The results of this study confirmed that today’s generation of young people have been immersed in a world infused with technology having at their disposal various devices to which they have a regular and consistent access. Different researchers such as Prensky, Oblinger, Tapscott (1999; 2001; 2005) have argued that because of this familiarity with technology, they think differently from they predecessors having different expectations about life and learning. The new generation of students, according to them, prefer receiving information quickly, rely on technology to access information and to interact with others, have low tolerance for lectures and favour active rather than passive learning. Prensky, addressing the generation of young people

born since 1980 as “Digital Natives” due to their innate confidence in using technologies, stated specifically:

Today’s students . . . represent the first generation to grow up with new technology. They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the others toys and tools of the digital age. Our students today are all “native speakers” of the digital language of computers, video games and the Internet (Prensky, 2001a).

Hence, according to Prensky, the “Digital Natives” process information quickly, enjoy multitasking, and gaming whereas “Digital Immigrants” process information more slowly, working on one thing at a time, and they do not appreciate less serious approaches to learning (this, in practice, means not going to the Internet first for information; printing things out as opposed to working on the screen; and reading manuals rather than working things out on line). Furthermore, in his second article, Prensky (2001b) explains the phenomenon of *neuroplasticity* claiming that the brains of Digital Natives are different to those of previous generations because of the direct effects of digital technologies:

Based on the latest research in neurobiology, there is no longer any question that stimulation of various kinds actually changes brain structures and affects the way people think, and that these transformations go on throughout life. The brain is . . . massively plastic. It can be, and is, constantly reorganized The brain constantly reorganizes itself all our child and adult lives, a phenomenon technically known as neuroplasticity ("Neuroplasticity," para. 2).

Children raised with computers, as Prensky (2001b) argues, think differently from the rest of us, developing *hypertext minds*. He underlines his concern about the profound gap he sees between Digital Native students and their Digital Immigrant teachers; the natives, according to him, are crying out "for new approaches to education with a better 'fit'" ("What Have We Lost?," para. 4). Young people now have a range of different preferences, tools, and ways of processing and using information that does not fit well with the current educational practices. Thus, current pedagogies employed are outdated and need to be changed. A powerful teaching method, Prensky suggests, would be to use computer games to teach the Digital Natives (Benini and Murray 2014). This characterization is not completely confirmed by the results of this study.

The findings reported here seem, in some cases, to support the arguments put forward by Prensky and others. Young students appear to be generally enthusiastic when

integrating ICT in their learning experience. According to them, ICT helps the learning to be more engaging and interactive and generally, the idea of full ICT integration is very appealing for the students of both schools however, in reality, they still feel strongly about the importance of a traditional education approach. Thus, this shows that the use of technology neither is fully embedded nor normalized in the learning processes. In fact if, on one hand, students are familiar with various technological tools and have a general positive attitude towards technology as a more interactive and enjoyable way to foster their learning on the other, they do not seem to process information more quickly or to always prefer game-based learning to other more traditional ways of instruction. Students themselves have in fact great concerns about technology, especially when it comes for educational use. The results of this research reported a profound divide between technology for personal use and educational use. In this sense, Prensky does not make any difference. Technology is easily and regularly embraced by students in their “private” time but during their educational time, students access technology in a more cautious way; they go to the Internet to find specific information or material but the solid trust and reliability provided by teachers and printed material is irreplaceable holding still great importance.

Teachers in School A express a great enthusiasm towards technology and they use it regularly for their teaching. They use digital material together with printed material and they often recognize the facility with which students may embrace digital activities. A sort of digital gap is perceived by teachers when they highlight the fact that they need to constantly catch up with technology whereas students seem to have a more spontaneous and easy relationship with it. However, they immediately recognize that often students embrace technology passively without interactively or actively producing something, as confirmed by several studies (Gibson and Oberg 2004; Jedeskog and Nissen 2004) and more recently by Homäki, Taalas et al. (2012) who note that: “The Internet is often used infrequently and mainly for information search without students practicing information organization and analysis, with students being more often consumers than producers” (p. 4). Teachers realize that, in that sense, it is essential that their role as facilitators allow them to guide their students to approach the learning in a critical way while fostering high order thinking skills. As confirmed by the questionnaires, interviews and class observations, School B teachers are not supported as much by their institution in the use of technology; they employ

principally printed material and traditional book based tools and they are more aware of the different relationship they do have with technology compared to their students but, as in School A, they have great enthusiasm towards ICT and, above all, they recognize the central role they hold in providing their students with the necessary critical skills for dealing with educational tasks including those employing technology. It is recognized that critical thinking goes beyond any tools and technological equipment available, it can be fostered, according to them, through traditional pedagogy and it can be applied indistinctively to any type of learning. Hence, it is important to be familiar with technology and certainly it is something they need to work on, but that lack of confidence, according to them, would not create alienation and disaffection between teachers and students.

In his most recent works Prensky has distanced himself somewhat from the Digital Natives/Immigrants distinction suggesting that we now think in terms of “Digital Wisdom”:

Digital technology, I believe, can be used to make us not just smarter but truly wiser. Digital wisdom is a twofold concept, referring both to wisdom arising from the use of digital technology to access cognitive power beyond our innate capacity and to wisdom in the prudent use of technology to enhance our capabilities (Prensky 2009).

In this case Digital Wisdom overcomes generational boundaries: even though Digital Immigrants can never become Digital Natives, they can acquire and possess Digital Wisdom. Digital Wisdom is a concept that can be adapted better to the findings of this study; Digital Wisdom may in fact represent the students’ and teachers’ ability to use technology when appropriate, without blindly accepting the latest putative teaching and learning software and whilst actively and collaboratively reflecting on its benefits and potential pitfalls.

It has been noted during this study that the terms “Digital Natives-Digital Immigrant” together with the others mentioned above, became part of our “common sense” without having been much explored in their true nature and everyday practice. Research shows that there are different variables that go into creating the stereotypical Digital Native: the location, for example, seems to be a very important factor. In the US there is a different level of web technology and computer use than among the same

demographic of Digital Natives in Australia (Kennedy, Judd et al. 2010; Margaryan, Littlejohn et al. 2011) and those in the UK (Stoerger 2009). In South Africa, as well, only 26% of the population might be described as digital natives (Brown and Czerniewicz 2010). It has been also indicated that socioeconomic factors as well as race, gender and educational background play an important role in how and how much use people make of technology (Broos and Roe 2006). Another important aspect to be considered is age as a defining factor to explain generational differences between Digital Natives and Digital Immigrants. Prensky considers this a basic aspect of his claim while, according to this research and other authors a digital native is defined by exposure to, or experience with technology (Tapscott 1999; Oblinger, Oblinger et al. 2005). Finally, the access to technology, the use of it in both quality and quantity is a significant parameter to be considered.

The findings of this study show the importance of having access to technology and of availing of good quality equipment; this allows teachers to embrace it with less bias and fears, it allows sharing pedagogical experiences among users and facilitates an appropriate use among students. Having good quality technological equipment may allow critical reflection on quantity as well, considering how much technology can be used both inside and outside class for learning in general and language learning in particular. In this sense, BYOD (Bring Your Own Device) initiatives can play a key role allowing the pupils to bring their own devices into classroom rather than having the school itself owning the computer devices. Even though only a small number of Irish schools are using BYOD, there is a growing interest on this initiative as a means to support a more student-centred and active learning approach having the students also taking more responsibility of their own learning (PDST:2014). According to this research and other studies show that (Dutton and Helsper 2007; Cheong 2008) while the proportion of young people who use the Internet and other new technologies is higher than the older population there are significant differences in how, why and how effectively young people use these technologies. Overall, ICT is seen as a significant “extra support” for learning and teaching, an extra tool to which learners can refer to easily (when completing language learning activities at home for example, using online dictionaries) and for teachers represents a great source of more authentic and engaging material.

It can be said that participants in this study displayed only a few aspects of the Digital Natives-Digital Immigrants stereotype such as the availability and ease of access to few digital devices (especially outside school), the general familiarity students have with technology and the dependence on and use of traditional methods of instruction by some teachers. However, behind those aspects there are complex dynamics that this study has widely described. Teachers reported a general enthusiasm towards the integration of ICT in their teaching nevertheless, they have great concerns about the potential technical problems and the appropriate resources available. While there are differences in how generations engage with technologies, there are also similarities across generations mainly based on how much experience people have with using these tools. Generational distinctions between natives and immigrants are not reflected in this empirical data and the uncritical use of these terms could have negative implications on the teacher and student interactions. Furthermore, there are significant differences within cohorts of young people in terms of their preferences, skills and use of new technologies (Kennedy, Judd et al. 2010) as well as their teachers. As Facer and Furlong (2001:467) have argued, young people are not a “homogeneous ‘generation of digital children’ in general. We need to recognize that childhood is socially and culturally situated, and that different children, like different adults, will have diverse experiences of and attitudes towards new technologies, experiences that need to be identified and catered for”.

6.5 QUESTION FOUR: Do the students feel comfortable in using new technologies and web tools within their language learning experiences? How do the students’ skills, as putative digital natives, work in relation to their language learning processes?

This last question aims to explore how comfortable students are in using technology for language learning and secondly, to discuss how and if the educational skills have changed with technology and how those changes, if in place, are effecting the language learning process. The findings of this study give a clear indication of the attitudes and perceptions students have towards technology when integrating it into Italian and Irish

learning. Technology plays an important role in their private life but in their educational life the usage of ICT has proven to be diverse and more cautious.

The questionnaires and interviews conducted showed that all students have several digital devices at their disposal (such as computers, smart phones, tablets) in some cases those devices are provided by the school itself (School A) and in some others the use is limited to activities conducted outside school (School B). These devices are regularly used in particular, as they reported, several times a day or “all the time” as some of them said, but the majority of activities undertaken are not school or education-related unless they have been asked to do so. The ease of access and the regular use of ICT indicate a certain comfort and familiarity students have with it but a distinction is always made between personal and educational use. Students expressed in fact more openness and easiness in exploring technology for their personal usage whereas for education they felt strongly the need to have somebody guiding them and helping them in moving around the digital world.

As it has been widely discussed, School A students experienced a significant use of technology in class having personal devices at their disposal, classrooms well equipped, teachers that used e-books and technological applications to introduce and discuss various cultural and grammatical topics (often through PowerPoints or videos) and overall, a school that was committed to supporting and promoting ICT. School A students recognize the importance of ICT in their institution and the quality of the facilities available; they recognize the potential of technology in fostering interactivity, enhancing oral skills and making the learning of the language more engaging and “interesting”, as they often reported in the questionnaires and interviews, but the limitations of ICT have been also reported and clearly observed throughout the class observations when paper textbooks, pen and paper and the teachers themselves represented the main elements to rely on. It has been noted that students were at ease when using technology in the language classes, they were managing easily their e-books, word documents and other educational web-sites but, as confirmed by their teachers (IR and IR-IT School A teacher), they were more hesitant when they had to actively produce something (a recording, a video, a blog post). In School B, where technology use was limited, it was not clear how much comfort or discomfort students had when using digital devices however, when teachers presented PowerPoints or videos the attention was high as well as the level of enthusiasm. According to the data,

students in both schools reported an easiness in using technology at home as an extra support to complete language activities. The tools frequently used were dictionaries, on line translating web-sites, exam papers, videos and podcasts and access to those tools was considered easy and immediate enough compared, for example, to a paper book search. Despite the comfort reported by students in using digital devices and platforms, it has been noted that pupils limited themselves to approach the websites indicated by their teachers without feeling the need to explore creatively and autonomously the various additional elements the digital world had to offer. Hence, students' comfort in using technology for educational purposes seems to be strongly linked to their teachers' use and perceptions toward it and, moreover, to the role technology plays in the curriculum, final exams and institutions in general

The widespread use of technology has certainly an impact in the way students learn and in the way educational skills develop. Prensky's claim (2001a,b; 2005) states that our students today are easily able to multitasking, to process information quickly, they are developing hypertext minds and they prefer a game-based approach to learning. These putative skills possessed by students have not been confirmed in full by the results of this research. Students confirmed the role technology can have in making the learning more interesting and fun, they like the idea and, when this happens, they reported great enthusiasm. They have concerns however towards the distracting nature of technology and the information load the Internet can provide. Those concerns are regularly highlighted by the students and this leads one to conclude that they do not possess those putative digital skills yet. They can easily access the Internet and any digital devices but they often passively engage with them meaning that their productive skills need to be fostered and shaped. They may have few devices at their disposal (especially at home) but the majority of students strongly rely on traditional pedagogical tools (textbooks, exercise books). The fact that students do not enjoy learning on e-books reinforces the idea that those digital skills are not naturally possessed by students. The digital skills indicated by Prensky cannot be in fact innate in the Digital Natives only for the fact that they are born in the digital era; on the contrary, those skills have to be appropriately fostered and cultivated in order to ensure an active and positive coexistence between technology and education.

The findings of this study challenged on one side the Prensky claim but, on the other they align with Connectivism theory as the learning theory for the digital age. This

theory seems to describe the Transitional phase we are living in, especially from the educational point of view: “Connectivism presents a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. How people work and function is altered when new tools are utilized. The field of education has been slow to recognize both the impact of new learning tools and the environmental changes in what it means to learn. Connectivism provides insight into learning skills and tasks needed for learners to flourish in a digital era” (Siemens, 2005:5). According to Connectivism in fact, knowledge exists outside of the learner, and the learner makes connections between information to build knowledge. The connections that learners make help them create their own learning network. Through this connected web, learners will be able to stay up-to-date with content as it changes. One essential skill that learners need to develop and enhance is the ability to identify credible resources (Siemens 2005; Downes 2012).

6.6 SUMMARY

Chapter 6 examined the main research questions in relation to the research findings and the wider literature. Each paragraph presented and discussed a research question: the first paragraph outlined the importance and use of technology in the targeted secondary level institutions looking, specifically, at the teachers’ and students’ attitudes towards ICT. The second section focused on Italian and Irish and the role technology plays within these two languages; significant differences on how Italian and Irish are perceived and taught have been discussed together with the potential advantages ICT may bring. The third section looked at the Digital Natives-Digital Immigrants claim discussing the meaning and the implications these and other similar terms in the educational field. The findings of this study challenged the claim providing a more complex and detailed context where students and teachers do not fully align with the suggested digital characteristics. Finally, the last paragraph analyses the relationship students have with technology looking at their skills as putative digital natives and how these work in educational contexts.

CHAPTER 7 - FINAL CONCLUSIONS AND RECOMMENDATIONS

7.1 SUMMARY OF THE THESIS

This study posed a number of research questions exploring the attitudes and uses of ICT for Italian and Irish language learning in two secondary schools in the Republic of Ireland. One of the main purposes of this study was to examine the students' and teachers' attitudes towards ICT use for language learning while analysing the barriers and the benefits in place and the different perceptions among the two languages. The second major purpose was to understand the digital status of students and teachers by comparing and contrasting the empirical data in relation to the Digital Natives and Digital Immigrants claim. This doctoral dissertation began with a literature review of topics relevant to the area of ICT integration in educational contexts and CALL. Specifically, chapter 2 discussed the role and the contribution of ICT to the educational field listing all the barriers that limit its full integration; the changing role of today's students and teachers together with all the initiatives that defined the role of ICT in Irish education settings.

Finally, a review of CALL literature was presented focusing on the different phases of this discipline and the tools used therein. An additional literature review section in chapter 3 described the historical background and the current status of the two languages targeted for this research: Irish and Italian. An analysis of the Irish post-primary education system was provided covering the role Irish and Italian play within this context allowing the reader to understand, in this way, the setting where this study took place. A mixed methodology was employed and utilised to answer the research questions including questionnaires, interviews and class observations, as described in chapter 4. The questionnaires provided a broad picture of students' and teachers' use and attitudes towards ICT while the interviews provided more in-depth data on the same matter. The class observations carried out offered a description of the actual digital equipment available in the schools as well the teaching methodologies in use.

The observations allowed for an overall reflection on the issues which arose during the questionnaires and interviews. A mixed-method approach was chosen to provide greater confidence when conducting the comparisons and contrasts between different sets of data. The findings of the study were then outlined in chapter 5 where a detailed analysis and report for each set of data were presented and discussed accordingly. In chapter 6 the main research questions were examined in relation to the research findings and the wider literature.

7.2 DISCUSSION AND CONCLUSIONS

The first element that appeared distinct during the data collection phase and afterwards during the analysis of the empirical study was the need to be heard from both students and teachers. It was found in fact that participants were all quite keen to talk and discuss the matters proposed by this study. Students and teachers had much to say about technology, education and language learning. It was strongly perceived the urgency participants had to discuss and to reflect on these topics, which ultimately helped the researcher to understand and analyse these issues critically and objectively. Teachers appeared very open about their thoughts and teaching methodologies, they were not uncomfortable about having somebody looking at their work, on the contrary they expressed more or less consciously the need to be heard, to be understood and to address openly the challenges they experience on a daily basis.

The questionnaires and, above all, the interviews, were the space where they could talk about pressing issues, strong concerns and also important accomplishments. Students, on the other hand, during the data elicitation phase, found the space where they could actively reflect on their learning, discuss issues with their peers and compare and contrast their thoughts with their teachers. They felt engaged and often the time allocated for the interviews was not enough to listen to them all. Respectively, teachers needed to be heard attentively, they needed to address their fears and concerns about technology and to ask openly for support when needed. Students too needed to be heard, they needed to be stimulated in expressing openly their thoughts and critically

engage with them, they needed not be taken for granted in their use of technology because often the concerns they had align them close to their teachers, more than we are commonly inclined to think. As a result, it could be considered very useful employing simple online platforms where teachers and students report, discuss and share their concerns and learn from each other. Feedback and reflections on the use of specific digital devices, software, web tools, curriculum and open projects should be an integral part of the educational process and also deeply encouraged as part of teachers' on-going training. In this regard, institutions have a crucial role in regularly making critical reflection a relevant skill to be acquired and practiced by both teachers and students. Furthermore, this may facilitate the approach to technology for those less technologically savvy; they may in fact start by writing and sharing their ideas using tools they are familiar with and then, through effective collaboration, they may try to embrace step by step by first looking, liking, sharing, and then writing the digital world.

During this current transition phase, where technology is not yet an integral and invisible part of the educational process, it is essential to create a mutual space for reflecting. This would allow a deep understanding of specific and urgent issues, it would allow fears not to take over the actual teaching and learning practices and finally, it would rebalance the students' and teachers' role as simply humans who often share the same concerns and are not expected to act and behave as digital natives or experts in all educational phases.

This study concentrated on examining the use and attitudes towards ICT for education in general and language learning in particular. Student and teacher perspectives and perceptions were outlined and analysed accordingly. The findings of this research, despite the very different technological orientation of the two targeted schools, indicate that all participants have a generally positive attitude towards technology. On one side, teachers recognise the great advantages technology can bring especially in stimulating and motivating students' approaches to learning, in making school studies relevant to real-life situations, in increasing students' creativity, interactivity and autonomy. However, they openly addressed profound concerns regarding the lack of ICT training for teachers, the lack of technological equipment (especially in School B), possible

technical problems that may affect the course of the class, the time consuming aspect of technology both for familiarizing with technological tools and integrating them into teaching practice and, the risk that technology may not be used actively and most importantly not be used critically by students. This often resulted in an unsettled and incomplete integration of ICT into teaching practices.

This is where the enthusiasm towards ICT and the related technological activities were accompanied by the familiarity provided by traditional methods of instruction, namely text-book, paper-based material and frontal/teacher centred methods of instruction (see chapters 5 and 6). Overall, teachers in both schools exploited ICT for their own learning but when it comes to integration into their teaching practice they seem very cautious and aware of the possible difficulties and limitations. These may be termed as being both professional and affective issues. It is recognised here that asking and expecting teachers to collaborate with their students in ongoing collaborative self-learning exercises will be particularly challenging for teachers. In language learning contexts in Ireland, the "sage-on-the-stage" must finally become the collaborative facilitator and critical arbiter.

On the other side, students recognised the importance of technology especially for certain subjects such as Geography or Science where they seem to perceive more clearly its usefulness but overall, they consider ICT a valuable tool which enhances interactivity, promotes deep understanding and facilitates learning. It also makes learning more interesting, engaging and fun (see chapters 5 and 6). In this sense, students agree completely with their teachers on the fun, game-based element that technology seems to add to language learning. However, as for their teachers, some have strong concerns about ICT use for educational purposes. Students reported in fact concerns about technology efficiency and reliability: they addressed potential difficulties that can be experienced on a technical level, for example, when their device is not working properly or on a content level when they approach on-line material that is inaccurate or difficult to manage.

Further disruption was reported by students in that technology can also be very distracting making it difficult to remain focussed on activities that need to be completed or on topics that need to be covered in depth requiring longer periods of uninterrupted concentration. In addition, passivity and lack of critical thinking are

elements perceived - by both teachers and students - as being innate in ICT, created as a direct consequence of information overload from the Web. It is easy to conclude here that students need to be taught effective digital literacies to overcome these issues. It is essential to recommend that the critical arbiter must possess and share (teach) a flexible skill set that includes such literacies.

Students of both schools reported the use of technology at home as an aid for the completion of language activities, for practising language skills (especially oral skills) and accessing exam papers. In this regard, the tools used and the web-sites accessed were limited to translation platforms (such as online dictionaries or, more often, *Google Translator*), videos and dedicated websites in the target languages which were always previously indicated by their teachers. Hence, students were very cautious when using technology for education unless following the guidelines provided by their tutors. Thus, they displayed a limited autonomy and rigidity that often clash with the use of ICT for personal purposes. Despite their declared acknowledgment of the benefits of ICT, they still need teacher guidance, direction and validation.

Overall, ICT is seen as an important and stimulating “extra tool” for teaching and learning, a significant tool to which both students and teachers can easily refer and rely upon but it is not considered essential yet. This study also shows that the use of technology is strictly related to the facilities available in the institutions but it is important to note that even when the facilities are in place the concerns and the approaches of the targeted schools are the same. Issues on the support provided both at technical and training level, on the time involved, the rigidity of the curriculum and teachers’ pedagogical methods were habitually reported by the participants. All of the above issues, from both schools, indicate the outstanding factors affecting the ICT integration process. Throughout the long history of CALL integration, these factors have been raised and addressed and this study confirms that they have not yet been resolved.

However, one factor that has been resolved in this study concerns the concept of Digital Natives and Digital Immigrants as proposed by Prensky (2001a, 2001b). This claim was examined in depth allowing teachers to discuss their thoughts about it and then compare the gathered data to the wider literature. On the one hand, teachers’ ideas on Prensky’s claim revealed very interesting perspectives and challenges that have to

be faced in a 21st century pedagogy. On the other hand, students' thoughts on ICT use outlined a significant scenario where digital skills are still evolving and traditional approaches still remain strongly rooted. The findings of this research highlight the notion of students and teachers facing a digital divide is not as simplistic and straightforward as Prensky has argued. Teachers, as it has been argued in the paragraph above, reported a general enthusiasm towards the integration of ICT into their practice and they recognize the great potential of technology however, they stated that its integration is subjected to different variables including the support provided both on technical and training level, the access to technological facilities and the flexibility of the curriculum. Teachers do not consider themselves as simply Digital Immigrants, according to them, their digital status cannot be contained in this simplistic yet appealing definition. They agree on the fact that they are constantly catching up with technology and they are fully aware of how fast technology is moving and significantly affecting the educational field. In addition, they also openly address the discomfort and frustration felt when struggling to use or access digital material (principally due to barriers on a training and technical level) whereas they realize that students often seem more comfortable in accessing the same tools however, this is not an indication of a digital divide among generations.

Indeed, while there are differences in how generations engage with technologies, there are also similarities across generations mainly based on how much experience and interest people have in using these tools. Teachers stated that students can be defined as Digital Immigrants only for the familiarity and the regular access they have to technology (especially for non-educational purposes) but when it comes to engage critically with it and actively produce something, they appear very unsure and in need of guidance. Hence the Digital Natives definition can be applied to students only partially: if it is true that they are constantly using technology it is also evident that they are often passive recipients of information thus, as insightfully suggested by the Irish Language teacher in School A, "technology is using them as well" (see chapter 5). It may be concluded that the generational distinction suggested by Prensky's claim is not confirmed by this empirical study and the uncritical use of Digital Natives-Digital Immigrants terms could have negative implications on the teacher and student interactions, their working relationships and their perceptions of the competencies of one another.

On their part, students express and show a general comfort in accessing technology arguing that they are using digital devices regularly; they also highlight the importance of technology in education as it makes learning more interesting and fun. However, they do not place technology at the centre of their learning. They rely, in fact, greatly on traditional pedagogical tools (such as paper textbooks, exercise books) highlighting repeatedly the limitations that technology can also have (i.e. technology can be very distracting and the amount of information available on the web can be overwhelming in addition, they do not enjoy the use of e-books). This shows that despite the enthusiasm towards technology, students do not consider it an essential part of their educational process showing also that those putative digital skills that Digital Natives are said to possess are not fully shaped or even in place yet.

Furthermore, students display a very different attitude when using technology for personal and educational purposes. They are in fact more cautious when they have to embrace technology for specific language activities or educational projects (as when creating, for example, digital recordings or blog posts, see chapter 5) and they are not inclined to experiment or exploit much the many features technology has. Overall, pupils have a general great enthusiasm towards ICT as it represents a tool they use on a daily basis to communicate and interact with others but ICT assumes a very different significance when used for educational purposes. In conclusion, the findings of this empirical study suggest that the generational divide suggested by Prensky between technological savvy students and their supposedly technological-weak teachers does not exist and that the only divide that can be perceived is between the students' personal and educational use of technology.

The two languages targeted for this study reported very interesting and unique scenarios. The role technology plays within Italian and Irish instruction is very distinctive and very much related to the original positive and negative attitudes that distinguish them both. Throughout the study, the traditional social and educational stigmas characterizing Irish language learning are still strongly perceived and this affects the way students approach technology: younger students often argued that it is “not easy” using technology for Irish because, among other reasons, there are not many resources available online. In this sense, it is essential that the knowledge teachers have of technological material and online resources is shown to students during their use of such resources both inside and outside the language classes. Older

students, on the contrary, have a more positive attitude as, according to them, the available online resources allow them to practice Irish (exercising mostly oral skills) and prepare them for the final exams. The findings of this empirical study show that the positive attitude both students and teachers have toward ICT can play an important role in the promotion of the Irish language. Being a mandatory subject in the educational system and the official yet minority language in its own country make the instruction of Irish quite challenging for both teachers and institutions (see chapter 3).

However, the positive attitude constantly shown towards ICT can help greatly in allowing learners to look at the language from a completely different perspective. It goes without saying that teachers have to be regularly supported by institutions and that the flexibility of the curriculum (that may be adapted accordingly blending traditional and technological approaches) is essential for successful outcomes. This study shows also that Italian language teaching enjoys a more positive attitude compared to Irish. Italian is one, among others, of the foreign languages offered to pupils during their secondary school cycle and this free choice is one of the reasons why “there are not reluctant learners” (as the Italian language teacher in School B stated during the interview, see chapter 5).

This simple predisposition mostly free of historical and educational bias affects also the approach and use of technology among students. They in fact confirm that, even if technology is not regularly employed and widely exploited during the Italian language classes, many resources are available on line and that the use of technology is more appropriate for modern European languages. It is important to highlight that despite the enthusiasm towards the Italian language, the number of secondary schools offering Italian is still very low in the Republic of Ireland. Therefore, the findings of this study show that a critical use of technology can bring benefits to Italian and Irish language instruction including the promotion of the languages themselves and the reconsideration of traditional pedagogical approaches and learning attitudes.

Finally, the findings of this study confirm that we are now in a Transition Phase, where traditional pedagogical approaches and tools coexist with more technological ones. Technology does not yet have an essential and central role in the educational process and its integration, when in place, is not easy and invisible. In fact technology is

perceived as an ancillary tool, a support for students and teachers to rely on or to employ for certain activities. This is confirmed not only by the methods of instructions employed by teachers but also by students' attitudes and uses. In addition, the curriculum itself does not seem to nor indeed has it moved hand in hand with technology. The final exams are, for example, in the paper format and this does not facilitate the integration of technology during the schooling year. As a matter of fact, using technology for the completion of language activities and for the exam preparations may bring discomfort and uneasiness in both teachers and students when they at the end have to face a paper exam (see chapter 5).

The 21st century challenges us with new choices, new perspectives, and opportunities due to the ubiquitous presence of technology in many areas of our lives. Technological developments and important changes in information access have deeply shaken and redefined the traditional paradigms of teaching and learning, as this research confirms. The 21st century pedagogy comprises in fact different key features and skills that need to be developed and regularly fostered (such as higher order thinking skills, project-based learning, collaborative learning, digital fluency and self-reflection) as we aim to reach the inevitable mixture of the social, the critical arbiter and the digitally literate (see Figure 7.1).

By providing a reflection on how today's students learn and how today's teachers teach while moving in a world that is rapidly changing, adapting and evolving, it is hoped that the findings of this study will be a valuable starting point for future research in secondary level institutions.

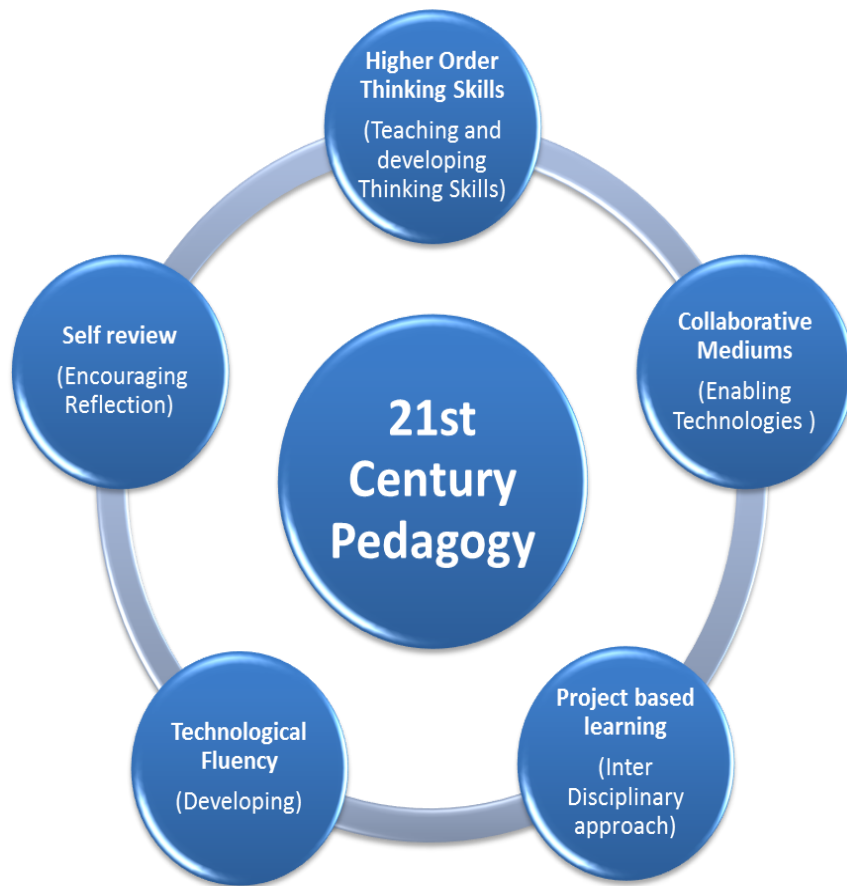


Figure 7.1 21st Century pedagogy (adapted from Churches, 2009:1)

7.3 LIMITATIONS OF THE STUDY

This empirical study has depicted a number of benefits provided by the close observation and analysis of the uses of technologies in secondary level environments. Nonetheless, it is necessary to say that this research project presents some limitations. This study shows some restrictions in terms of generalizations of results; because of the limited number of schools and participants involved, findings may not be statistically generalizable. The qualitative data analysis, which was mainly used in this research project, may result in a generalization of theories (Becker 1996). The data

collection was carried out over a period of five months therefore, time was a constraint. Having at hand more time, the researcher would have had the opportunity to involve more participants (for example more Irish and Italian language teachers and students of different ages) and conduct more non participant class observations, which would have enriched the study providing further information on the topics investigated. Given more time, the study could also have introduced a longitudinal element. This being said, the theories and recommendations presented in this study may be of use for many researchers, practitioners and policy makers.

7.4 IMPLICATIONS

In order to support future developments in educational contexts, several implications will be addressed in this paragraph. Before listing them, it is important to say that those implications and the overall study may be useful for an audience which includes:

- **Education policy makers and planners** working on the integration of ICT into the educational systems through concrete policies and guidelines while also measuring and monitoring change that occurs as a result of better use of ICT in education.
- **Education managers, supervisors and school administrators** working on providing the necessary administrative and logistical support to ensure that ICT is being introduced, maintained and employed effectively in the classrooms.
- **Trainers and staff development teams** working on providing the appropriate and necessary training to develop the knowledge and skills of policy makers, administrators, teachers, curriculum and educational software developers for the planning, management, and effective integration of ICT into education.
- **Curriculum and educational software/materials developers** working on developing ICT-based materials required in teaching, training and learning through ICT who need at the same time to be aware of the most effective techniques and strategies available to ensure an effective integration of technology into education.

- **Teachers** requiring support both on a technical level in order to enhance their ICT skills but also on a practical level in order to build and reinforce their awareness toward ICT while exploring the best way to integrate it into teaching practices.
- **Education researchers and evaluators** working on measuring the impact of the use of ICT in education, looking specifically at the general improvement of the quality of education, at the changes in knowledge and skills for both teachers and students and finally at the achievement of various goals when promoting educational reforms.

The various implications addressed by this study are listed and outlined below:

- 1) Understand what learners are using technologies for, how well technologies are integrated into the educational system, and how familiar teachers are with these tools.
- 2) Be aware of the teachers' skills, as in some cases secondary school teachers are also turning to technicians or librarians in order to provide localised support. It is therefore important that teachers continue to develop their own ICT skills and knowledge.
- 3) Regular training should be offered to teachers. In addition, teacher training should focus more on the effective integration of technology into teaching practices which may also affect students' attitudes.
- 4) Self-help for educators interested in technology should be strongly promoted so they can be aware of the learning material available for them online (i.e. Personal Learning Environments, Online Communities of Practice, Massive Open Online Courses)
- 5) Be aware that, in many cases, technology is perceived as a very important tool but it is not yet considered essential.

- 6) Avoid the uncritical use of terms that are not based on empirical evidence, as they may have a negative impact upon the perceived possibilities of teacher-student interaction. Consider *ad hoc* classes where both teachers and students can practice specific technological tools/activities and projects.
- 7) Allow students and teachers to reflect regularly on their learning and teaching processes and achievements.
- 8) Consider allocating a shared platform and specific time where/when students and teachers can actively reflect on their teaching and learning process.
- 9) Consider a more regular use of technology to reverse the negative attitude that characterises Irish language learning and to promote further Italian language instruction.
- 10) Teaching methodologies between Irish and modern foreign languages should be encouraged and co-ordinated.
- 11) Consider that final exams are in paper format; this may well clash with the long use of and practice with digital devices and the completion of digital activities during the school year.
- 12) Consider using technology to stimulate creativity allowing students to produce independent or collaborative works as part of their curriculum related activities which can then be assessed accordingly.
- 13) When promoting the integration of e-books into the institutions, consider the negative attitude that some students and teachers have towards them. At most, they should be incorporated with blended learning practices, involving some traditional tools, such as pen and electronic notepad, and even paper.

- 14) Be aware of the importance of the institution's support when approaching technology and pedagogy related issues.

REFERENCES

- Al-Alwani, A. E. S. (2005). Barriers to integrating information technology in Saudi Arabia science education.
- Albirini, A. (2006). "Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers." Computers & Education **47**(4): 373-398.
- Allford, D. and N. Pachler (2007). Language, autonomy and the new learning environments, Peter Lang.
- Alm, A. (2006). "CALL for autonomy, competence and relatedness: Motivating language learning environments in Web 2.0." The JALT CALL Journal **2**(3): 29-38.
- Ambert, A.-M., P. A. Adler, et al. (1995). "Understanding and evaluating qualitative research." Journal of Marriage and the Family: 879-893.
- Amorth, A. (1948). La Costituzione italiana, commento sistematico, A. Giuffrè.
- Ananiadou, K. and M. Claro (2009). "21st century skills and competences for new millennium learners in OECD countries."
- Andersen, P. (2007). What is Web 2.0?: ideas, technologies and implications for education, JISC Bristol, UK.
- Armstrong, K. M. and C. Yetter-Vassot (1994). "Transforming teaching through technology." Foreign Language Annals **27**(4): 475-486.
- Arnold, N., L. Ducate, et al. (2013). "Using computer-mediated communication to establish social and supportive environments in teacher education." CALICO Journal **22**(3): 537-566.
- Baek, Y., J. Jung, et al. (2008). "What makes teachers use technology in the classroom? Exploring the factors affecting facilitation of technology with a Korean sample." Computers & Education **50**(1): 224-234.
- Bailey, C. A. (2007). A guide to qualitative field research, Sage Publications.
- Balanskat, A., R. Blamire, et al. (2006). "The ICT impact report." European Schoolnet.

- Barak, M. (2006). "Instructional principles for fostering learning with ICT: teachers' perspectives as learners and instructors." Education and information technologies **11**(2): 121-135.
- Bárcena, E., T. Read, et al. (2014). "Analysing student participation in Foreign Language MOOCs: a case study." EMOOCs 2014: European MOOCs Stakeholders Summit: 11-17.
- Baron, N. S. (2014). Words onscreen: The fate of reading in a digital world, Oxford University Press.
- Bassey, M. (2001). "A solution to the problem of generalisation in educational research: fuzzy prediction." Oxford Review of Education **27**(1): 5-22.
- Bax, S. (2003). "CALL—past, present and future." System **31**(1): 13-28.
- Bax, S. (2012). "Normalisation Revisited: The Effective Use of Technology." Medical Applications of Intelligent Data Analysis: Research Advancements: Research Advancements: 35.
- Beatty, K. (2013). Teaching & Researching: Computer-Assisted Language Learning, Routledge.
- Becker, H. J. (2001). How are teachers using computers in instruction. annual meeting of the American Educational Research Association, Seattle, WA.
- Becker, H. S. (1996). "The epistemology of qualitative research." Ethnography and human development: Context and meaning in social inquiry: 53-71.
- BECTA, B. E. C. a. T. A. (2004a). A review of the research literature on barriers to the uptake of ICT by teachers
- Beetham, H. and R. Sharpe (2013). Rethinking pedagogy for a digital age: Designing for 21st century learning, routledge.
- Beggs, T. A. (2000). Influences and barriers to the adoption of instructional technology, ERIC Clearinghouse.
- Benini, S. and L. Murray (2014). "Challenging Prensky's Characterization of digital natives and digital immigrants in a real-World Classroom setting." Digital Literacies in Foreign and Second Language Education: 69.
- Bennett, S., K. Maton, et al. (2008). "The 'digital natives' debate: A critical review of the evidence." British journal of educational technology **39**(5): 775-786.

Berg, J., L. Berquam, et al. (2007). "Social Networking Technologies: A "Poke" for Campus Services." Educause review **42**(2).

Berk, R. A. (2009). "Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom." International Journal of Technology in Teaching and Learning **5**(1): 1-21.

Berrett, D. (2012). "How 'flipping' the classroom can improve the traditional lecture." The chronicle of higher education **12**.

Berruto, G. (2005). "Dialect/standard convergence, mixing, and models of language contact: the case of Italy." Dialect change. Convergence and divergence in European languages: 81-95.

Bingimlas, K. A. (2009). "Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature." Eurasia Journal of Mathematics, Science & Technology Education **5**(3): 235-245.

Blattner, G. and M. Fiori (2009). "Facebook in the language classroom: Promises and possibilities." International journal of instructional technology and distance learning **6**(1): 17-28.

Blin, F. (2005). CALL and the development of learner autonomy: an activity theoretical study, Open University.

Block, D. (2003). The social turn in second language acquisition, Edinburgh University Press.

Blurton, C. (1999). New directions in education. World Communication and Information Report 1999-2000.

Bond, S. T., C. Ingram, et al. (2008). "Reuse, repurposing and learning design—Lessons from the DART project." Computers & Education **50**(2): 601-612.

Brady, M. (1987). "Computers in secondary schools." COMPASS—Journal of the Irish Association for Curriculum Development **16**(1): 46-53.

Brandl, K. (2002). "Integrating Internet-based reading materials into the foreign language curriculum: From teacher-to student-centered approaches." Language Learning & Technology **6**(3): 87-107.

Bransford, J. D., A. L. Brown, et al. (1999). How people learn: Brain, mind, experience, and school, National Academy Press.

Breathnach, P. (1984). "Computer Studies Survey." ASTI journal: 14-17.

Broos, A. and K. Roe (2006). "The digital divide in the playstation generation: Self-efficacy, locus of control and ICT adoption among adolescents." Poetics **34**(4): 306-317.

Brown, C. and L. Czerniewicz (2010). "Debunking the 'digital native': beyond digital apartheid, towards digital democracy." Journal of Computer Assisted Learning **26**(5): 357-369.

Brown, E. (1988). Learning languages with technology. MESU, Coventry.

Bruner, J. (1985). "Child's talk: Learning to use language." Child Language Teaching and Therapy **1**(1): 111-114.

Bryman, A. (2012). Social research methods, Oxford university press.

Bunderson, C. V. (1973). The TICCIT project: design strategy for educational innovation, Institute for Computer Uses in Education, Division of Instructional Services, Brigham Young University.

CEB (1987). "Science, Technology and the Post-Primary School." Curriculum and Examinations Board.

Chambers, A. and S. Bax (2006). "Making CALL work: Towards normalisation." System **34**(4): 465-479.

Chambers, A., J. E. Conacher, et al. (2004). ICT and language learning, A&C Black.

Chapelle, C. (2001). Computer applications in second language acquisition, Cambridge University Press.

Chartrand, R. (2012). "Social networking for language learners: Creating meaningful output with Web 2.0 tools." Knowledge Management & E-Learning: An International Journal (KM&EL) **4**(1): 97-101.

Chen, W., A. Tan, et al. (2012). Extrinsic and intrinsic barriers in the use of ICT in teaching: A comparative case study in Singapore. Proceedings of ASCILITE-Australian Society for Computers in Learning in Tertiary Education Annual Conference, Wellington.

Cheong, P. H. (2008). "The young and techless? Investigating Internet use and problem-solving behaviors of young adults in Singapore." New Media & Society **10**(5): 771-791.

Choi, J.-I. and M. Hannafin (1995). "Situated cognition and learning environments: Roles, structures, and implications for design." Educational Technology Research and Development **43**(2): 53-69.

Chomsky, N. (1986). Knowledge of language: Its nature, origin, and use. New York, Praeger.

Chríost, D. M. G. (2004). Irish Language in Ireland: From Goídel to Globalisation, Routledge.

Churches, A. "Bloom's digital taxonomy."

Churches, A. "Bloom's digital taxonomy." Retrieved 15 November, 2014, from <http://edorigami.wikispaces.com/Bloom%27s+Digital+Taxonomy>.

Cisco (2010). "The learning society." Retrieved 14 February, 2015, from http://www.cisco.com/web/about/citizenship/socio-economic/docs/LearningSociety_WhitePaper.pdf.

Cohen, L. M. and L. Manion (2007). "L. & Morrison, K.(2000) Research Methods in Education." Routledge Falmer, London: ISBN: 0 **415**(19541): 1.

Connor, U. (2002). "New directions in contrastive rhetoric." Tesol Quarterly **36**(4): 493-510.

Cook, V. J. and V. Cook (1993). Linguistics and second language acquisition, Macmillan London.

Costello, E. (2012). "SMART SCHOOLS= SMART ECONOMY: INTELLIGENCE EQUATION OR TEXT-SPEAK POLICY." Trinity Education Papers: 72.

Coulmas, F. (1991). A language policy for the European Community: prospects and quandaries, Walter de Gruyter.

Creswell, J. W. and V. L. P. Clark (2007). Designing and conducting mixed methods research, Wiley Online Library.

Crowley, T. (2005). Wars of words: the politics of language in Ireland 1537-2004, Oxford University Press.

Cunningham, C. and P. P. L. Initiative (2003). Post Primary Languages Initiative: Interim Report, Marino Institute of Education.

D. Butler, M. L., G. Shiel, J. Cosgrove (2013). "Building towards a learning society: a national digital strategy for schools " Educational Research Centre.

Dabbagh, N. and A. Kitsantas (2012). "Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning." The Internet and higher education **15**(1): 3-8.

Dalgarno, B. (2001). "Interpretations of constructivism and consequences for computer assisted learning." British journal of educational technology **32**(2): 183-194.

Darmody, M. and T. Daly (2015). "Attitudes towards the Irish Language on the Island of Ireland."

Davies, G. and J. Higgins (1982). Computers, language and language learning, Centre for Information on Language Teaching and Research.

Davies, G., R. Walker, et al. (2011). "Introduction to computer assisted language learning." ICT4LT Website.

De Mauro, T. and M. Vedovelli (1994). "La diffusione dell'italiano nel mondo: problemi istituzionali e sociolinguistici." International journal of the sociology of language **107**(1): 25-40.

Degele, N. (1997). "Appropriation of technology as a creative process." Creativity and Innovation management **6**(2): 89-93.

Denzin, N. K. (2012). "Triangulation 2.0." Journal of mixed methods research **6**(2): 80-88.

Dervin, F. (2012). The living web (2.0) & intercultural education in language learning and teaching (LLT), Website, < http://users.utu.fi/freder/sukol_2010.pdf.

Devitt, S. (1998). "Language teacher training and bilingual education in Ireland." Dublin: University of Dublin, Trinity College, School of Education.

Donnelly, D., O. McGarr, et al. (2011). "A framework for teachers' integration of ICT into their classroom practice." Computers & Education **57**(2): 1469-1483.

Downes, S. (2012). "Connectivism and connective knowledge: Essays on meaning and learning networks." National Research Council Canada, http://www.downes.ca/files/books/Connective_Knowledge-19May2012.pdf.

Drury, C. J. (1995). "Implementing Change in Education: The Integration of Information Technology into Irish Post Primary Schools." Unpublished M. Sc. Thesis, University of Leicester.

Dubreil, S., L. Ducate, et al. (2006). "Gaining perspective on culture through CALL." Calling on CALL: From theory and research to new directions in foreign language teaching: 237-268.

Duffy, P. (2007). Engaging the YouTube Google-Eyed Generation: Strategies for Using Web 2.0 in Teaching and Learning. European Conference on ELearning, ECEL.

Dunkel, P. (1990). "Implications of the CAI effectiveness research for limited English proficient learners." Computers in the Schools **7**(1-2): 31-52.

Dutton, W. and E. Helsper (2007). "Oxford internet survey 2007 report: The internet in Britain." Available at SSRN 1327033.

Efimova, L. and S. Fiedler (2004). "Learning webs: Learning in weblog networks."

Ellis, R. (1994). The study of second language acquisition, Oxford University Press, USA.

Ellis, R. (1997). "Second language acquisition." The United States: Oxford.

Ertmer, P. A. (2005). "Teacher pedagogical beliefs: The final frontier in our quest for technology integration?" Educational Technology Research and Development **53**(4): 25-39.

Ertmer, P. A. and A. T. Ottenbreit-Leftwich (2010). "Teacher technology change: How knowledge, confidence, beliefs, and culture intersect." Journal of Research on Technology in Education **42**(3): 255-284.

European-Commission (2004). "eLearning." Retrieved 26 June, 2013, from http://europa.eu/legislation_summaries/information_society/strategies/c11073_en.htm.

Felix, U. (2005). "Analysing recent CALL effectiveness research—towards a common agenda." Computer Assisted Language Learning **18**(1-2): 1-32.

Ferrari, A., R. Cachia, et al. (2009). "Innovation and creativity in education and training in the EU member states: Fostering creative learning and supporting innovative teaching." JRC Technical Note **52374**.

Fill, K., S. Leung, et al. (2006). "Repurposing a learning activity on academic integrity: the experience of three universities." Journal of Interactive Media in Education **2006**(1): Art. 1.

Firth, A. and J. Wagner (1997). "On discourse, communication, and (some) fundamental concepts in SLA research." The Modern Language Journal **81**(3): 285-300.

Flick, U. (2009). An introduction to qualitative research, Sage.

Franklin, C. A. and D. B. Sessoms (2005). "A situative perspective on a collaborative model for integrating technology into teaching." Journal of Educational Computing Research **32**(4): 315-328.

Freeman, E., B. Holmes, et al. (2001). ICTs for Learning An International Perspective on the Irish Initiative. Society for Information Technology & Teacher Education International Conference.

Galanouli, D., C. Murphy, et al. (2004). "Teachers' perceptions of the effectiveness of ICT-competence training." Computers & Education **43**(1): 63-79.

Gamlo, N. H. (2014). EFL teachers use/non-use of ICT at a university in Saudi Arabia, University of Warwick.

Garrett, N. (1991). "Technology in the service of language learning: Trends and issues." The Modern Language Journal **75**(1): 74-101.

Garrett, N. (2009). "Computer-Assisted Language Learning Trends and Issues Revisited: Integrating Innovation." The Modern Language Journal **93**(s1): 719-740.

Garrison, D. R. and H. Kanuka (2004). "Blended learning: Uncovering its transformative potential in higher education." The Internet and higher education **7**(2): 95-105.

Gass, S. M. (2013). Second language acquisition: An introductory course, Routledge.

General, O. o. t. A. (2003). The official language act. Irish Statute Book, Office of the Attorney General. **32**.

Gibson, I. W. (2001). "At the intersection of technology and pedagogy: Considering styles of learning and teaching." Journal of Information Technology for Teacher Education **10**(1-2): 37-61.

Gibson, S. and D. Oberg (2004). "Visions and realities of Internet use in schools: Canadian perspectives." British journal of educational technology **35**(5): 569-585.

Gillespie, J. H. and J. D. Barr (2002). "Resistance, reluctance and radicalism: A study of staff reaction to the adoption of CALL/C&IT in modern languages departments." ReCALL **14**(01): 120-132.

Giollagáin, Ó. (2008). "C. & MacDonnacha, S.(2008). The Gaeltacht Today." A new view of the Irish language: 108-120.

Godwin-Jones, R. (2005). "Emerging Technologies- Messaging, gaming, peer-to-peer sharing: Language Learning strategies & tools for the millennial generation." Language Learning & Technology **9**(1): 17-22.

Godwin-Jones, R. (2011). "Emerging technologies: Mobile apps for language learning." Language Learning & Technology **15**(2): 2-11.

Grant, L. (2009). "'I DON'T CARE DO UR OWN PAGE!'A case study of using wikis for collaborative work in a UK secondary school." Learning, Media and Technology **34**(2): 105-117.

Gray, D. (2013). Doing research in the real world, Sage.

Gregory, I. (2003). Ethics in research, A&C Black.

Greil, M. M. (2009). The Irish Language and the Irish People. Department of Sociology

Group, M. s. S. (2008-2013). Investing Effectively in ICT in schools. Department of Education and Science.

Hammersley, M. and P. Atkinson (2007). Ethnography: Principles in practice, Routledge.

Hansson, T. (2008). Handbook of Research on Digital Information Technologies: Innovations, Methods, and Ethical Issues: Innovations, Methods, and Ethical Issues, IGI Global.

Hargittai, E. and A. Hinnant (2008). "Digital inequality differences in young adults' use of the internet." Communication Research **35**(5): 602-621.

Harris, J. and L. Murtagh (1987). Irish and English in Gaeltacht primary schools. Third international conference on minority languages: Celtic papers. Multilingual Matters.

Haworth, W. and D. Cowling (1999). "The WELL project Local participation and national evaluation." CALL and the learning community: 161-168.

Hayes, D. N. (2007). "ICT and learning: Lessons from Australian classrooms." Computers & Education **49**(2): 385-395.

Heimerl, F., S. Lohmann, et al. (2014). Word cloud explorer: Text analytics based on word clouds. System Sciences (HICSS), 2014 47th Hawaii International Conference on, IEEE.

Hemmi, A., S. Bayne, et al. (2009). "The appropriation and repurposing of social technologies in higher education." Journal of Computer Assisted Learning **25**(1): 19-30.

Hennessy, S., K. Ruthven, et al. (2005). "Teacher perspectives on integrating ICT into subject teaching: commitment, constraints, caution, and change." Journal of curriculum studies **37**(2): 155-192.

Hew, K. F. (2011). "Students' and teachers' use of Facebook." Computers in Human Behavior **27**(2): 662-676.

Higgins, S. and D. Moseley (2001). "Teachers' thinking about information and communications technology and learning: Beliefs and outcomes." Teacher Development **5**(2): 191-210.

Hilt, M. L. and J. H. Lipschultz (2005). Mass media, an aging population, and the baby boomers, Routledge.

Hindley, R. (1991). The death of the Irish language: A qualified obituary, Taylor & Francis.

Hinton, L. and K. Hale (2001). The Green Book of Language Revitalization in Practice, ERIC.

Homan, R. (1991). The ethics of social research, Longman London.

Hourigan, T. and L. Murray (2010). "Using blogs to help language students to develop reflective learning strategies: Towards a pedagogical framework." Australasian Journal of Educational Technology **26**(2).

Hourigan, T., L. Murray, et al. (2011). Quality Issues in ICT Integration: Third Level Disciplines and Learning Contexts, Cambridge Scholars Pub.

Houston, M. and L. Lin (2012). Humanizing the classroom by flipping the homework versus lecture equation. Society for Information Technology & Teacher Education International Conference.

Hubbard, P. (2008). "CALL and the future of language teacher education." CALICO Journal **25**(2): 175-188.

Hutchinson, J. (2012). Dynamics of Cultural Nationalism: The Gaelic revival and the creation of the Irish nation state, Routledge.

Ilomäki, L., P. Taalas, et al. (2012). "LEARNING ENVIRONMENT AND DIGITAL LITERACY." Learning the Virtual Life: Public Pedagogy in a Digital World: 63.

Ireland, G. o. (2010). "20-Year strategy for the Irish language ". Retrieved 1 August, 2014, from <http://www.ahg.gov.ie/en/20-YearStrategyfortheIrishLanguage2010-2030/Publications/20-Year%20Strategy%20-%20English%20version.pdf>.

Ireland, T. (2007). "Situating connectivism. Retrieved November 7, 2008." Retrieved 3 October, 2014, from http://etec.ctlt.ubc.ca/510wiki/Situating_Connectivism.

Jedekog, G. and J. Nissen (2004). "ICT in the classroom: is doing more important than knowing?" Education and information technologies **9**(1): 37-45.

Jimoyiannis, A. and V. Komis (2007). "Examining teachers' beliefs about ICT in education: Implications of a teacher preparation programme." Teacher Development **11**(2): 149-173.

Johnson, M. (2008). A philosophy of second language acquisition, Yale University Press.

Johnson, R. B., A. J. Onwuegbuzie, et al. (2007). "Toward a definition of mixed methods research." Journal of mixed methods research **1**(2): 112-133.

Jonassen, D. H. (2000). "Computers as mindtools for schools: Engaging critical thinking."

Jones, A. (2004). "A review of the research literature on barriers to the uptake of ICT by teachers."

Jones, C., S. Fortescue, et al. (1987). Using computers in the language classroom, Longman London.

Jones, C. and B. Shao (2011). "The net generation and digital natives: implications for higher education."

Jones, M. C. and M. B. Twidale (2005). "What's in a name? Exploring the connections between abstraction and appropriation."

Jones, S. and S. Fox (2009). Generations online in 2009, Pew Internet & American Life Project Washington, DC.

Jorgensen, B. (2003). "Baby Boomers, Generation X and Generation Y?: Policy implications for defence forces in the modern era." foresight 5(4): 41-49.

Kajder, S., G. Bull, et al. (2004). "A Space for" Writing without Writing" Blogs In The Language Arts Classroom. Mining the Internet." Learning & Leading with Technology 31(6): 32-35.

Kallen, J. L. (1988). "The English language in Ireland." International journal of the sociology of language 1988(70): 127-142.

Kaplan, R. B. and R. B. Baldauf Jr (2007). Language Planning and Policy in Europe: The Baltic States, Ireland and Italy, Multilingual Matters.

Kauffman, D. (2005). "Curriculum Prescription and Curriculum Constraint: Second-Year Teachers' Perceptions'." Retrieved June 28: 2007.

Keengwe, J. (2014). Promoting Active Learning Through the Flipped Classroom Model, IGI Global.

Kelly, A. (2002). Compulsory Irish: language and education in Ireland, 1870s-1970s, Irish Academic Press.

Kelly, J. M. (1984). The Irish Constitution, Jurist Publishing Company.

Kennedy, G., T. Judd, et al. (2010). "Beyond natives and immigrants: exploring types of net generation students." Journal of Computer Assisted Learning 26(5): 332-343.

Kenning, M.-M. and M. J. Kenning (1990). Computers and language learning: Current theory and practice, Ellis Horwood New York, NY.

Kern, R. (1996). "Computer-mediated communication: Using e-mail exchanges to explore personal histories in two cultures." Telecollaboration in foreign language learning: 105-119.

Kessler, G. (2006). "Assessing CALL teacher training: What are we doing and what could we do better." Teacher education in CALL: 23-42.

Klamma, R., Y. Cao, et al. (2007). Watching the Blogosphere: Knowledge Sharing in the Web 2.0. ICWSM.

Koehler, M. and P. Mishra (2009). "What is technological pedagogical content knowledge (TPACK)?" Contemporary Issues in Technology and Teacher Education 9(1): 60-70.

Korte, W. B. and T. Hüsing (2006). "Benchmarking access and use of ICT in European schools 2006: Results from Head Teacher and A Classroom Teacher Surveys in 27 European countries." empirica 1: 0.

Krashen, S. D. (1985). The input hypothesis: Issues and implications, Longman London.

Krashen, S. D. (2003). Explorations in language acquisition and use, Heinemann Portsmouth, NH.

Lamy, M.-N. and R. Hampel (2007). Online communication in language learning and teaching, Palgrave Macmillan Basingstoke.

Lamy, M.-N. and F. Mangenot (2013). "Social media-based language learning: insights from research and practice." Social networking for language education: 197-213.

Lantolf, J. P. and S. L. Thorne (2007). "Sociocultural theory and second language learning." Theories in second language acquisition: An introduction: 201-224.

Larsen-Freeman, D., M. H. Long, et al. (1991). An introduction to second language acquisition research, Longman London.

Lasagabaster, D. and A. Huguet (2007). Multilingualism in European bilingual contexts: Language use and attitudes, Multilingual Matters.

Lau, B. and C. Sim (2008). "Exploring the extent of ICT adoption among secondary school teachers in Malaysia." International Journal of Computing and ICT Research 2(2): 19-36.

Law, N., W. J. Pelgrum, et al. (2008). Pedagogy and ICT use in schools around the world: Findings from the IEA SITES 2006 study, Springer Science & Business Media.

Lawless, K. A. and J. W. Pellegrino (2007). "Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers." Review of educational research 77(4): 575-614.

Leask, M. and N. Pachler (2013). Learning to Teach Using ICT in the Secondary School: a companion to school experience, Routledge.

Lepschy, A. L. and G. Lepschy (1998). The Italian language today, New Amsterdam Books.

Levin, D., S. Arafeh, et al. (2002). "The digital disconnect." Washington, DC: Pew Internet in American Life Project & American Institutes for Research. Retrieved October 18: 2005.

Levin, T. and R. Wadmany (2005). "Changes in educational beliefs and classroom practices of teachers and students in rich technology-based classrooms [1]." Technology, Pedagogy and Education, Vol. 14, No. 3, 2005 **14**(3): 281-307.

Levy, M. (1997). Computer-Assisted Language Learning: Context and Conceptualization, ERIC.

Levy, M. (2009). "Technologies in use for second language learning." The Modern Language Journal **93**(s1): 769-782.

Levy, M. and G. Stockwell (2013). CALL dimensions: Options and issues in computer-assisted language learning, Routledge.

Lewis, S. (2003). "Enhancing Teaching and Learning of Science through Use of ICT: Methods and Materials." School Science Review **84**(309): 41-51.

Lim, C. P. (2007). "Effective integration of ICT in Singapore schools: Pedagogical and policy implications." Educational Technology Research and Development **55**(1): 83-116.

Little, D. G. (2003). Languages in the post-primary curriculum: a discussion paper, NCCA Dublin.

Little, R. U. (2003). Learner autonomy in the Foreign Language Classroom: teacher, learner, curriculum and assessment Dublin, Authentik.

Liu, M., Z. Moore, et al. (2002). "A look at the research on computer-based technology use in second language learning: A review of the literature from 1990-2000." Journal of Research on Technology in Education **34**(3): 250-273.

Lomicka, L. L., G. (2009). Introduction to social networking, collaboration, and Web 2.0 tools. San Marco, TX.

Long, M. H. (1996). "The role of the linguistic environment in second language acquisition." Handbook of second language acquisition **2**: 413-468.

Lubienski, S. (2011). "Mathematics education and reform in Ireland: An outsider's analysis of Project Maths." Bulletin of the Irish Mathematical Society **67**: 27-55.

Ma, W. W. k., R. Andersson, et al. (2005). "Examining user acceptance of computer technology: An empirical study of student teachers." Journal of Computer Assisted Learning **21**(6): 387-395.

Maiden, M. (2014). A linguistic history of Italian, Routledge.

Makrakis, V. (2005). Training teachers for new roles in the new era: Experiences from the United Arab Emirates ICT program. Proceedings of the 3rd Pan-Hellenic Conference on Didactics of Informatics, Korinthos, Greece.

Makrakis, V. (2008). An instructional design module of ICT that empowers teachers to integrate education for sustainable development across the curriculum. Proceedings of the 6th Panhellenic conference with international participation on information and communication technologies in education.

Malfatti, E. (2004). "The preservation of linguistic pluralism in Italy between" dialect" and" minority language". Balance sheet and perspective." LINGUA E STILE **39**(2): 249-287.

Marazzini, C. (2004). "Breve storia della lingua italiana." icon **39**(051): 256011.

Margaryan, A., A. Littlejohn, et al. (2011). "Are digital natives a myth or reality? University students' use of digital technologies." Computers & Education **56**(2): 429-440.

Marty, F. (1981). "Reflections on the use of computers in second-language acquisition—I." System **9**(2): 85-98.

Maunsell, C., P. Downes, et al. (2008). National report on lifelong learning in Ireland, Educational Disadvantage Centre.

Mazer, J. P., R. E. Murphy, et al. (2007). "I'll see you on "Facebook": The effects of computer-mediated teacher self-disclosure on student motivation, affective learning, and classroom climate." Communication Education **56**(1): 1-17.

McCordle, M. (2006). New generations at work: Attracting, recruiting, retaining and training Generation Y, The ABC of XYZ.

McGarr, O. (2009). "The development of ICT across the curriculum in Irish schools: A historical perspective." British journal of educational technology **40**(6): 1094-1108.

McKenna, P., M. Brady, et al. (1993). "New information technology in the Irish school system." Luxembourg: Office for Official Publications (EC).

McLoughlin, C., & Lee, M. (2007). Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era. Ascilite Conference. Singapore.

McLoughlin, C. and M. J. Lee (2008). "Mapping the digital terrain: New media and social software as catalysts for pedagogical change." Ascilite Melbourne.

McNamara, G. and J. O'Hara (2005). "Internal review and self-evaluation—the chosen route to school improvement in Ireland?" Studies in Educational Evaluation **31**(4): 267-282.

Means, B. and K. Olson (1997). Technology and education reform: Studies of education reform, Diane Publishing.

Medlin, B. D. (2001). The factors that may influence a faculty member's decision to adopt electronic technologies in instruction, Virginia Polytechnic Institute and State University.

Menezes, V. (2013). "Second Language Acquisition: Reconciling Theories." Open Journal of Applied Sciences **3**(07): 404.

Migliorini, B. and G. Ghinassi (1961). Storia della lingua italiana, Sansoni.

Morgenroth, E. L. and J. F. Gerald (2006). Ex-ante Evaluation of the Investment Priorities for the National Development Plan 2007-2013, ESRI.

Mulkeen, A. (2003). "What can policy makers do to encourage integration of information and communications technology? Evidence from the Irish school system." Technology, Pedagogy and Education **12**(2): 277-293.

Murray, L. and T. Hourigan (2008). "Blogs for specific purposes: Expressivist or socio-cognitivist approach?" ReCALL **20**(01): 82-97.

Murray, L., T. Hourigan, et al. (2005). "Netskills and the current state of beliefs and practices in student learning: an assessment and recommendations." British journal of educational technology **36**(3): 425-438.

Nagel, N. G. (1996). Learning through real-world problem solving: The power of integrative teaching, Corwin Press Thousand Oaks, CA.

National University of Ireland, G. A. n. h. G. and C. Ó. Giollagáin (2007). Comprehensive linguistic study of the use of Irish in the Gaeltacht: Principal findings and recommendations, Stationery Office Dublin.

NCCA (2003). "POST-PRIMARY CURRICULUM." Retrieved 14 April, 2013, from <http://www.ncca.ie/uploadedfiles/publications/languagesdiscussionpaper.pdf>

Newhouse, P. (2002). "Literature review: The impact of ICT on learning and teaching." Perth: Western Australian Department of Education.

Nic Pháidín, C. and S. O'Ceirneigh (2008). "A new view of the Irish language." Dublin: Cois Life.

Ntseane, P. (2009). "The ethics of the researcher-subject relationship: Experiences from the field." Handbook of social research ethics: 295-307.

O'Reilly, T. (2009). "What is web 2.0." Retrieved 5 November, 2013, from <http://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html>.

O'Rourke, B. (2011). Galician and Irish in the European context: Attitudes towards weak and strong minority languages, Palgrave Macmillan.

O'Rourke, B. and F. F. Ramallo (2011). "The native-non-native dichotomy in minority language contexts: Comparisons between Irish and Galician." Language problems & language planning **35**(2): 139-159.

Oblinger, D. (2003). "Boomers gen-xers millennials." Educause review **500**(4): 37-47.

Oblinger, D., J. L. Oblinger, et al. (2005). Educating the net generation, < p> Boulder, Colo.: EDUCAUSE, c2005.</p>< p> 1 v.(various pagings): illustrations.</p>.

OECD (2013). "OECD Communications Outlook 2013." from <http://www.oecd.org/sti/broadband/oecd-communications-outlook-19991460.htm>.

OFSTED, O. f. S. i. E. (2002). ICT in schools: effect of government initiatives London, Ofsted.

OFSTED, O. f. S. i. E. (2004). ICT in schools: the impact of government initiatives five years on. London

Ofsted.

Oliver, P. (2010). The student's guide to research ethics, McGraw-Hill International.

Orlikowski, W. J. (2000). "Using technology and constituting structures: A practice lens for studying technology in organizations." Organization science **11**(4): 404-428.

Ottesen, E. (2006). "Learning to teach with technology: authoring practised identities." Technology, Pedagogy and Education **15**(3): 275-290.

Oxford, R. L. (1995). "Linking theories of learning with intelligent computer-assisted language learning (ICALL)." Intelligent language tutors: Theory shaping technology: 359-369.

Parisot, A. H. (1995). Technology and teaching: The adoption and diffusion of technological innovations by a community college faculty, Montana State University Bozeman, MT.

PDST (2014). "BYOD for learning." Retrieved 22/06/2015, from <http://www.pdsttechnologyineducation.ie/en/Technology/Advice-Sheets/Bring-your-own-Device-BYOD-for-Learning.pdf>.

Pedro, F. (2009). New Millennium learners in higher education: Evidence and policy implications. International Conference on 21st Century Competencies, Brussels: OECD/CERI, Citeseer.

Pegrum, M. (2011). "Modified, Multiplied, and (Re-) mixed; Social Media and Digital Literacies." Digital education: Opportunities for social collaboration: 9-36.

Pelgrum, W. J. (2001). "Obstacles to the integration of ICT in education: results from a worldwide educational assessment." Computers & Education **37**(2): 163-178.

Pesetsky, D. (1999). "Linguistic universals and universal grammar." The MIT Encyclopedia of the Cognitive Sciences [Z]. Eds. RA Wilson & FC Keil. Cambridge, MA: The MIT Press.

Peterson, E. (2009). "Using a wiki to enhance cooperative learning in a real analysis course." Primus **19**(1): 18-28.

Phillips, M. (1987). Communicative language learning and the microcomputer, British Council.

Pitler, H., E. R. Hubbell, et al. (2012). Using technology with classroom instruction that works, ASCD.

Plomp, T. (2003). Cross-national information and communication technology policies and practices in education, IAP.

Prensky, M. (2001a). "Digital Natives, Digital Immigrants." On the Horizon **9**(5).

Prensky, M. (2005). "" Engage Me or Enrage Me": What Today's Learners Demand." Educause review **40**(5): 60.

Prensky, M. (2009). "H. sapiens digital: From digital immigrants and digital natives to digital wisdom." Journal of Online Education 5(3): 1-9.

Preston, C., M. Cox, et al. (2000). "Teachers as innovators in learning: What motivates teachers to use ICT." London: Teacher Training Agency.

PT3, P. T. s. T. (1999). Preparing Tomorrow's Teachers to use technology program.

Queensland-Government (2004). "ICTs for learning." Retrieved 10 November, 2014, from <http://www.qld.gov.au/dsitia/initiatives/ict-strategy/>.

Ranguelov, S., A. Horvath, et al. (2011). Key Data on Learning and Innovation through ICT at School in Europe 2011, ERIC.

Ray, B. B. and M. M. Hocutt (2006). "Teacher-created, teacher-centered weblogs: Perceptions and practices." Journal of Computing in Teacher Education 23(1): 11-18.

Reddi, M. U. V. and M. V. Sinha (2004). "ICT Use in Education." Retrieved 21 March, 2013, from <http://unesdoc.unesco.org/images/0013/001349/134960e.pdf>.

RIA (2011). National Languages Strategy. Royal Irish Academy national committee for modern language, literary and cultural studies.

Riagáin, P. Ó. (1997). Language Policy and Social Reproduction: Ireland 1893-1993: Ireland 1893-1993, Oxford University Press.

Ringstaff, C. and L. Kelley (2002). The learning return on our educational technology investment, Online report at: http://www.wested.org/online_pubs/learning_return.pdf.

Riordan, E. and L. Murray (2012). "Sharing and collaborating between an online community of novice teachers: CMC in language teacher education."

Rosell-Aguilar, F. (2007). "Top of the pods—In search of a podcasting “podagogy” for language learning." Computer Assisted Language Learning 20(5): 471-492.

Russell, M., D. Bebell, et al. (2003). "Examining teacher technology use implications for preservice and inservice teacher preparation." Journal of Teacher Education 54(4): 297-310.

Sahin, I. (2006). "Detailed Review of Rogers' Diffusion of Innovations Theory and Educational Technology-Related Studies Based on Rogers' Theory." Online Submission 5(2).

Salaberry, M. R. (2001). "The use of technology for second language learning and teaching: A retrospective." The Modern Language Journal **85**(1): 39-56.

Sales, B. D. and S. E. Folkman (2000). Ethics in research with human participants, American Psychological Association.

Schmidt, D. A., E. Baran, et al. (2009). "Technological Pedagogical Content Knowledge (TPACK): The Development and Validation of an Assessment Instrument for Preservice Teachers." Journal of Research on Technology in Education (International Society for Technology in Education) **42**(2): 123-149.

Schoepp, K. (2005). "Barriers to technology integration in a technology-rich environment." Learning and teaching in higher education: Gulf perspectives **2**(1): 1-24.

Schrum, L. (1999). "Technology professional development for teachers." Educational Technology Research and Development **47**(4): 83-90.

Schwienhorst, K. (2012). Learner autonomy and CALL environments, Routledge.

Science, D. o. E. a. (2008). Investing effectively in Information and Communications technology in Schools, 2008-2013.

Science), D. D. o. E. a. (2000). Scrúdú an Teastais Shóisearaigh, Gaeilge, Tuairiscí na bPríomhscrúdaitheoirí 2000. Dublin, Department of Education and Science.

Selinker, L. (1972). "Interlanguage." IRAL-International Review of Applied Linguistics in Language Teaching **10**(1-4): 209-232.

Shandler, J. (2005). Adventures in Yiddishland: Postvernacular language and culture, Univ of California Press.

Shear, L., B. Means, et al. (2009). "The microsoft innovative schools program year 1 evaluation report." Seattle: Microsoft.

Shiels, G. and A. O'Flaherty (2006). "NCTE 2005 census on ICT infrastructure in schools." Statistical report. Dublin: National Centre for Technology in Education.

Sicilia, C. N. (2006). The challenges and benefits to teachers' practices in constructivist learning environments supported by technology.

Siemens, G. (2005). "Connectivism: A learning theory for the digital age." International journal of instructional technology and distance learning **2**(1): 3-10.

Siemens, G. (2014). "Connectivism: A learning theory for the digital age."

Simons, H. and R. Usher (2000). Situated ethics in educational research, Psychology Press.

Singhal, M. (1997). "The Internet and foreign language education: Benefits and challenges." The Internet TESL Journal **3**(6): 107.

Skinner, B. F. (2011). About behaviorism, Random House LLC.

So, T. and P. M. Swatman (2006). e-Learning readiness of Hong Kong teachers. Hong Kong IT in Education Conference, Citeseer.

Spencer-Oatey, H. (2007). E-learning initiatives in China: Pedagogy, policy and culture, Hong Kong University Press.

Stanley, G. (2006). "Podcasting: Audio on the Internet comes of age." TESL-EJ **9**(4): 1-7.

Stickler, U. and R. Hampel (2015). "Transforming teaching: new skills for online language learning spaces."

Stoerger, S. (2009). "The digital melting pot: Bridging the digital native-immigrant divide." First Monday **14**(7): 6.

Strauss, W. and N. Howe (2000). "Millennials rising: The next great generation." New York: Vintage.

Studies, I. E. (2008). "ICT in primary and post-primary education in Ireland." Retrieved 31st of July, 2014, from <http://www.education.ie/en/Publications/Inspection-Reports-Publications/Evaluation-Reports-Guidelines/ICT-in-Schools-Inspectorate-Evaluation-Studies.pdf>.

Sturm, M., T. Kennell, et al. (2009). "The pedagogical implications of Web 2.0." Handbook of research on Web 2.0 and second language learning.

Sudman, S. (1998). "Survey research and ethics." ADVANCES IN CONSUMER RESEARCH, VOL. XXV **25**: 69-71.

- Swain, M. (1995). "Three functions of output in second language learning." Principle and practice in applied linguistics: Studies in honour of HG Widdowson: 125-144.
- Swain, M. and S. Lapkin (1995). "Problems in output and the cognitive processes they generate: A step towards second language learning." Applied linguistics **16**(3): 371-391.
- Sykes, J. M., A. Oskoz, et al. (2013). "Web 2.0, synthetic immersive environments, and mobile resources for language education." CALICO Journal **25**(3): 528-546.
- Taalas, P., M. Tarnanen, et al. (2008). "Media landscapes in school and in free time-two parallel realities." Nordic Journal of Digital Literacy **3**(4): 240-256.
- Tapscott, D. (1999). "Educating the net generation." Educational Leadership **56**(5): 6-11.
- Taylor, M. L. (2006). "Generation NeXt comes to college: 2006 updates and emerging issues." A collection of papers on self-study and institutional improvement **2**(2): 48-55.
- Teo, T. (2006). "Attitudes toward computers: A study of post-secondary students in Singapore." Interactive Learning Environments **14**(1): 17-24.
- Tondeur, J., J. Van Braak, et al. (2007). "Curricula and the use of ICT in education: Two worlds apart?" British journal of educational technology **38**(6): 962-976.
- Tosi, A. (2001). Language and society in a changing Italy, Multilingual matters.
- Tweeternet (2011). "What is Twitter and why does it keep following me around?". Retrieved 2/3/2015, 2015.
- Ullrich, C., K. Borau, et al. (2008). Why web 2.0 is good for learning and for research: principles and prototypes. Proceedings of the 17th international conference on World Wide Web, ACM.
- Underwood, J. H. (1984). Linguistics, Computers, and the Language Teacher. A Communicative Approach, ERIC.
- Van Driel, J. H., D. Beijaard, et al. (2001). "Professional development and reform in science education: The role of teachers' practical knowledge." Journal of research in science teaching **38**(2): 137-158.
- Vanderlinde, R., J. van Braak, et al. (2012). "ICT policy planning in a context of curriculum reform: Disentanglement of ICT policy domains and artifacts." Computers & Education **58**(4): 1339-1350.

VanPatten, B. and J. Williams (2014). Theories in second language acquisition: An introduction, Routledge.

Vygotsky, L. (1978). "Interaction between learning and development." Readings on the development of children **23**(3): 34-41.

Vygotsky, L. S. (1997). The collected works of LS Vygotsky: Problems of the theory and history of psychology, Springer.

Waite, S. (2004). "Tools for the job: a report of two surveys of information and communications technology training and use for literacy in primary schools in the West of England." Journal of Computer Assisted Learning **20**(1): 11-20.

Walsh, J., S. McCarron, et al. (2005). "Mapping the Gaeltacht: Towards a geographical definition of the Irish speaking districts." Administration **53**(1): 16-37.

Warschauer, M. (1996). "Computer-assisted language learning: An introduction." Multimedia language teaching: 3-20.

Warschauer, M. (2004). "Technological change and the future of CALL." New perspectives on CALL for second language classrooms: 15-26.

Warschauer, M., & Meskill, C. (2000). Technology and second language learning Handbook of undergraduate second language education J. R. (ed.). Mahwah, New Jersey Lawrence Erlbaum 303-318.

Warschauer, M. and D. Grimes (2007). "Audience, authorship, and artifact: The emergent semiotics of Web 2.0." Annual Review of Applied Linguistics **27**: 1-23.

Warschauer, M. and D. Healey (1998). "Computers and language learning: An overview." Language teaching **31**(02): 57-71.

Wastiau, P., R. Blamire, et al. (2013). "The Use of ICT in Education: a survey of schools in Europe." European Journal of Education **48**(1): 11-27.

Waycott, J., S. Bennett, et al. (2010). "Digital divides? Student and staff perceptions of information and communication technologies." Computers & Education **54**(4): 1202-1211.

Webb, E. J. (2000). Unobtrusive measures, Sage.

Webb, M. E. (2005). "Affordances of ICT in science learning: implications for an integrated pedagogy." International journal of science education **27**(6): 705-735.

Weiler, A. (2005). "Information-seeking behavior in Generation Y students: Motivation, critical thinking, and learning theory." The Journal of Academic Librarianship **31**(1): 46-53.

White, L. (2003). Second language acquisition and universal grammar, Cambridge University Press.

Williams, D., L. Coles, et al. (2000). "Teachers and ICT: Current use and future needs." British journal of educational technology **31**(4): 307-320.

Woody, W. D., D. B. Daniel, et al. (2010). "E-books or textbooks: Students prefer textbooks." Computers & Education **55**(3): 945-948.

Ya'acob, A., N. F. M. Nor, et al. (2005). "Implementation of the Malaysian smart school: An investigation of teaching-learning practices and teacher-student readiness." Internet Journal of e-Language Learning & Teaching **2**(2): 16-25.

Yildirim, S. (2000). "Effects of an Educational Computing Course on Preservice and Inservice Teachers: A Discussion and Analysis of Attitudes and Use." Journal of Research on computing in Education **32**(4).

Zhao, Y. (2003). "Recent developments in technology and language learning: A literature review and meta-analysis." CALICO Journal **21**(1): 7-27.

Zhao, Y. and G. A. Cziko (2001). "Teacher adoption of technology: A perceptual control theory perspective." Journal of Technology and Teacher Education **9**(1): 5-30.

Zhao, Y., K. Pugh, et al. (2002). "Conditions for classroom technology innovations." The Teachers College Record **104**(3): 482-515.

Zhao, Y., S. H. Tan, et al. (2001). "Teaching and learning: Whose computer is it?" Journal of Adolescent and Adult Literacy **44**(4): 348-381.

APPENDICES

Appendix A - Students' Questionnaire



FACULTY OF ARTS, HUMANITIES AND SOCIAL SCIENCES

Questionnaire on ICT and Language Learning for students

Male

Female

Year:

1 Do you own any pieces of technology (e.g. a mobile phone, a laptop, a PC, an iPad)?

Yes

No

.....
.....
.....
.....

2 Is ICT (Information and Communications Technology) important in your school?

Yes No Sometimes

.....
.....
.....
.....

3 Is ICT important in your language learning?

Yes No Sometimes

.....
.....
.....
.....

4 Would you use technology outside classroom to practice Italian and Irish language and culture learning?

Yes No Sometimes

.....
.....
.....
.....

5 Do you think the use of technology may help in classroom activities?

Yes	No	Sometimes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....
.....

6 Do you think the use of technology may help your language learning experience?

Yes	No	Sometimes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....
.....

7 Does your school have an official ICT policy?

Yes	No	Do not know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....

Appendix B - Teachers' Questionnaire



FACULTY OF ARTS, HUMANITIES AND SOCIAL SCIENCES

Questionnaire on ICT and Language Learning for teachers

1. Is ICT (Information and Communications Technology) important in your school?

Yes	No	Sometimes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....
.....

2. Is ICT important in your teaching experience?

Yes	No	Sometimes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....
.....

3. Does your school have an official ICT policy?

Yes

No

Do not know

.....
.....

4. Would you use technology to enhance students' Italian and Irish language and culture learning?

Yes

No

Sometimes

.....
.....
.....
.....

5. Would you encourage your students to use technology for language learning activities outside classroom?

Yes

No

Sometimes

.....
.....

.....
.....

6. Does the use of ICT help the class interactivity?

Yes	No	Sometimes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....

7. Have you received teacher training in ICT?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....

8. In general, do you agree with the following statement: *Technology helps and improves Italian and Irish Language Teaching*

Yes	No	Sometimes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....
.....
.....

Appendix C - Semi-structured Students' Interviews

1. Do you have access to any of the following pieces of technology: laptop, computer, tablet (e.g. iPads), mobile phones?
 - If yes, how often do you use it/them (several times a day, once a day, once in a while when I need it)?
 - Which pieces of technology are you inclined to use more often?
2. Do/Would you feel comfortable in using technology for language learning (inside or/and outside the classroom)?
3. Do/Would you feel equally comfortable in using technology for both Irish and Italian language?
 - If not, what kind of differences do you perceive between the two languages?
4. What kind of difference do you think technology can make to your Italian and Irish language learning?
5. Do you think there might be specific barriers/obstacles when using technology for your Italian and/or Irish language learning?
6. Do you think the use of new technologies (using for example apps/social media) can facilitate and stimulate your Italian and Irish learning acquisition?
 - If yes, which aspect of your learning could benefit more from ICT (listening, speaking, writing, reading)?
 - If not, why?
 - Do feel any difference between Irish language and Italian language in this case?

Appendix D- Semi-structured Teachers' Interviews

1. How do you perceive the use of technology for Education in general and language teaching in particular?
2. Have you been using technology in your language teaching experience?
 - If yes, how often?
3. What types of new technologies are you inclined to use?
4. What kind of barriers do you perceive when integrating technology into teaching practice?
5. Do you feel that the use of technology can enhance language learning?
6. Do you think your students are comfortable in using technology in their language learning experience (inside and outside the classroom)?
7. Mark Prensky is an American writer and speaker on learning and education. He has coined the terms “Digital Natives” (referring to today's students that represent the first generation to grow up with new technologies) and “Digital Immigrants” (referring to people that were not born into the digital world but have, at same later stage in their lives, become fascinated and adopted many aspects of new technologies).
 - Do you feel that the term “Digital immigrants” represents, in practice, today's teachers?
 - Do you feel that the term “Digital Natives” represents, in practice, today's students?

Appendix E - Class Observation Table

Themes	Actions observed
Lay out of the room	
Use of ICT	
Flow of the lesson	
Use of pair work/group work	
Teacher Role	
Students activities	
Resources	

Appendix F - ICT policy School A

ICT Acceptable Use Policy

The aim of this Acceptable Use Policy is to ensure that pupils will benefit from learning opportunities offered by the school's Internet resources in a safe and effective manner. Internet use and access is considered a school resource and privilege. Therefore, if the school AUP is not adhered to this privilege will be withdrawn and appropriate sanctions – as outlined in the AUP – will be imposed.

It is envisaged that school and parent representatives will revise the AUP annually. Before signing, the AUP should be read carefully to ensure that the conditions of use are accepted and understood.

School's Strategy

The school employs a number of strategies in order to maximise learning opportunities and reduce risks associated with the Internet. These strategies are as follows:

General

- Internet sessions will always be supervised by a teacher.
- Filtering software and/or equivalent systems will be used in order to minimise the risk of exposure to inappropriate material.
- The school will regularly monitor pupils' Internet usage.
- Students and teachers will be provided with training in the area of Internet safety.
- Uploading and downloading of non-approved software will not be permitted.
- Virus protection software will be used and updated on a regular basis.
- The use of personal floppy disks, memory sticks, CD-ROMs, or other digital storage media in school requires a teacher's permission.
- Students will treat others with respect at all times and will not undertake any actions that may bring the school into disrepute.

World Wide Web

- Students will not intentionally visit Internet sites that contain obscene, illegal, hateful or otherwise objectionable materials.
- Students will report accidental accessing of inappropriate materials in accordance with school procedures.
- Students will use the Internet for educational purposes only.
- Students will not copy information into assignments and fail to acknowledge the source (plagiarism and copyright infringement).
- Students will never disclose or publicise personal information.
- Downloading materials or images not relevant to their studies, is in direct breach of the school's acceptable use policy.
- Students will be aware that any usage, including distributing or receiving information, school-related or personal, may be monitored for unusual activity, security and/or network management reasons.

Email

- Students will use approved class email accounts under supervision by or permission from a teacher.
- Students will not send or receive any material that is illegal, obscene, defamatory or that is intended to annoy or intimidate another person.
- Students will not reveal their own or other people's personal details, such as addresses or telephone numbers or pictures.
- Students will never arrange a face-to-face meeting with someone they only know through emails or the internet.
- Students will note that sending and receiving email attachments is subject to permission from their teacher.
- Internet Chat
- Students will only have access to chat rooms, discussion forums, messaging or other electronic communication fora that have been approved by the school.
- Chat rooms, discussion forums and other electronic communication forums will only be used for educational purposes and will always be supervised.
- Usernames will be used to avoid disclosure of identity.
- Face-to-face meetings with someone organised via Internet chat will be forbidden.

School Website

- Pupils will be given the opportunity to publish projects, artwork or school work on the World Wide Web in accordance with clear policies

and approval processes regarding the content that can be loaded to the school's website

- The website will be regularly checked to ensure that there is no content that compromises the safety of pupils or staff.
- Website using facilities such as guestbooks, noticeboards or weblogs will be checked frequently to ensure that they do not contain personal details?
- The publication of student work will be co-ordinated by a teacher.
- Pupils' work will appear in an educational context on Web pages with a copyright notice prohibiting the copying of such work without express written permission.
- The school will endeavour to use digital photographs, audio or video clips focusing on group activities. Content focusing on individual students will not be published on the school website with out the parental permission. Video clips may be password protected.
- Personal pupil information including home address and contact details will be omitted from school web pages.
- The school website will avoid publishing the first name and last name of individuals in a photograph.
- The school will ensure that the image files are appropriately named – will not use pupils' names in image file names or ALT tags if published on the web.
- Pupils will continue to own the copyright on any work published.

Personal Devices

Pupils using their own technology in school, such as leaving a mobile phone turned on or using it in class, sending nuisance text messages, or the unauthorized taking of images with a mobile phone camera, still or moving is in direct breach of the school's acceptable use policy.

Legislation

The school will provide information on the following legislation relating to use of the Internet which teachers, students and parents should familiarise themselves with:

- Data Protection (Amendment) Act 2003
- Child Trafficking and Pornography Act 1998
- Interception Act 1993
- Video Recordings Act 1989
- The Data Protection Act 1988

Support Structures

The school will inform students and parents of key support structures and organisations that deal with illegal material or harmful use of the Internet.

Sanctions

Misuse of the Internet may result in disciplinary action, including written warnings, withdrawal of access privileges and, in extreme cases, suspension or expulsion. The school also reserves the right to report any illegal activities to the appropriate authorities.

Permission Form Template

Please review the attached school Internet Acceptable Use Policy, sign and return this permission form to the Principal.
School Name _____

Name of Pupil: _____

Class/Year: _____

Pupil

I agree to follow the school's Acceptable Use Policy on the use of the Internet. I will use the Internet in a responsible way and obey all the rules explained to me by the school.

Pupil's Signature: _____ **Date:** _____

Parent/Guardian

As the parent or legal guardian of the above pupil, I have read the Acceptable Use Policy and grant permission for my son or daughter or the child in my care to access the Internet. I understand that Internet access is intended for educational purposes. I also understand that every reasonable precaution has been taken by the school to provide for online safety but the school cannot be held responsible if pupils access unsuitable websites.

I accept the above paragraph **I do not accept the above paragraph**
(Please tick as appropriate)

In relation to the school website, I accept that, if the school considers it appropriate, my child's schoolwork may be chosen for inclusion on the website. I understand and accept the terms of the Acceptable Use Policy relating to publishing children's work on the school website.

I accept the above paragraph **I do not accept the above paragraph**
(Please tick as appropriate)

Signature: _____ **Date:** _____

Address: _____ **Telephone:** _____

Mobile Phone Policy

Students are requested not to bring Mobile Phones to school. If a Parent feels it is necessary for her/his child to have a phone then the phone must be powered off (not put on 'silent') at the gate and not powered on again until the child is leaving the school grounds.

If a phone is seen or heard it will be confiscated by a member of staff and given to the Deputy or Principal. The confiscation will last for the following times:

- 1st Offence - 2 weeks
- 2nd Offence - 1 month
- 3rd Offence - 2 months
- 4th Offence - 3 months

If a student needs to make a phone call there is a payphone in the school corridor near the main office.

If a family needs to make contact with a student they may phone the office and the student will be summoned or given a message.

Internet Guidelines for Students

Advice for students – ways of avoiding Cyberbullying and staying safe on the Internet:

- ✓ **Treat** others that you meet online with the same respect that you would like to be given and the same respect that you give other when you meet them in person.
- ✗ **Don't** give out private information such as passwords, pin numbers, addresses, phone number or personal details. Don't even reveal your password to your friends. Personal and private information should be kept private as unfortunately it can be misused by bullies and other harmful people on the internet.
- ✓ **Think** before you post personal pictures online, it's online forever, so be sure that you would be comfortable with your parents, grandparents, teacher or anybody seeing it, this week, next year or in 30 years time.
- ✗ **Don't** post pictures of others without their permission or give out their email addresses or mobile numbers to people you meet on the Internet.
- ✗ **Don't** say or post anything that might cause you embarrassment in the future. As a general rule, if you wouldn't say it to your Granddad, don't say it online.
- ✗ **If** you use instant messaging, don't accept messages from people you don't know, don't add people to your buddy list unless you know them personally.
- ✗ **Don't** send a message when you are angry – it's hard to undo things that are said in anger.
- ✓ **Do** delete messages from people you don't know, or those from people who seem angry or mean.
- ✓ **Learn** to recognise the signs. When something doesn't seem right, it probably isn't. Never hop on the band-wagon or join in with the bullying behaviour.
- ✓ **Understand** that by doing nothing about bullying that you witness you are condoning bullying behaviour. Take action, tell an adult.
- ✓ **Learn** how to block and report certain people in chat rooms and also how to save or print a copy of a conversation in case your parents need to report it.
- ✓ **Realise** that online, conversations are not private. Others can copy, print and share any comments or pictures you post.

Appendix G - ICT policy School B

INTERNET ACCEPTABLE USE POLICY

The aim of this policy is to ensure that students will benefit from learning opportunities offered by the school's internet resources in a safe and effective manner. Students should adopt a sense of responsibility and a healthy ethic in their internet use.

The potential benefits of using the internet as a learning tool far out weigh any risks involved. It is important to be aware of the risks and their impact from the beginning in order to equip the students with the necessary information and skill to navigate safely on the internet.

Internet use and access is considered a school resource and privilege. Therefore, if the school internet policy is not adhered to, this privilege will be withdrawn and appropriate sanctions will be imposed.

RULES FOR INTERNET USAGE.

Internet access is provided as an educational resource and is to be used for that purpose only.

Computer room and Internet access will only be allowed with the teacher's permission.

All sites visited by pupils will be logged and monitored by a teacher.

Pupils will not intentionally visit internet sites that contain obscene, illegal, hateful or otherwise objectionable materials.

Uploading and downloading of non-approved software will not be permitted.

The use of personal floppy discs, memory sticks, CD-ROMS, or other digital storage media in the computer lab requires the teacher's permission.

Pupils will not be permitted to use any web tools such as BEBO or INSTANT MESSENGER.

Pupils will not be permitted to receive or send email.

Access to chat rooms is prohibited.

Pupils will not give out personal information (name, address, phone number etc.) over the internet.

Pupils are not permitted to make any purchases on line.

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SANCTIONS

Misuse of the internet may result in disciplinary action, including written warnings, withdrawal of on-line access facilities and will be reported to the school management and/or other appropriate authorities for further action.

I have read these rules and accept them as being necessary for the correct and safe usage of the internet in school.

Parents/Guardians: _____

Pupils Name: _____ Class: _____ Date: _____

Permission for photographs of pupils in the school newsletter:

I, _____ parent / guardian of _____ class _____

give my permission for my daughter's photograph to appear in the school newsletter.

Signed _____ (parent / guardian)

Date _____

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Appendix H: Ethics Committee-email approval

14-11-2012

Silvia

Thank you for your resubmission regarding your research "Italian and Irish Language and Culture Acquisition: exploring the use of Web 2.0 tools in a post primary education environment" (2012_10_13_AHSS).

I wish to confirm that you now have approval.

Best of luck with it.

A. Q.

Chair, FAHSS REC

Appendix I: Consent form

I, the undersigned, declare that I am willing to take part in research for the project entitled *Italian and Irish Language and Culture Acquisition: exploring the use of Web 2.0 tools in a post-primary education environment*

- I declare that I have been fully briefed on the nature of this study and my role in it and have been given the opportunity to ask questions before agreeing to participate.
- The nature of my participation has been explained to me and I have full knowledge of how the information collected will be used.
- I am also aware that my participation in this study may be recorded (video/audio) and I agree to this. However, should I feel uncomfortable at any time I can request that the recording equipment be switched off. I am entitled to copies of all recordings made and am fully informed as to what will happen to these recordings once the study is completed.
- I fully understand that there is no obligation on me to participate in this study.
- I fully understand that I am free to withdraw my participation at any time without having to explain or give a reason.
- I am also entitled to full confidentiality in terms of my participation and personal details.

Signature of participant

Date

Appendix J: Information Sheet

My name is Silvia Benini, I am conducting a research as part of my Phd programme in the department of School of Languages, Literature, Culture and Communication at University of Limerick. My research project title is: *Italian and Irish Language and Culture Acquisition: exploring the use of Web 2.0 tools in a post-primary education environment.*

My project aims to investigate Irish, as the first language of the Republic of Ireland, and Italian, as one of the European languages taught in Irish post-primary schools. Two different approaches and cultural backgrounds in the same educational environment. Irish and Italian will be analyzed from the students and teachers point of view, investigating learning and teaching methodologies related, in particular, to the use of the Internet when available. The Internet itself, as a means of communication, opens up exciting possibilities in the field of language learning. However, it does alter the way in which people communicate with each other. Consequently, research need to determine whether these effects enhance language learning or work against it.

This research involves class observation and interviews to both teachers and students. The observation technique aims to provide detailed descriptions on how students and teachers interact in their natural environment. The semi-structured interview technique aims to provide greater scope for discussion and learning about the language learning process and the problems, opinions and views of the respondents.

The interviews will take place in the school and they will take max 10 min per person.

There are no risks involved for the participants on the other end, the benefits in place, are being an active participant of a language learning and educational research. Participants and institutions will be kept anonymous, using the promise of confidentiality. The researcher will protect the way to access the private information using pseudonym for participants. Hence, the information will not be published or used for any other purposes than this research.

The participants have the right not to answer questions and they are free to withdraw consent and participation in the project at any time without prejudice. I'll be available via email or telephone to answer enquires about the project. Furthermore participants have right to contact the UL Research Ethics Governance (ULREG) committee if have any concerns about participating in the research.

Contact details:

Phd Researcher: Silvia Benini, Silvia.Benini@ul.ie, University of Limerick, Castletroy, Limerick, Republic of Ireland.

Supervisor: Dr Liam Murray, Liam.Murray@ul.ie, University of Limerick, Castletroy, Limerick, Republic of Ireland.

ULREG Chairperson: Dr. Maria Connolly, Corporate Secretary's Office, University of Limerick, Castletroy, Limerick, Republic of Ireland or phone at 061 23 4393.