TEACHER COGNITION AND ICT IMPLEMENTATION IN THE EFL CLASSES IN MEXICO

A thesis submitted to The University of Manchester for the degree of

Doctor of Philosophy

in the Faculty of Humanities

2016

LETICIA MISHELLY VEGA ANIMAS

SCHOOL OF ENVIRONMENT, EDUCATION AND DEVELOPMENT
TABLE OF CONTENTS................................................................. 2
LIST OF FIGURES................................................................. 8
LIST OF TABLES....................................................................... 9
LIST OF ABBREVIATIONS......................................................... 10
ABSTRACT.................................................................................. 11
DECLARATION............................................................................. 12
COPYRIGHT STATEMENT............................................................. 13
DEDICATION............................................................................... 14
ACKNOWLEDGEMENTS............................................................. 15

CHAPTER 1 INTRODUCTION.......................................................... 16
  1.1 Introduction............................................................................. 16
  1.2 ICT in Mexican education..................................................... 17
  1.3 Background of the study....................................................... 19
  1.4 Research Questions and Design........................................... 20
  1.5 Context of the study............................................................ 21
      1.5.1 The headteacher........................................................ 21
      1.5.2 The EFL coordinator................................................... 22
  1.6 Structure of the thesis........................................................ 23

CHAPTER 2 THE RIEMS (Reforma Integral de la Educacion Media Superior, Comprehensive Reform of Upper Secondary Education).......................................................... 25
  2.1 Introduction............................................................................. 25
  2.2 The RIEMS............................................................................ 25
  2.3 Teachers and the RIEMS......................................................... 27
  2.4 Opportunities for training..................................................... 28
  2.5 Expected Practice............................................................... 29
      2.5.1 National policies......................................................... 29
          2.5.1.1 National policies for ICT in the EFL classes...... 31
      2.5.2 Institutional policies.................................................... 32
          2.5.2.1 The headteacher’s interpretation....................... 32
          2.5.2.2 The EFL coordinator’s interpretation................. 33
  2.6 Summary.............................................................................. 34
CHAPTER 3 TEACHER COGNITION AND ICT ............... 35

3.1 Introduction ......................................................... 35
3.2 Factors for ICT integration ...................................... 35
  3.2.1 Availability of resources ..................................... 37
  3.2.2 Competence ...................................................... 39
  3.2.3 Confidence ....................................................... 40
  3.2.4 Training .......................................................... 41
  3.2.5 Support ............................................................ 43
  3.2.6 Time ................................................................. 44
  3.2.7 School Culture .................................................. 45
  3.2.8 School Leadership .............................................. 47
  3.2.9 Collaboration .................................................... 49
3.3 Teachers as key to successful implementation ............... 50
3.4 Teacher Cognition Research .................................... 52
  3.4.1 Teacher Cognition ............................................... 53
  3.4.2 Schooling ........................................................ 55
  3.4.3 Teacher education ............................................... 57
  3.4.4 Classroom practices .......................................... 60
  3.4.5 Context ........................................................... 63
3.5 Summary ............................................................... 66

CHAPTER 4 METHODOLOGY ........................................... 68

4.1 Introduction .......................................................... 68
4.2 Qualitative Research Design ..................................... 68
4.3 Case Study ........................................................... 69
4.4 Accessing the field ................................................. 70
4.5 Selection of the Cases ............................................. 73
  4.5.1 The participants ................................................ 75
4.6 Methods of Data Collection ..................................... 77
  4.6.1 Document analysis ............................................. 78
  4.6.2 Interviews ......................................................... 79
  4.6.3 Observations ....................................................... 81
  4.6.4 Video Stimulated Recall .................................... 83
4.7 Data Analysis ................................................................. 85
4.8 Ethical Considerations ................................................... 91
  4.8.1 Trustworthiness ...................................................... 92
  4.8.2 Validity .............................................................. 92
  4.8.3 Reliability ......................................................... 94
  4.8.4 Generalizability ................................................... 94
4.9 Summary ........................................................................ 95

CHAPTER 5 ELY ................................................................. 96
  5.1 Introduction .................................................................. 96
  5.2 Ely’s class .................................................................... 96
  5.3 Cognitions about schooling experiences ......................... 99
  5.4 Cognitions about teacher education ............................... 101
  5.5 Teacher cognition, ICT and practice .............................. 103
    5.5.1 ICT’s role ......................................................... 103
    5.5.2 Pedagogical compatibility .................................. 104
    5.5.3 Beliefs about students ....................................... 105
  5.6 Teacher cognition, practice and context ......................... 105
    5.6.1 National policies ............................................... 105
    5.6.2 Institutional context ........................................... 107
      5.6.2.1 Institutional policies .................................... 107
      5.6.2.2 Lack of resources ........................................ 108
      5.6.2.3 Accessibility ............................................... 110
      5.6.2.4 Opportunities for training .............................. 110
      5.6.2.5 Support ..................................................... 111
      5.6.2.6 Teacher collaboration .................................. 113
      5.6.2.7 Time ......................................................... 114
  5.7 Summary of findings .................................................. 116

CHAPTER 6 FER ................................................................. 118
  6.1 Introduction .................................................................. 118
  6.2 Fer’s 5th semester class (Aquaculture technical area) .......... 118
  6.3 Fer’s 3rd semester class (Hospitality technical area) .......... 120
  6.4 Cognitions about schooling experiences ......................... 122
CHAPTER 8 CROSS–CASE ANALYSIS

8.1 Introduction
8.2 What is the nature of Mexican secondary teachers’ cognitions about the teaching of EFL?
8.2.1 Teacher cognition and schooling experiences
8.2.2 Teacher cognition and teacher education
8.3 What is the nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context?
8.3.1 Teachers’ beliefs about ICT
8.3.2 Motivation
8.3.3 Pedagogical compatibility
8.3.4 Lack of ownership
8.3.5 Beliefs about learners
8.3.6 Teachers’ roles
8.4 What is the relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context?
8.4.1 National policies
8.4.2 Institutional policies
8.4.3 Availability of resources
8.4.4 Training
8.4.5 Time
8.4.6 Teacher Collaboration
8.4.7 Support
8.4.8 Large number of students
8.5 Summary

CHAPTER 9 CONCLUSIONS

9.1 Introduction
9.2 The nature of Mexican secondary teachers’ cognitions about the teaching of EFL

9.3 The nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context

9.4 The relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context

9.5 Contributions

9.5.1 Theoretical contributions

9.5.2 Methodological contributions

9.5.3 Contributions to ICT research in Mexico

9.6 Implications

9.6.1 Implications for institutional ICT integration

9.6.2 Implications for teachers’ practice

9.7 Limitations

9.8 Recommendations for future research

9.9 Final remarks

REFERENCES

APPENDICES
LIST OF FIGURES

Figure 3.1 Teacher cognition and language education…………… 55
LIST OF TABLES

Table 4.1 Data collection process 77
Table 4.2 Coding example, sensing themes (Data-driven approach) 88
Table 4.3 Examples of emerging sub-categories 89
Table 4.4. Coding example, themes 90
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>Bachelor of Arts</td>
</tr>
<tr>
<td>CETMAR</td>
<td>Centro de Estudios Tecnologicos del Mar, Centre for Technical Marine Studies</td>
</tr>
<tr>
<td>CONALEP</td>
<td>Colegio Nacional de Educación Profesional, National College of Professional Education</td>
</tr>
<tr>
<td>EDUSAT</td>
<td>Educacion Satelital, Satellite Education</td>
</tr>
<tr>
<td>EFL</td>
<td>English as a Foreign Language</td>
</tr>
<tr>
<td>ENS</td>
<td>Escuela Normal Superior, Higher Training College</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>IPN</td>
<td>Instituto Politécnico Nacional, National Polytechnic Institute</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PROFORDEMS</td>
<td>Programa de Formación Docente de Educación Media Superior, Teacher Education Program of Higher Secondary Education</td>
</tr>
<tr>
<td>RIEMS</td>
<td>Reforma integral de la educación media superior, Comprehensive Reform of Upper Secondary Education</td>
</tr>
<tr>
<td>SEP</td>
<td>Secretaria de Educación Pública, Secretariat of Public Education</td>
</tr>
<tr>
<td>SNB</td>
<td>Sistema Nacional de Bachillerato, National High School</td>
</tr>
<tr>
<td>TOEFL</td>
<td>Test of English as a Foreign Language</td>
</tr>
<tr>
<td>UNAM</td>
<td>Universidad Nacional Autónoma de México, National Autonomous University of Mexico</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
</tbody>
</table>
ABSTRACT

The impact of technology in society nowadays has led to significant curricular reforms around the world that aim to achieve a higher quality in education. Mexico has not been the exception and in 2008, the Reforma Integral de la Educación Media Superior, RIEMS (the Comprehensive Reform of Upper Secondary Education) was launched with the aim to overcome three challenges in upper secondary education in Mexico: access to education, quality and equity. The proper development of this educational level would represent a fundamental assumption that the country could respond to the challenges of the global economy in a context of equity and diversity. In this context, the use of Information and Communication Technologies (ICT) in schools has become a required tool considered as the necessary action for the qualitative improvement of the teaching and learning process. This provides many possibilities, but also new demands.

One of the most important challenges concerns the teaching task and the fact that teachers are required to play a different role from the traditional approach that they are used to using in class and which is common in classrooms in Mexico, becoming instead facilitators of the learning process. This thesis was carried out to explore how EFL teachers engage with ICT in their practice in the context of Mexican reform initiatives. Specifically, the study focused on teacher cognition to understand what teachers think, know, believe and do related to ICT adoption. A case study approach was used to collect data from three EFL teachers in a high school in Mexico through interviews, observations and stimulated recall sessions. The results show that the participant teachers face a challenging, complex, multifactorial situation that hinders their adoption of ICT. The organisational structures of schooling and the social dimension of the particular school setting impact negatively on the conceptions that teachers bring to their practice making it difficult for ICT tools to be explored and appropriated pedagogically.

Keywords: ICT, reform, EFL teachers, teacher cognition, social dimension
DECLARATION

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.
COPYRIGHT STATEMENT

i. The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

ii. Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.

iii. The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

iv. Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property University IP Policy (see http://documents.manchester.ac.uk/display.aspx?DocID=24420), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see http://www.library.manchester.ac.uk/about/regulations/) and in The University’s policy on Presentation of Theses
DEDICATION

Because your sweet smiley face kept me going when I wanted to give up, this is especially for you, Daniel, with all my love.

To my parents, Mauricio and Socorro, for supporting and encouraging my dreams.

To my husband, Davood, for being there throughout this journey.

To my brothers Mauricio and Pablo, who kept me sane with their jokes.

To Maryfer, Ximenita, Andrei, Malichin and Alex

To my aunts, Blanca, Luz and Marina
ACKNOWLEDGEMENTS

First and foremost, I would like to express my special appreciation and thanks to my academic supervisors, who offered their time and commitment to this thesis. My deepest gratitude goes out to my main supervisor, Mrs Diane Slaouti, I do not think I can thank her enough for her guidance, patience and support during every stage of my research. Her invaluable input, influence and expert knowledge were determinant for the accomplishment of the work presented in this thesis.

I would also like to thank my second supervisor, Dr. Gary Motteram, for his invaluable insights and suggestions during the development and conclusion of this research work. I extend my sincere thanks to The National Council of Science and Technology (CONACYT) for their support in carrying out my studies.

Finally, I would like to thank the institution and teachers that were participants in this research for their willingness to share their experiences. Without them, this thesis would not have been possible.
CHAPTER 1 INTRODUCTION

1.1 Introduction

The introduction of ICT (Information and Communication Technology) in different educational contexts around the world has been encouraged because of suggested “valuable benefits for teaching and learning” (Gobbo and Girardi, 2001) and its claimed potential to transform education (Tearle, 2003). However, despite growing access to technology, the improvement of ICT infrastructure in schools, and a large number of educational initiatives, studies have found that many teachers still do not appear to make effective use of ICT in their practice.

Research suggests that teachers are more likely to integrate technology in their classrooms if they can identify the usefulness of technology tools (Zhao and Frank, 2003). They make a value judgement based on their knowledge, beliefs and attitudes which are deeply grounded in their own and the school culture in which they teach (Zhao and Frank, 2003) as well as the community of practice associated with their subject (Wenger, 1998). At the same time, teachers’ prior experiences, their interpretations of the activities they engage in, and the contexts in which they work are extremely influential in shaping how and why teachers do what they do (Johnson, 2006).

Since teachers have been referred to as playing a central role in shaping classroom events (Borg, 2006) a better approach to understanding how ICT can be successfully integrated in schools lies in studying the “key role teachers -and their cognitions- play in the implementation of educational innovations” (Borg, 2006, p. 1).

This study, set within the educational Mexican context, aims to explore how EFL (English as a Foreign Language) teachers engage with ICT in their practice. Specifically, it will conduct research into teacher cognition to understanding what teachers think, know, believe and do related to ICT adoption in the context of Mexican reform initiatives.

Before introducing this new initiative, it is important to present an overview of the government efforts to introduce ICT in education as a reference for the current
strategies. This will situate the importance of technology in the Mexican education system in general and in the new reform in particular.

1.2 ICT in Mexican education

Some initiatives, which have been established based on the potential of ICT, have used digital technology and satellite communications to expand the use of technology in education and improve access of marginal populations to education (Rizo, 2001). Santibañez, Vernez and Razqui (2005) identify the largest initiatives as: *Telesecundaria*, the Satellite Television Network (EDUSAT); the School Network of Educational Computer Science (Red Escolar); and *Enciclomedia*.

The *Telesecundaria* project originated in the 1960s and it has been one of the most successful examples of integration of technology in Mexican education. It is a system of distance education programmes which operates through the *Edusat* network and it has been the solution for many young people from isolated and small localities who would have otherwise lacked the opportunity to continue lower secondary studies. Initially, it broadcasted live lessons through public television channels. Nowadays, the lessons are pre-recorded to ensure higher quality. A variant of the *Telesecundaria* model has been developed for upper secondary schools, *Tellebachillerato*.

The *Edusat* project is a TV network, which includes 12 video channels (including Discovery Kids and History Channel), along with a few audio channels. Some of *Edusat*’s programming can be downloaded through the Internet. More than 900 programs were produced in 2003 alone. Total transmission time is estimated at about 44,000 hours per year. Programming includes teacher training material, *Telesecundaria* programs, entertainment, and information, among others.

The *Red Escolar* started in 1997 as a pilot project. It is intended to promote the participation of students, teachers and sometimes their parents in the use of new technologies applied to education. It aims to improve the teaching and learning processes, and foster the exchange of information among participating schools throughout the country. Using technology, both students and teachers develop collaborative projects related to various subjects. For instance, they participate in reading and writing contests, puzzles, and team research. Participating school teams
are equipped with the proper systems, and receive technical and pedagogical support from local and federal authorities.

The most recent project is Enciclomedia. This project began as a pilot in 2003 and consists of the digitalization process of primary education textbooks in CD-ROM format. Along with the material from the textbooks themselves, a plethora of resources, including videos, complementary information and the use of the Microsoft Encarta student encyclopaedia, are available to teachers and students. The Enciclomedia programme was followed up in 2004 with the integration of 22,000 computers and whiteboards in 11,000 primary schools, and again in 2006 when 51,000 Smart boards were incorporated in primary schools.

Other examples include:

*E-Mexico* in 2000, which aimed to integrate the efforts of public and private actors in the elimination of the digital divide and socioeconomic differences among Mexicans, through a system with technological and social components that provided basic services in learning.

*SEPienSA* in 2000, an educational website available to basic education, aimed at facilitating the construction of learning networks among schools.

It is important to note that all of these initiatives were implemented in basic education. However, apart from the *Telesecundaria* project, not all the programmes have reached the desired potential in schools. In most cases, teachers were asked to use the equipment without previous training or technical problems discouraged them from integrating them in their lessons. Computers were not used as planned or the resources to equip schools were scant or spent on purposes other than those of the programme (Castillo, 2008; Santibañez, Vernez and Razqui, 2005).

The present government has introduced another vision of the educational use of ICT, this time in the upper secondary level. Teachers are expected to promote and use technology in the different subject teaching areas across the curriculum. This includes the EFL classes which are the focus of this study.
1.3 Background of the study

My interest in exploring how EFL teachers engage with ICT in their practice originated from conversations with an ex colleague at the Galicia High School. She explained the process that the institution was undergoing at that time due to the RIEMS (Reforma integral de la educación media superior, the Comprehensive Reform of Upper Secondary Education), which advocated competency-based educational practices and a constructivist pedagogical approach, as opposed to the traditional teaching approach that is prevalent in most classrooms in Mexico. Two changes, in particular, grabbed my attention: first, the fact that EFL classes would be given more importance in technical schools, and second, the introduction of ICT throughout the curriculum.

As an EFL teacher myself, and having worked for seven years within both private and public schools in Mexico, I could relate to the challenges that such an ambitious project posed for teachers. Being familiar with the several government appeals to teachers’ commitment to consolidating reforms, I understood that the majority of these educational proposals fail to understand the particularity of school contexts and the factors that might hinder their implementation.

However, as a teacher I am always interested in ways to improve the teaching and learning experience of my students, and I recognised that although integrating ICT in the Mexican context carried challenges on its own, it could also offer great advantages in the EFL classroom. This motivated me to study how EFL teachers introduced ICT as a learning tool in their classes. A first exploratory study that was the basis of my Master’s dissertation in 2011 focused on the different factors and attitudes that impact teachers’ decisions to introduce ICT in EFL. This research showed that, despite having positive attitudes regarding ICT use, teachers were resistant to changing their practice to favour implementation. However, there were still many unanswered questions that led to this present study, which aims to have a better understanding of how ICT integration might occur, not by studying factors in isolation, but by knowing what is in teachers’ minds and what influences their decisions to implement ICT.
Since there is a lack of studies in the Mexican context related to the introduction of technology in schools, and a major gap in knowledge which complicates any analysis in the area of ICT use, understanding the cognitions that underpin teachers’ behaviour regarding the use of innovations in the classrooms might inform implementation and future policy decisions.

1.4 Research Questions and Design

As stated earlier, this study aims to explore how EFL teachers engage with ICT in their practice in the context of reform initiatives in Mexico. Having experience of these reforms, which are policy driven, I wanted to focus on the teachers and understand how they feel, how they make sense of these reforms in that local practice. Exploring technology-using teachers’ underlying cognitions may provide a useful perspective in this area of investigation, which has remained unexplored in the Mexican context. The study also attempts to gain insights into the sociocultural factors that might influence how technology is used in EFL instruction in specific institutional settings.

The study addressed the following research questions:

- What is the nature of Mexican secondary teachers’ cognitions about the teaching of EFL?
- What is the nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context?
- What is the relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context?

In order to investigate my research questions I chose a multi-case study of three teachers at a high school located in a port in the Gulf of Mexico. This allowed for an in-depth exploration of teacher cognition within their context. In order to maintain the anonymity and confidentiality in this research, pseudonyms were used for both the school and the participants.
1.5 Context of the study

The Galicia High School, which has 35 years of service, trains professionals in the field of Marine Sciences and it offers a technical high school where students get a certificate which allows them either to continue into higher education or to get a professional license to start working upon completion.

The educational year is divided into two semesters and students take three years to complete their secondary education. In the first semester, students take core teaching subjects, and from the second semester they focus on their preferred technical fields. Students can choose from a variety of technical careers at the beginning of the second semester: Food and beverage preparation, Naval construction and repair, Aquaculture, Industrial food production, Port operation, Sport fishing and diving and Refrigeration and air conditioning.

The school has twenty classrooms and seven technical workshops, besides a library, a cafeteria, a computer lab with twenty computers and internet service for the ICT classes and an audiovisual classroom with an interactive whiteboard that is available for teachers. Particular classrooms are dedicated to teaching in particular semesters and some of the classrooms in the third and fifth semester have projectors and speakers already installed. Also, there are two laptops, one portable projector and one set of speakers available for teachers.

Due to a great demand, the institution offers two shifts during the week, morning and evening, and another one on Saturdays. Approximately 2,650 students are enrolled and there are 120 teachers of which eleven are EFL teachers. There is only one headteacher for all the shifts, Mr. Cobos, and two assistant headteachers. The collegial work is shared among different departments and the EFL teachers work mainly with Jaz, the EFL coordinator. The following section presents an overview of both the headteacher and the EFL coordinator who are the main supervisors of the EFL teachers’ work.

1.5.1 The headteacher

Mr. Cobos is the Galicia High School’s headteacher. Although he has a background as a Naval Engineer, he has worked in the education field for over 29 years and has a
Masters in Educational Administration and a Masters in Science in Education. He has been the school’s headteacher for almost 3 years, elected through a competitive exam, which was opened to 32 institutions in the area. Before that, he was a teacher in Galicia. He did not receive any training to prepare him for this post. Sometime before this research started, he had completed a course that prepares headteachers for their role in the Upper Secondary Level which, from his point of view, would have been of great help before starting his job instead of learning through experience.

Different commitments and responsibilities both inside and outside the school keep him occupied. Besides working in Galicia, he has a job as a teacher in a university in the same port, as well as travelling giving talks around the country and a bureaucratic job for the government. As a result, he delegates part of his responsibilities to the assistant headteachers who deal with the most important matters when he is absent from school which is often. However, he explains that he is informed and knows what happens in school at all times.

Mr. Cobos is aware of the challenges teachers face with the large number of students they have per class and recognises the effort and workload especially during evaluations that these classes involve. He praises the work of the staff in school and understands the difficult task they have working with teenagers. Interestingly, although he speaks fondly of the staff in school, he does not identify them as colleagues but as subalterns.

He proudly speaks about having been certified in the national high school system, which was achieved after external examiners evaluated that the school had the right infrastructure, equipment, classrooms and, most importantly, that the students were able to identify the reform aims and how their instruction is developing within them.

### 1.5.2 The EFL coordinator

Jaz is both one of the EFL teachers as well as the EFL coordinator of Galicia High School. In the same school year that this research started, she had also accepted a job within the teachers’ union. She identifies her role more as a spokesperson for the EFL area since it does not have a curricular value in the school. Without the school authorities’ support Jaz explains that there is little she can do in her role as
coordinator. Her job mainly involves informing teachers about meetings, coordinating activities with her colleagues, such as lesson plans and teaching sequences, besides collecting the materials that teachers prepare.

Jaz notes 3 points that EFL teachers need to work on urgently: collaboration, in order to achieve a true integration within the EFL department, understanding how to work under the competencies approach in EFL, and identifying how to implement ICT in their teaching subject, since there are teachers that are still reluctant to integrate technology in their classes because they consider that it is not suitable for EFL teaching, besides obtaining feedback from someone who knows about these points.

1.6 Structure of the thesis

This thesis is divided into nine chapters. In this first chapter, I provided my motivation for undertaking this research and I presented the context in which the study took place, as well as the research questions that informed the investigation.

Chapter 2 sets the study in the RIEMS context. It provides an overview of the RIEMS and its objectives, as well as the working conditions and challenges that EFL teachers face in light of this reform, their opportunities for training and the role of both EFL and ICT within this context.

Chapter 3 examines the literature related to the study of ICT implementation. It provides a review of the different factors that have been investigated and that might impact ICT integration in schools. It also presents the key aspects of teacher cognition research and explains Borg’s teacher’s cognition framework, which is the basis of this study, and key aspects of its different elements: schooling, professional coursework, contextual factors and classroom practice.

Chapter 4 focuses on the methodology used to carry out the investigation. It provides a description of the research design and the approach used to answer the research questions. It also explains the rationale behind the selection of the case studies that participated in this investigation, as well as the methods for data collection and a description of how data was analysed. The chapter also explains the ethical considerations that were taken into account in the research, as well as trustworthiness, validity, reliability and generalizability.
Chapters 5, 6 and 7 present the individual accounts of the three case studies that participated in the research. The chapters provide insights into teacher cognition in relation to ICT adoption within the participants’ teaching contexts.

Chapter 8 describes the cross-case analysis. It discusses the key findings that emerged from each case study narrative in order to answer the research questions that motivated the study.

Chapter 9 provides the conclusions of the study, including implications and recommendations for ICT integration in the Mexican context.
CHAPTER 2 THE RIEMS (Reforma Integral de la Educacion Media Superior, Comprehensive Reform of Upper Secondary Education)

2.1 Introduction

In order to have a broad overview of how teachers’ cognitions inform their practice in Mexican classrooms in the context of the present reform, it is necessary to first understand what the RIEMS entails, its objectives and expectations, and the role of both EFL and ICT in this change. It is also important to set these expectations into the broader picture of Mexican education and the working conditions and challenges that teachers face every day.

2.2 The RIEMS

The Mexican government, through the SEP (Secretaría de Educación Pública, Secretariat of Public Education) introduced a proposal in 2008 that reformed the national upper secondary education, with the aim of overcoming three challenges: access to education, quality and equity, which would fulfil the demands that today’s world places on students. The government claimed that a reform of the educational system was paramount since Mexico’s competitiveness depended largely on the proper development of this educational level and this would represent a fundamental assumption that the country could respond to the challenges of the global economy in a context of equity and diversity (SEMS, 2008).

The RIEMS introduced four main lines of action. First, a common curriculum was established for the different subsystems that are part of the upper secondary education with the aim of promoting diversity, relevance and quality of education and the flexibility to transfer from one subsystem to another. Before the reform, it was problematic for the high school students to change from one type of high school to another, given the inconsistencies in the curriculum, leading the students to repeat a year or drop out from school. This is because there are five types of high schools in Mexico (SEMS, 2008):

- General high schools
- CETMAR, or technical high schools, where the students specialize in agricultural, industrial or maritime studies.
• CONALEP (*Colegio Nacional de Educación Profesional*, National College of Professional Education),

• UNAM (*Universidad Nacional Autónoma de México*, National Autonomous University of Mexico) high school

• IPN (*Instituto Politécnico Nacional*, National Polytechnic Institute) high school.

Second, an educational approach based on competencies was integrated. This approach encourages the development of complex capacities that enable students to think and act in various fields of activity. It consists of achieving knowledge in action, the result of a sound knowledge base that can be put into practice and used to explain what is happening (SEMS, 2008). The idea of developing generic, basic, extended, as well as professional competencies emerged from the need to improve the quality and relevance of the training of human resources for the development of new technological systems and to promote lifelong learning and improve the competitiveness of business, living conditions and work of the population in general (SEMS, 2008). Some of these competencies related to language, communication skills, mathematical thinking, reasoning, scientific understanding of historical processes, decision making, and personal development, among others. The students would then be able to perform in various contexts through life and in higher education, and to respond to the need that young people have to equal opportunities for work (SEMS, 2008).

Third, the different educational models operating in the country were defined and regulated, in response to the educational needs, the characteristics of the population and the establishment of minimum quality standards. In this context, each institution could incorporate different types of competencies in their educational model which would be reflected in its plans and curriculum.

Finally, management mechanisms were established to achieve the common curricular framework, that is, opportunities for educational guidance and attention to the students’ needs, promoting teachers’ professional development, improving school facilities and equipment and promoting systematic evaluation. Teachers were offered
the additional certification by the SNB (Sistema Nacional de Bachillerato, Upper secondary school national system) (SEMS, 2008, p. 6-8).

In order to design the RIEMS, the government looked into the different educational reforms that had been implemented in other parts of the world, for example European and Latin American countries (Chile and Argentina in particular) (SEP, 2008). It was suggested that considering these reforms, and the educational models implemented in them, was relevant for the proposed educational changes in the upper secondary level in Mexico, because they were an example on how the education in the country could be improved. Externally, education was also required to align with the social, economic and technological requirements of the world, an increasingly globalized economy and the development of ICT (SEMS, 2008) and its impact on life and work, as well as education.

Although the RIEMS is a comprehensive project in which various sectors participate, teachers are the ones involved in the implementation of the principles of the common curricular framework in the classroom. The development of competencies is a gradual process which will be possible due to the daily work of teachers in classrooms, their educational planning, the selection and design of strategies and materials, but mostly as a result of collegial work that must exist in schools.

In this context, the use of Information and Communication Technologies (ICT) in schools has become a required tool considered as the necessary action for the qualitative improvement of teaching and learning process that demands from educators new abilities in order to immerse in these teaching models. This provides many possibilities, but also new demands. The next sections will provide an overview of the most important challenges concerning the teaching task.

**2.3 Teachers and the RIEMS**

In this process of change, teachers are considered the protagonists in the educational transformation. Therefore, it is important to stress the very particular working conditions in which many teachers in Mexico carry out their teaching practice in schools. This section highlights the context under which Mexican teachers in upper secondary education are demanded to consolidate the RIEMS.
First of all, a high proportion of teachers have their hours distributed in different schools which makes it difficult for them to engage in a collective project. “Many teach in one school in the morning and a second one in the afternoon, or hold a second job unrelated to teaching. Many work in very remote or small schools, operating in isolation, a characteristic that is strengthened by their conditions of employment with few opportunities for teamwork or learning from colleagues” (OECD, 2010, p. 65).

Especially at the upper secondary level, teachers face a large number of students per class. Since salaries are inadequate, teachers are constantly seeking to increase hours as a strategy to earn more, which in consequence adds to the number of groups and students they work with. Besides, the organization of school work, which includes 50 minute classes, involves asking teachers to perform multiple activities in this amount of time: teaching and providing activities both for class and for homework, taking the register, grading assignments, controlling discipline, and repeating this in every one of the groups they teach (Sandoval, 2010, p.100). Under these conditions, teachers might not only not get to know all their students, but they are rarely able to identify the needs of each individual.

Heterogeneity in this teaching level is more pronounced than in other levels of education. Teachers are either graduates from the Escuela Normal Superior (Higher Training College), also known as normalistas (Higher Training College students) or they are professionals trained in various institutions, like universities, polytechnics, among others, usually called universitarios (university graduated students). There are many teachers who have different professional backgrounds without formal teacher training which affects teaching and learning outcomes, besides making it difficult to encourage collegial co-operation work in schools (Zorrilla and Villa, 2003). These factors, coupled with the fact that resources are generally sparse, the poor physical conditions of schools, the lack of working materials and the loss of professional reputation, are some of the characteristics of teaching in upper secondary schools.

2.4 Opportunities for training

In order to face the challenges that the introduction of this reform implies, the government proposes that training teachers to work under this new model becomes a
central part of the RIEMS. Under the RIEMS objectives, both newly qualified teachers and in-service teachers must have training in teaching competencies and study the required programs in training institutions with official recognition. They must participate in courses and training programmes organised by the Academic Coordination Department and in those authorised in their institutions. Besides, teachers are encouraged to identify their professional development needs, as well as areas that need strengthening in the following fields:

- pedagogical updating, to promote continuous improvement in line with the progress of theories and pedagogical approaches.

- discipline updating, to know the scientific advances in various disciplinary fields.

- academic development, to promote the development of teaching skills.

- educational technology, to enrich the teaching and learning process through the use of Information and Communication Technologies, (SEP, 2013, p. 9).

2.5 Expected Practice

This section provides an overview of the teachers’ expected practice in relation to EFL and ICT use in the EFL classes. The national policies were informed by the analysis of documents presented in the reform. The analysis was then used as a prompt in interviews with the school head teacher and the coordinator of the English department in order to elicit the expected practice at the institutional level.

2.5.1 National Policies

One of the RIEMS objectives is to improve English proficiency in upper secondary students. English has long been an important language in Mexico, due to its geographical proximity and close cultural and economic ties with the United States. Although English has been taught as a foreign language in public upper secondary schools since at least 1954 (SEP, 2010), the results have generally been regarded as poor (Aramayo, 2005; Davies, 2007; Martinez, 2009), and even after six years of English most graduates have minimal communicative abilities in English. This led, as a result, to a growing recognition among policy-makers that the country must
transition from a model where few people are proficient in English to one where more citizens are able to study and learn the language (Ramírez, Sayer and Pamplón, 2014). Moreover, recommendations from international organizations, such as the OECD and UNESCO, and the need to become further integrated as Mexico continues its impulse to compete in global markets are some other reasons to promote EFL learning in schools.

Under this premise, EFL classes should focus on preparing students to achieve a communicative competence that allows them to interact in different contexts. Teachers are required to deliver the contents in a consistent way, starting from the simple to the complex in order to promote the development of listening, speaking, reading and finally writing in fifth semester. Although grammar is still considered as an important element in language learning, teachers are encouraged to support the learning process through games and different dynamics, songs, movies, videos, among others. (SEP, 2013, p. 9).

Teachers are expected to find topics for their classes that are interesting for the students, with activities that relate to their lives. EFL teachers should promote a suitable classroom environment and collaborative student work using various activities and dynamics that encourage active participation in class. They are also required to facilitate the educational process by designing meaningful activities that link students’ previous knowledge with what they learn in class (SEP, 2013, p. 9).

Most importantly, and an aspect that is considered the main challenge for teachers, is the role that they are required to play in this reform. Teachers in Mexico tend to use a traditional teaching approach in their classes. They perceive teaching as a didactic way of disseminating information to students and learning as a passive activity, with students doing minimal task management or holding little responsibility for their own learning (Garret, 2008). Instead, teachers are expected to become facilitators of the learning process, and work under a constructivist approach, in which learning is perceived as an active construction and reconstruction of knowledge and teaching as a process of guiding and facilitating learners in the process of knowledge construction (Garret, 2008). Teachers are expected to master the teaching subject content in order to ensure that they become real mediators that facilitate student learning by developing authentic learning opportunities.
2.5.1.1 National policies for ICT in the EFL classes

Besides the use of textbooks and different teaching materials EFL teachers are asked to use multimedia resources, educational software, and the internet, among others, in order to favour the practice of language in contexts and situations that are attractive for students. Educational platforms, virtual groups, blogs and videos, can also motivate students and encourage them to use ICT themselves as a real means of communication. (SEP, 2009, p. 7).

Although the documents state that schools should have libraries with computers that allow the use of ICT in education, as well as adequately equipped laboratories and workshops, it is also acknowledged that the technological infrastructure is not the same in all the institutions and that there are serious gaps between the different schools. The answer to this problem, they propose, is to share facilities and equipment among schools (SEMS, 2008, p. 94).

In order to support the introduction of ICT in EFL classes, the Ministry of Education launched the program Impúlsate en ingles (Push yourself in English) in 2009. This is a language teaching computer program aimed at increasing students ability to speak English. The program used the e-learning platform Tell me more, with a variety of learning contexts available for students 24 hours a day throughout the year.

Students could take a test to identify their language level, thus allowing them to set their own study pace with the support of a certified tutor, who could be an EFL teacher from the school. The programme promoted the development of oral and written communication, grammar and vocabulary and it did not let students progress to the next level unless they had covered the necessary oral and written skills for each of the different levels, thus encouraging language learning.

The program consisted of videos, interactive dialogues and voice recognition systems, over 1,000 hours of learning and over 5,000 exercises with forty different activities. It was divided in four modules, at the end of each module the students could obtain an official diploma endorsed by the Ministry of Education and when completing the last module the students could be assessed in order to get the
institutional TOEFL. Initially, forty-five classrooms of this type piloted the programme across the country, the Galicia High School being one of them.

2.5.2 Institutional policies

Interviews with both Mr. Cobos, the school’s headteacher and Jaz, the EFL coordinator elicited how the expected practice at the national level has been interpreted within the school’s context.

2.5.2.1 The headteacher’s interpretation

All the teachers in the school have had full institutional support in order to learn how to work under the competencies approach. The institution has provided them with a course in competencies as well as workshops to show them how to encourage the development of competencies in students. However, the institution cannot tell teachers how to deliver their lessons because of two main factors.

First, the school encourages academic freedom, which means that although teachers are required to work under the competencies approach, they can do this with the methodology that best fit their teaching practice, with the resources and materials that they consider appropriate for their lessons, even if this means trying to fit the constructivist approach in their traditional practices. EFL teachers can only be advised to set lessons within the technical area that they are working in so that students feel motivated to learn. Otherwise, teachers would need to be trained in teaching English for specific purposes, which is not viable for the school.

Second, the influence of teacher unions cannot be ignored. They are important participants in the country’s politics and have been known to resist changes and oppose reform processes (Vaillant, 2005). Telling teachers how to deliver their classes could be faced with resistance and culminate in a conflict that could affect the school.

Because of this, although ICT implementation is being considered as one of the central points of the reform, this cannot be enforced in Galicia. Besides, for Mr. Cobos, the headteacher, there are more important issues within the school that require
his attention, mainly the need to cap enrolment to around 40 to 45 students per class and to improve the facilities in school.

Mr. Cobos acknowledges that teachers need to implement more teaching-learning strategies using technology in classes and they have been offered a couple of basic skills training courses. According to Mr Cobos, there is enough technology in school in case teachers decide to use it in class, however, EFL teachers prefer to work with CD players which are also available in the school. There are also plans to introduce both projectors and speakers in third semester classrooms initially, and in second semester classrooms later. Moreover, there are plans to start a project like Impúlsate en Inglés in Galicia, which surprisingly for Mr. Cobos, was cancelled after some time despite receiving good reviews from the EFL teachers, as it was supported by an external body.

2.5.2.2 The EFL coordinator’s interpretation

Jaz, the EFL coordinator, explains that the collegial work is organised according to teaching departments. These are integrated by the teachers of each disciplinary subject who have to define an agenda of work, specify the goals of the department and provide a timely follow-up of the progress and achievement of each objective, as well as to establish a schedule of meetings. The EFL teachers are required to work in this manner in order to prepare their teaching lessons at the beginning of the school year. However, teachers rarely sit together to plan activities for the semester due to the academic freedom encouraged in the Galicia High School. As a result, each teacher ultimately decides how to work, what to teach and the resources that they are going to use in class.

The EFL coordinator’s proposals about books, materials or strategies are shared with the rest of the teachers who are under no obligation to accept them or introduce them into their practice. In this perspective, the requirement to use ICT is seen as optional by most teachers because of the academic freedom in school and due to a lack of available resources to implement it in classes.

Since teachers are very protective of their classrooms, it is difficult to assess to what extent they are successfully implementing the competencies approach or how often
and in what ways they are introducing ICT in their classes. Observations are mainly
done by external supervisors who might visit the school without prior notice to
confirm that planning is consistent with class curricula. However, teachers might
change their practice to fit the supervisors’ standards.

2.6 Summary

This chapter provided a general overview of the objectives of the RIEMS and the
different actors that participate in its implementation. It also highlighted the
predominant role that EFL and the use of ICT have now in the curriculum. The next
chapter will examine the literature related to the study of ICT and teacher cognition.
CHAPTER 3 TEACHER COGNITION AND ICT

3.1 Introduction

The purpose of this chapter is to review the key factors that are involved in integrating ICT in the classroom. It provides an examination of research pertinent to the study and it presents an overview of the literature related to both internal and external factors associated with technology uptake. The interrelationship between these concepts is examined.

The discussion then focuses on the study of teacher cognition as a framework for investigating teachers’ technology adoption. Drawing on Simon Borg’s framework (2006), the chapter will provide a perspective in understanding how teachers’ early experiences as students, teacher education, classroom practices and context are highly interconnected and have an impact on their cognitions and their decisions regarding ICT integration.

Since there is a lack of studies in Mexico, and a major gap in knowledge which complicates any analysis in this area, the review presented here was chosen from different works and research from around the world.

3.2 Factors for ICT integration

ICT has been often labelled as the catalyst that has led to a change in teaching and learning thus inducing educational reforms (Mulkeen, 2003; Pelgrum, 2001). Most of these are top-down initiatives which are usually imposed by policy makers in the belief that having access to new technologies will increase teacher use in classrooms (Cuban, et al., 2001). However, the introduction of ICT in schools has usually involved a series of obstacles that impact on the successful implementation of technology.

Although teachers recognise the importance of integrating technology into their teaching, their efforts might be hindered by both external and internal barriers (Ertmer, 1999, 47). External barriers to technology integration are described as being extrinsic to teachers (Ertmer, 1999) and include availability of resources (Cox et al., 1999; Guha, 2000; Mumtaz, 2000), lack of competence (Baylor and Ritchie, 2002),
lack of effective training (Cartwright and Hammond, 2007; Cox and Marshall, 2007; Mulkeen, 2003; Zhao and Bryant, 2006), lack of support (Voogt et al., 2013), time (Cuban et al., 2001; Fox and Henri, 2005), school culture (Cowie et al., 2011; Elstad, 2008; Zhao and Frank, 2003), school leadership (Hall, 2010; Ng and Nicholas, 2013; Perrotta, 2013; Tearle, 2003; Tondeur et al., 2010), teacher collaboration (Granger et al., 2002; Lam and Lawrence, 2002). In contrast, internal barriers are intrinsic to teachers, are more difficult to overcome (Ertmer, 2005), and might interfere with fundamental change since they consist of teachers' underlying beliefs about teaching and learning. (Ertmer, 1999, p. 51). The barriers consist of lack of confidence (Wikan and Molster, 2011; Zhao et al., 2002), resistance to change (Demetriadis et al., 2002), negative attitudes (Howard, 2013; Mumtaz, 2000) and no perception of benefits. Either type of barrier alone can halt implementation efforts.

Teachers might feel pressured and frustrated trying to deal with several external barriers simultaneously before beginning the integration process, “others, however, might struggle to overcome internal barriers including their own beliefs about teacher-student roles, curricular emphases, and assessment practices” (Ertmer, 1999, p. 51). It might be possible, although unlikely, that some teachers will not face either type of barriers during their efforts to integrate ICT in their classes (Ertmer, 1999, p. 58). Others, despite these barriers, will still succeed in integrating technology into their classrooms. (Ertmer et al., 2006).

The factors that affect technology are usually studied in isolation from each other and from the system in which they interact (Zhao and Frank, 2003). However, second- and first-order barriers are inextricably linked together which makes it very difficult to address them separately. First-order changes adjust current practice in an incremental fashion without changing existing structures or beliefs (Waters, Marzano, & McNulty, 2003, in Ertmer, 2005); second-order changes, however, confront teachers’ fundamental beliefs (Ertmer, 2005). As an example, Hew and Brush (2007) explain that

Trying to change teachers’ attitudes and beliefs (a second-order barrier) toward using technology is likely to be futile in the long run if one does not seriously consider changing the way students are currently assessed through current high-stakes national examinations (a first order barrier) that discourage using technology during the assessment. (p. 241).
Therefore, it is not enough to consider these factors in isolation since every part is interconnected and interdependent (Patton, 2002). This makes ICT integration a dynamic process which involves interacting factors and actors over time (Tondeur, Coopert, and Newhouse, 2010, p. 298). The next section explains these factors and how they impact on each other.

### 3.2.1 Availability of resources

Access to adequate resources is a necessary step in ICT uptake. Without adequate hardware and software, there is little opportunity for teachers to integrate technology into the curriculum (Hew and Brush, 2007). Evidence of the impact of the lack of resources as a major impediment to ICT implementation that can seriously limit what teachers are able to do with ICT has been identified throughout the literature (Mumtaz, 2000, p. 334). For example, Hew and Brush’s analysis of 48 empirical studies in 2007, found resources as the most frequently cited barrier that impacted technology integration. Participants in Chen’s study (2008) also reported lack of access to resources and software as one of the main external factors for low technology use in their classes. Inan et al.’s study (2010) found that computer availability was considered by most of the participants as one of the strongest factors for teachers’ technology implementation. A more recent study by Hu and McGrath (2011) suggested that teachers who had initially held not only positive attitudes towards but great enthusiasm for ICT use in English teaching and the nationwide College English reform saw their enthusiasm waning in the light of inadequate support in terms of insufficient ICT facilities with many teachers complaining that the number of ICT-equipped classrooms which could be accessed was “extremely limited” (p. 48).

However, despite the assumption that computer availability increases teacher’s technology use, computer access is necessary but not sufficient for technology integration (Inan et al., 2010). Early studies suggested that classroom integration would follow once teachers had access to enough equipment (Ertmer, 1999, p. 47). However, over the last decade, the availability of technology has significantly increased in schools and teachers continue to struggle with integrating technology in their practice (Howard, 2013, p. 357).
Although computers have become widely available in school contexts, the use of ICT for learning purposes is still limited, with only half of the teachers in these institutions using ICT in their courses, as identified by Drent and Meelissen (2008) in the Netherlands. Goos’ study (2010) also concluded that having a well-resourced technological environment does not necessarily lead to the embrace of technology and similar conclusions have been reached by Prestridge in Australia (2012), and Ottenbreit-Leftwich et al. (2012) in the United States where the governments have provided sufficient technological infrastructure for ICT to be implemented in education. Investing in ICT, therefore, does not guarantee use, since “even in countries where systemic commitment has been significant and ICT equipment appears to be ubiquitous, its use in classrooms is variable and often underwhelming” (Perrotta, 2013, p. 316).

In contrast, limited technological equipment does not always hinder ICT uptake, and some teachers, despite having limited access to technology, still try to exploit the available resources in a pedagogically effective way compared with others who make no attempt to use them Mama and Hennessy (2013). When faced with the same external obstacles, teachers’ beliefs about the role of technology in teaching and learning are a crucial factor that can contribute to ICT integration.

It is also important to note that availability of resources does not always refer to the presence of equipment in the schools but could be also related to how accessible this is for teachers (Becker, 2000; Jones, 2004) and how available equipment is fully optimized (Pelgrum, 2001, p. 177). Access to technology is more than having the technology available in a school; it involves providing the proper amount and right types of technology in locations where teachers and students can use them (Fabry and Higgs, 1997).

Even in cases where technology is abundant, there is no guarantee that teachers have easy access to resources (Hew and Brush, 2007) as noted by Chambers and Bax (2006) who describe that the location of computer laboratories, as well as the process of booking rooms, were factors that teachers perceived as contributing to the failure of ICT integration in their school. In cases like this, the placement of the equipment might inform how convenient it is to use ICT (Venesky, 2004, p. 13).
Recent times have seen mobile technologies as one of the fastest growing areas of ICT, with hardware advances that allow different devices to be carried around easily (Ng and Nicholas, 2013). The rapid advance and popularity of wireless communication and mobile technologies has given both mobile and ubiquitous learning a greater importance (Hwang and Tsai, 2011). Laptops, for example, have resulted in a more accessible tool for teachers’ both professional and personal use and this ease of access might allow teachers to gain expertise, helping them realize the full range of potential benefits for teaching and learning as shown in Cowie et al.’s study (2011).

Having access to adequate software that fits the pedagogical aspects of the lesson is another aspect of technology integration. Chambers and Bax’s study in two EFL settings in 2006 described that available software was unrelated to lesson content and was not perceived by teachers as particularly valuable for their classes. Albirini’s study in 2006 reached similar conclusions. He claimed that teachers’ perceptions of the compatibility of ICT with their current teaching practices were not positive since teachers were uncertain about how they could fit technology in their curricular goals.

3.2.2 Competence

In his review of obstacles that hinder the implementation of ICT in schools around the world, Pelgrum (2001, p. 173) identified lack of knowledge and skills as a major impediment for technology integration by teachers. This highlights the importance of providing teachers with the skills and knowledge necessary to carry out educational innovations.

It has been shown that even when teachers believe that technology has empowering potential, they do not always know how to make this happen in the classroom (Debski, 2000, p. 31), therefore, teachers need to know about the content they are required to teach as well as the pedagogical methods that can support meaningful student learning and ways in which technology can support these methods (Ertmer and Ottenbreit-Leftwich, 2010, p. 260).

However, although technology is more frequently used in the classroom when teachers show higher levels of competence (Gobbo and Girardi, 2001; Howard, 2013;
Petko, 2012; Prestridge, 2012), research such as that conducted by Ertmer and Ottenbreit-Lefwich (2010) notes that although knowledge is a necessary step for ICT implementation, it is not enough if teachers are not confident using that knowledge in their practice.

In this vein, the study of Wikan and Molster (2011) shows that despite undergoing ICT training, teachers did not feel confident using the technology. The participants did not feel competent and did not know how to use ICT in order to improve and support a lesson. The next section will discuss the relationship between ICT competence, confidence and practice.

3.2.3 Confidence

As discussed above, although knowledge of technology is a necessary step for ICT integration, teachers also need to feel confident using that knowledge in their practice (Ertmer and Ottenbreit-Lefwich, 2010). In this context, self-efficacy is considered as a determining factor in implementing ICT. According to Bandura (1997) self-efficacy is the belief about what a person is capable of doing regardless of whether or not she knows what to do. He maintains that “without knowledge or skill, performance isn't possible; yet without self-efficacy, performance may not be attempted” (Bandura, 1997).

It has been observed that teachers with high levels of self-efficacy use computers more often and experience less computer related anxiety (Sang et al., 2010). For example, participants in Wikan and Molster’s study (2010) were more willing to introduce ICT in their practice after a two-year training programme where they were supported by the researchers in trying ICT in their teaching. As a result, they had more positive feelings towards the use of ICT and they used it more often.

On the other hand, the literature stresses how low confidence levels impact negatively on ICT implementation. For example, Howard (2013) identified that anxiety, fear and dread of technology use in one of the participants were the result of being unfamiliar with the computer and having a low sense of computer efficacy.

In addition, the unreliability of technology adds to the challenges that affect teachers’ confidence. Teachers cannot integrate ICT into curricula without having at their
disposal computers that work (Granger et al., 2002) and a lack of appropriate material resources can inhibit learning and cause frustration and resistance in school communities. Cuban et al (2001) explain that frequent technical problems diminish teachers’ confidence in the technology which can contribute to sustaining current teaching practices (p. 829).

3.2.4 Training

Educational reform efforts are bound to fail if the quality of teachers is not taken into serious consideration (Hargreaves and Fullan, 1998). Especially, bearing in mind that technology has been developed outside the educational system, teachers can be seen as novices in the field of ICT, but they are still required to acquire new information and engage with ICT in learning, regardless of their previous professional expertise. (Simpson et al., 2005, p. 334). However, although training can significantly impact the way teachers view technology, this is a very expensive activity, often neglected in large-scale innovations (Shaunessy, 2005, p. 165) and frequently done by people who are not familiar with teaching (Pelgrum, 2001).

There is evidence in the literature that teachers’ willingness to integrate ICT into their teaching is largely dependent on the professional development they receive (Hu, 2007). That is why teachers need to acquire skills and knowledge in order to develop the necessary attitudes to introduce educational innovations into the curriculum if these are to succeed (Baylor and Ritchie, 2002; Hu and McGrath, 2011).

Researchers agree that in order to successfully implement technology in the classroom, teachers need training that not only focuses on basic ICT literacy skills (Ertmer and Ottenbreit-Lefwich, 2010; Ertmer et al., 2003; Somekh, 2008; Voogt et al, 2013; Windschitl and Sahl 2002) but on new pedagogical knowledge about how to incorporate these skills in their practice (Ertmer et al., 2003) in order to have a vision of what teaching with technology looks like, and a model of the type of learning experiences that they are asked to create (Ertmer, 1999).

Research such as that conducted by Tondeur et al (2010) shows that the most effective teacher training experiences are school subject specific practices, immediately relevant for classroom instruction and connected to school policy (p.
“Off-the-shelf workshops” (Baylor and Ritchie, 2002) will not have as great an impact as when professional development programmes align with teachers’ beliefs and are tailored to teachers’ needs in order to lead to teacher change. (Ertmer and Ottenbreit-Leftwich, 2010; Hew and Brush, 2007). As Cox and Marshall (2007) point out,

Teacher training programmes not only need to prepare and support teachers in the appropriate choices and uses of ICT environments but they also need to challenge teachers’ fundamental beliefs about how to teach their subject and how specific ICT resources can enhance and fundamentally change the way in which their students learn. Training programmes need to include showing teachers new instructional strategies, learning about new forms of knowledge representation and how to rethink the curriculum and the classroom uses of ICT (p. 68).

An example of this is the study carried out by Baylor and Ritchie (2002) which found that effective training for teachers focused on technology skills and experiences within their educational context. This provided them with opportunities to work with the technological resources and was consistent with teachers’ needs and problems they faced in their context. Another example is Kanaya et al.’s study (2005) which also confirms the importance of linking technology-focused professional development to teachers' immediate needs and interests, rather than simply delivering technical training on software independent of the curricular or instructional needs of participants. Other findings suggest that intensity of training, in conjunction with program content, plays a crucial role in supporting teachers in achieving the optimal outcome of changing their practice by making use of multiple new technology-rich lessons (Kanaya et al., 2005, p. 325).

A particular aspect of ICT training relates to who provides it. Scrimshaw (2004, p. 10) identifies an interesting sense of reluctance by teachers to take training courses and workshops because these are sometimes designed by technology enthusiasts, who in most cases do not have a teaching background. In some cases, teachers prefer to share practical experiences and concerns with other colleagues rather than going on courses or talking to experts outside of their contexts (Gobbo and Girardi, 2001). In this context, it has been suggested that informal ICT education, such as ‘just-in-time’ collaborative learning, is most influential and results in a more substantial transference of learned skills to classroom practice because it takes place in the
context of teachers’ immediate needs (Granger et al., 2002). The importance of collaboration in the implementation of ICT is discussed in section 3.2.9.

Likewise, the study of Cowie et al. (2011) describes peer mentoring and collegial support as factors that enhance professional development. Teachers in the study acknowledged the professional development provided by same-subject colleagues as especially valuable because it was “in context” (p. 248). Also, in Cartwright and Hammond’s study (2007) the training was well received because the trainer had a background in primary teaching and the activities were contextualised within curriculum application.

However, it is important to note that even when teachers are provided with technology integration training, they may still lack the motivation to follow up on what a particular professional development program may offer. (Kanaya et al., 2005, p. 326). According to Mumtaz (2000), teachers need evidence that ICT can make their lessons more interesting, easier, more fun for them and their pupils, more enjoyable and more motivating. (p. 338). At the same time, teachers need to engage with the ideas presented and make a connection between those ideas and their own perspectives and goals (Kanaya et al., 2005). Ongoing technical support is a key factor that may contribute to a better ICT integration after initial training (Zhao and Bryant, 2006).

3.2.5 Support

ICT by itself plays a very minor role in transforming teachers and teaching approaches in schools. For teachers to use technology well, multiple types of support are needed including administrative, technological, professional, and peer (Ertmer et al., 2012). However, in the early stages of integration, teachers tend to have a greater need for “deep and reliable” technical backup (Ertmer, 1999) if they are to move toward curricular implementation and meaning making (Granger et al., 2002, p. 487).

Teachers might be afraid of using expensive equipment because it might break down or they may lose data in the middle of a lesson and this anxiety can prevent them from using technology at all (Ertmer, 2005). Sometimes, this fear is the result of actual problems occurring in class, which, if there is no technical support available,
can result in equipment being out of use for a long period of time (Cuban, 1999). Initial traumatic or negative experiences with computers can shape teachers’ subsequent encounters with technology (Ertmer, 2005).

There is evidence in the literature that, unless there is a strong need for it and reliable support, teachers might choose not to use technology (Zhao and Frank, 2003, p. 809). For example, Granger et al. (2002) describe how some of the teachers in their study were reluctant to use ICT for fear of technology malfunctions. Chambers and Bax (2006, p. 476) also found that EFL teachers mentioned the unreliability of the technology as an obstacle for integration, feeling that problems with technology would hold them responsible in front of their students. A more recent study by Li and Walsh (2010) indicates that teachers are more willing to adopt new technology if they gain support at different levels, for example, technical support, support from school leaders, and encouragement from peers.

Besides assistance with malfunctions, Voogt et al., (2011) highlight the need for adequate technical support in using different technologies and keeping up to date with the potential of hardware and software for teaching and learning. Ongoing technical, human, and organizational support can help teachers to keep up with technological developments (p. 7). At the same time, the feeling of receiving enough support during their ICT work could affect teachers’ disposition to become more competent and encourage reflection on their personal theories. (Gobbo and Girardi, 2001).

3.2.6 Time

Students’ constant interaction with a wide range of technology makes them more technologically literate than their teachers, who are expected to be competent in this area (Guha, 2000) and to use technology in ways that increase their effectiveness to meet the needs of the 21st century learners (Ertmer and Ottenbreit-Leftwich, 2010, p. 257). This sense of expectation may be felt as a pressure on teachers who find it difficult and discouraging to stay current with the latest technology (Zhao and Frank, 2003). Lack of time is often cited as a reason for not staying up-to-date.

Some studies relate this to school responsibility. For example, Mumtaz (2000) argues that schools in general allocate little time to teachers to manage and familiarise
themselves with ICT which, together with the pressure of work both inside and outside the classrooms, places huge additional demands on teachers who are already subject to a considerable load of work. This is supported by Cuban et al.’s study (2001) who state that limited and infrequent computer use in classrooms is due to lack of time to find and evaluate software and to training that is seldom offered at convenient times and is irrelevant to teachers’ specific needs.

The concept of “time” when it comes to ICT integration is an interesting one. Teachers perceive ICT as requiring attention over and above their core activity, therefore they often recognise the need to dedicate more of their “own time” to developing expertise, confidence but also planning for teaching. Class preparation, group control and curricular expectations make technology implementation look as extra work. Teachers have multiple goals to fulfil and using ICT might compete with other equally or more important goals for them in the teaching process. They are charged with the responsibilities of maximising students’ development and they have time constraints to prepare students for the syllabus expectations (Volman, 2005). As a result, teachers often perceive ICT as a burden on their time (Lim and Khine, 2006). Ballard (2009) points out that teachers will continue to perceive technology as an additional burden until the planning, teaching, and classroom management practices that are new to many of them are as established and routine as their prior practices were.

However, in order to achieve successful implementation, teachers need time to learn new skills, preview software, explore available resources, create new lessons, among others, (Ertmer, 1999, p 56). Otherwise, teachers will not make fundamental advances in their instruction or experiment with technology (Windschitl and Sahl, 2002) which could lead to trying to fit the new tool into existing social practices (Somekh, 2008, p. 152).

3.2.7 School Culture

Evidence suggests that successful reform is sensitive to context (Fullan, 1994; Meier, 1995) and that this can shape, foster, or impede innovation (Soloway, et al., 2000). Thus, when introducing ICT, a primary failure is not seeing schools as social organisations that have many goals beyond the cognitive advancement of their
students (Venezky, 2004, p.4). Each school in general, and each team of teachers in particular has a set of norms that guide behaviours and instructional practices, with different values and goals promoted and acceptable instructional methods, tools or resources (Ertmer and Ottenbreit-Lefwich, 2010, p. 264). Such contextual factors may facilitate or hinder teacher’s decisions to use technology in class.

Zhao and Frank (2003) have compared the school organisation to an ecosystem in which computers are considered as living species, teachers as members of keystone species and external educational innovations as invasion of exotic species. Different factors, cognitive, social, organizational, psychological and technological, interrelate and affect the way technology is assimilated in the organisation. Thus, both social context and school culture should be addressed before attempting to implement innovations: the first since this will show how “ready” the school and community of people in it are to adopt the planned change (Tearle, 2003, p. 574); the second because it involves the beliefs, values and norms which govern what is of worth to the school and how the members should think, feel and behave (Sergiovanni, 1984).

Research has found that the stronger the ICT culture of a school the more likely it is to implement technology successfully (Underwood and Dillon, 2011). Schools that are successful in integrating ICT in the curriculum are often guided by a shared vision, a plan that describes the philosophy of technology use and that explores how technology will improve teaching and learning (Baylor and Ritchie, 2002, p. 396). A vision of how to use technology to achieve important educational goals is paramount since, as Ertmer (1999) notes, it is worthless addressing first-order barriers without knowing what to do with or without technology (p. 54). This vision will then be a starting point on how to implement technology successfully. As Ertmer (1999, p.54) states,

> Although we are likely to make adjustments in our vision over time, a shared vision offers a vehicle for coherent communication among all stakeholders (teachers, parents, students, administrators, community leaders, business partners). Thus, when new issues, problems, or opportunities arise, our vision keeps us focused on what is central to our technology efforts.

Equally important is to articulate an ICT policy plan which will act as a blueprint of the steps needed to translate the school technology vision into reality (Hew and Brush, 2007, p. 234). Teachers in schools with an explicit ICT policy plan that
emphasizes shared goals tend to use ICT more regularly in their classrooms (Tondeur et al., 2008).

In order to be successful, the ICT policy plan must describe the school’s philosophy of technology use and how this will improve teaching and learning (Baylor and Ritchie, 2002, p. 396), it must be related to particular curriculum content (Lim et al., 2011), as well as enhance student learning (Hew and Brush, 2007). It also needs to be subject to continuous improvement and revision for which it will need collaboration and involvement from teachers (Vanderlinde et al., 2012).

3.2.8 School Leadership

One of the most significant school-level factors that facilitate technology implementation is school leadership, represented primarily by the school’s headteacher. School leadership is crucial in managing ICT integration and providing the impetus, encouragement and conditions to develop a shared ICT policy that aligns both within the national policy framework and with the school, thus shaping and framing teacher access and actions with ICT (Cowie et al., 2011; Tondeur et al., 2008). Especially in the early stages of adopting innovations (Pelgrum, 2001, p. 166) leadership is essential to facilitate teacher change and to support teachers and create a shared vision for technology use (Ertmer and Ottenbreit-Lefwich, 2010, p 275).

Studies like that of Baylor and Ritchie (2002) identify that technology can be more widely and conscientiously incorporated within an institution when the headteacher believes that technology can be integrated into teaching and learning, that is, when he promotes the use of technology, not only in words but also in action, which lends credibility to a technology culture. The researchers affirm that administrators who wish to nurture a technology culture need to figuratively roll up their sleeves and join in rather than sitting by the side (Baylor and Ritchie, 2002, p. 413).

In the same vein, Dexter (2008), states that ICT leadership can be successful when school leadership sets clear learning goals that can be accomplished with the help of technology, puts in place an ICT support system, and creates a learning environment for teachers to develop technology competencies.
Hadjithoma-Garstka (2011) suggests that leadership styles influence the organisational culture in a school, which in turn affects the implementation of technology. Drawing on the work of Goleman (2000), the author describes 6 leadership styles:

- coercive leaders, who demand immediate compliance and do not allow for flexibility. They follow a “top-down” decision-making, do not provide clarity and commitment to a shared general goal.

- authoritative leaders, who provide a clear large vision of the organisation, defining standards related to that vision and motivating people towards that.

- affiliative leaders, who encourage harmony, flexibility, trust and discretion in the delivery of services, motivating staff members by providing positive rewards on their performance.

- democratic leaders, who build consensus through participation. Workers have a say in decision-taking and in taking responsibilities.

- coaching leaders, who identify workers’ personal strengths and weaknesses, focusing on personal development, and providing flexibility and clarity.

- pacesetting leaders, who expect excellence and self-direction, setting high standards for performance. The lack of flexibility and a rewarding system have negative effects on the workers (2000, p. 80).

Hadjithoma-Garstka’s study (2011) described the importance that the role of the headteacher played in the implementation of ICT in 4 schools in Cyprus, which had previously been identified as successful in terms of ICT use. The headteachers in these schools adopted different approaches to implementation which were not defined by top-down guidelines but rather related to their leadership style. Although all of them had a rich technological environment and ICT was embedded in the schools at different levels, it was found that the principal’s affiliative style in the most successful school had supported a school-wide community of ICT implementation.

Cowie et al.'s study (2011) also highlights the importance of school leadership in the use of technology. The possibilities envisioned by the schools leaders in their study
shaped, and subsequently framed, teacher access and actions with ICT. School leaders, particularly the headteacher, were key in guiding the transformation/translation of the laptops scheme policy into school-based policies and practices. Perrotta’s study (2013) in 24 high schools in the UK also found that teachers who perceived their school leadership to be supportive of innovative practice were more inclined to report benefits in using technology in class.

3.2.9 Collaboration

Teacher collaboration is another important factor for ICT integration. Achieving complex objectives in schools requires common goals and cooperation among staff, which facilitate the coordination of resources and strategies of individual teachers, since no teacher can achieve such goals without at least some input from others. Furthermore, cooperation among staff creates opportunities for social and emotional support, exchange of ideas and practical advice (OECD 2009, p. 101).

According to Granger et al. (2002) teachers need each other for team teaching and planning, technical problem assistance and learning (p. 486). Likewise Ertmer (1999) states that it is essential to encourage teachers to share ideas with mentors and peers, and to collaborate with others on projects as they try out their new ideas about teaching and learning with technology (p.54). Teachers who isolate themselves are deprived of the opportunities to learn from and with one another, and to reflect on crucial aspects of teaching (Lam, Yim and Lam, 2002, p. 182).

Teachers should have opportunities to reflect on their own beliefs within a supportive and collaborative environment. Sharing stories of successful technology implementation among colleagues might allow teachers to find ways to introduce technology in their classes to enhance learning based on their pedagogical beliefs, even if they have at hand a limited amount of resources (Ertmer et al., 2006, p. 58).

Collaboration is especially important for teachers who may find a particular tool useful in their classes but may not implement it until they see someone else use it successfully. Teachers who are used to collaborating with each other can ‘borrow’ ideas from colleagues that have been shown to work in their classes (Ottenbreit-Leftwich et al., 2010, p. 1332).
Zhao and Frank (2003) suggest that peer collaboration might make teachers pressure each other or help each other, or both, in using ICT depending on the norms of the social group. This social pressure can subsequently lead them to recognise the value in using technology in class like the authors found out in their study. Teachers who perceived pressure from colleagues were more likely to use computers for their own purposes, and teachers who received help from colleagues were more likely to use computers with their students (Zhao and Frank, 2003, p. 825).

Research has also found that a climate of collegial co-operation can help teachers tackle psychological pressures. Mutual trust and assistance among colleagues could ease the pressures brought by time constraints and a heavy workload (Lam et al., 2002, p. 189). Similarly, Gobbo and Girardi’s study (2001) shows that some teachers prefer to share with other colleagues what they do in their classrooms rather than go on a course for ICT training. They prefer to ask a colleague for advice, rather than an expert outside the reality of the school context.

3.3 Teachers as key to successful implementation

So far this chapter has focused on different factors that impact ICT implementation. As Ertmer (1999) stresses, the problem of slow adoption of digital technology is not solved by removing the barriers that hinder its uptake while enhancing the enablers that promote its use. It is not a simple relationship where if first-order barriers are eliminated integration will follow. It is a matter of teachers’ perceptions of the criticality of these barriers and the weight that teachers assign to them which are related, in part, to teachers' underlying second-order barriers (p. 52). This is why reforms that aim at educational change then “must look beyond first-order barriers to the intrinsic, more complex second-order barriers of teacher beliefs and how they influence ICT implementation in the classroom” (Prestridge, 2012, p. 450).

Research has shown that although most schools in most countries are in the early phase of ICT adoption (Livingstone, 2012), several countries have already seen first-order barriers overcome (Prestridge, 2012). As Prestridge (2012) notes “teachers are gaining access to ICT, professional development is available, and digital curriculum resources are accessible and are continually being developed – the digital classroom is a reality” (p. 449). However, despite meeting the conditions for successful integration
of ICT – infrastructure, skills, training, among others, implementation of technology in education has not reached a critical level (Tondeur et al., 2008).

It has been suggested that educational change is dependent on ‘what teachers do and think’ (Fullan, 2007, p. 129). Teachers are viewed as gatekeepers of their classrooms, characterized by instant and intuitive modes of cognition (Wolff et al., 2015, p 69). They make contextually constrained choices (Cuban, 2001) within a complex and uncertain community, school and classroom environments (Fang, 1996) and their practices reflect their concerns about 6 different things: covering desirable content; student learning; student participation; maintaining lesson momentum; creating a civil classroom community and attending to their own cognitive and emotional needs. These concerns might not always be present in every classroom but they are never abandoned either (Kennedy, 2006).

Teachers are considered as essential elements for change but at the same time they are also viewed as a factor contributing to deadlock (Prawat, 1992) because of what is seen as a conservative profession that is resistant to change and reluctant to move beyond familiar practices (Jamieson-Proctor et al, 2006, Perrotta, 2013). This is why, although integrating ICT in the classroom is influenced by a range of systemic factors that operate at different levels of an education system, it is still the teachers who are expected to appreciate the benefits afforded by ICTs (Perrotta, 2013, p. 316). Therefore, blame for the restricted use of digital technology in schools tends to be attributed to the “perceived shortcomings of teachers who fail to see the ‘obvious’ benefits of ICT even in conditions of high technological provision and support” (Perrotta, 2013, p. 316).

However, research in several subject areas has demonstrated that teachers only tend to adopt new practices if the assumptions inherent in the innovation are consistent with their epistemological beliefs and personal theories (John and Sutherland, 2004, p. 102). In the same vein, Windschitl and Sahl (2002) note that teachers integrate technology according to their beliefs about learners, good teaching in their institutional contexts and the role of technology in their students’ lives (p. 165). Similarly, Zhao and Cziko (2001) suggest that teachers’ decisions to use technology are based on their belief that this can help them achieve or maintain what they have
set as higher-level goals, without disturbing, at the same time, other higher level goals (p. 27). Ertmer (2005) argues that,

> Teachers are likely to think about technology in the same way they think about other teaching methods, tools, or reform initiatives, depending on if or how they classify technology into one of these categories. Whereas some teachers may think of technology as just another tool they can use to facilitate student learning, others may think of it as one more thing to do (i.e., an innovation). These early perceptions and classifications, then, result in vastly different beliefs regarding if, when, and how to use the tool (p. 3).

Research has shifted from exploring factors that might impact implementation, to a socio-cultural turn that is “better suited to explaining the complexities of teachers’ mental lives and the various dimensions of teachers’ professional worlds” (Johnson, 2006, p. 236). According to Borg (2015) interest in teacher cognition and its relationship to teachers’ classrooms practices is the recognition that teacher cognition is central to the process of understanding teaching. As Kagan (1992) observes,

> The more one reads studies of teacher belief, the more strongly one suspects that this piebald form of personal knowledge lies at the very heart of teaching. Teacher belief appears to arise out of the exigencies inherent in classroom teaching, it may be the clearest measure of a teacher's professional growth, and it appears to be instrumental in determining the quality of interaction one finds among the teachers in a given school. As we learn more about the forms and functions of teacher belief, we are likely to come a great deal closer to understanding how good teachers are made (p. 85).

### 3.4 Teacher Cognition Research

Teacher cognition research has aimed to understand the unobservable dimension of teaching –teachers’ mental lives (Borg, 2006). Borg describes how the scope of teacher cognition has changed over thirty years. At first, it focused on the search for effective teaching behaviours. In the 1970s, researchers became more aware of how teachers’ mental lives played a role in their instructional choices and as a result research rapidly grew and focused most notably on beliefs and knowledge, which has remained a dominant concept in teacher cognition research. Then, both pre-service and in-service teacher education received an increased interest in the area. Eventually, interest in the field of teacher cognition impacted second and foreign language education research. This has provided insight into the challenges faced by L2 teachers. Most research in this area, however, has focused on grammar and literacy
areas, which leaves a gap in the teaching of vocabulary, listening and speaking and, especially, in the ICT field.

3.4.1 Teacher Cognition

Beliefs have long been studied as an important aspect of teacher knowledge and teacher decision making in the classroom (Fairbanks et al., 2010, p. 164). The study of beliefs has been categorised as critical in education (Kagan, 1992). However, despite being categorised as a valuable construct for teacher education, beliefs have been acknowledged as difficult to define (Fairbanks et al., 2010, p. 164) with researchers finding it challenging to separate beliefs, knowledge and attitudes.

Calderhead (1996) explains that while beliefs are “suppositions, commitments and ideologies”, knowledge refers to “factual propositions and understandings” (p. 715). Teachers' attitudes about education—about schooling, teaching, learning, and students have generally been referred to as teachers' beliefs (Pajares, 1992, 316). Kagan (1992) states that for each aspect of classroom teaching, knowledge “consists of a cluster of alternative explanations and models” (p. 74). In order for teachers to use this knowledge, they must choose among their personal judgement, which often depends on contextual factors, as well as their prior experiences and beliefs (Kagan, 1992).

Beliefs are a person’s convictions, philosophy, tenets or opinions about teaching and learning (Haney et al., 2002). They present different features: Nespor (1987) states that beliefs form early, they are based on personal experiences and carry deep affective and evaluative loadings that are beyond the power of the teacher to influence. A belief change, however, can be the result of a “conversion or gestalt shift” (p. 321). Beliefs also inform the interpretation, planning and decision-making processes regarding tasks (Nespor, 1987; Nisbett and Ross, 1980, cited in Pajares, 1992) and they are thought to act as filters during these processes (Johnson, 1994). Kagan (1992) states that most of teachers’ professional knowledge can be regarded “as belief that has been affirmed as true on the basis of objective proof or consensus of opinion” (p. 73).
The literature has stressed the importance of identifying teachers and their beliefs as the main drive behind ICT implementation. For example, Teo (2008, p. 414) suggests that the success of any initiatives to implement technology in classes depends on the support and attitudes of teachers involved. Zhao and Cziko (2001, p. 27) refer to teachers’ beliefs as conditions that are necessary for technology uptake, particularly teachers’ beliefs about the effectiveness of technology; teachers’ beliefs that technology will not disturb other higher-level goals; and teachers’ beliefs about their ability and resources to use technology. Ertmer (2005) also states that in order to achieve changes in classroom teaching practices we need to examine teachers themselves and the beliefs they hold about teaching, learning and technology.

Zhao and Frank (2003) explain that when teachers face a new way of doing things, they make a value judgement based on their knowledge, beliefs and attitudes which are deeply grounded in their own and the school culture in which they teach, as well as the community of practice associated with their subject, that is, the group of people who share a craft and or a profession (Wenger, 1998). Due to the interrelation between these constructs, teacher cognition emerges as an inclusive term to characterise the multiple labels which aim to describe the psychological context of teaching (Borg, 2003).

Borg (2003) uses the term teacher cognition to refer “to the unobservable cognitive dimension of thinking –what teachers know, believe and think” and describes teachers as “thinking decision-makers who make instructional choices by drawing on complex, practically oriented, personalised and context-sensitive networks of knowledge, thoughts and beliefs” (p. 81). The framework he provides shows that a teacher’s prior language learning experience shapes the beliefs about teaching at the start of teacher education. These early experiences influence teachers’ professional lives and might be later affected by their professional education, ongoing experiences in classrooms and contextual factors (Borg, 2003). The following section will address each of these elements.
3.4.2 Schooling

Several studies suggest that teachers’ cognitions about teaching and learning are informed by their own experiences as learners (Borg, 2003; Calderhead and Robson, 1991; He and Levin, 2008; Johnson, 1994; Lim and Chai, 2007; Nespor, 1987). Teachers’ pedagogical beliefs are established during their years as students where they develop images of effective teaching and expected student behaviour (Lim and Chai, 2007). Their personal stories as learners, both positive and negative, leave images of teachers, curricular materials, activities and organization (Johnson, 1994) that inform teachers’ cognitions about teaching and learning which consequently will influence their practices (Borg, 2003).

Lortie (1975) coined the term apprenticeship of observation to describe the phenomenon that leads the majority of teachers to teach very similarly to their own
teachers, the “vivid memories of 10,000 hours in classrooms that help new teachers determine what they want to be and do in teaching” (p. 160). In the same vein Nespor (1987) points out that teachers might have been influenced by a particular teacher during their time as students producing an episodic memory which will later act as a template for their own practices (p. 320). Similarly, Calderhead and Robson (1991) state that students develop an image of good teaching from one or more teachers they know, linking positive images to particular attributes of their own and to the kind of teacher they would like to become (p.4).

It is suggested that apprenticeship of observation poses a problem for successful ICT integration, since most of the teachers that practice today were not educated in classrooms with technology, and those who were probably did not see technology used in meaningful ways to engage learners (Shaunessy, 2005). Consequently, teachers are faced with the problem of creating a school environment that is essentially different from the one they experienced. (Sheingold, 1991, p. 23, cited in Ertmer, 1999, p. 52).

Moreover, since the literature recognises constructivist beliefs as a strong predictor of technology use (Ertmer, 2005; Gobbo and Girardi, 2001; Tondeur et al., 2008), teachers who are taught in traditional classrooms usually hold traditional pedagogical beliefs and carry out practices that support those beliefs (Becker, 2000; Hermans et al., 2008, Holt-Reynolds, 1992). Teachers with more traditional beliefs will implement more traditional or “low level” technology uses and they either may not see the affordances of computers beyond those that are already afforded by existing tools in the classrooms or may take up only the affordances that are consistent with their traditional beliefs (Lim and Chai, 2007, p. 4). On the other hand, teachers with more constructivist beliefs will implement more student-centred technology uses (Judson, 2006; Roehrig et al., 2007), that is, teachers will focus on creating a learning environment where knowledge is co-constructed by the teacher and students rather than transmitted directly by the teacher (Garrett, 2008).

Interestingly, holding constructivist beliefs does not guarantee that teachers will take up the affordances of ICT. Teachers that hold constructivist beliefs might fail to perceive the affordance of technology either because they are not competent, due to the objectives of the lesson or to constraints in their socio-cultural contexts,
(Sandholtz and Reilly, 2004, cited in Lim and Chai, 2007, p. 5). As Lim and Chai (2007) observe “the perception of an affordance by teachers may not necessarily be taken up; but for an affordance to be taken up, it has to be first perceived by teachers” (p. 3).

For example, Chen’s study in 2008 describes how participants’ instruction remained teacher-centred and lecture-based despite holding constructivist beliefs. In teacher-centered classrooms, transmission approach to instruction control is of primary importance and “authority is transmitted hierarchically”, meaning the teacher exerts control over the students. Compliance is valued over initiative and passive learners over active learners (Dollard & Christensen, 1996, p. 3, in Garret, 2008). As a consequence, their technology use supported this instruction. Participants in the study considered constructivist concepts ideal rather than practical, claiming that their students were used to traditional teaching and that most applications that they had seen were traditional approaches with new tools.

### 3.4.3 Teacher education

Several studies highlight the strength and durability of pre-service teachers’ cognitions about language learning and teaching developed during their years as students (Ballard, 2009; Borg, 2006; Busch 2010; Calderhead and Robson, 1991; Ertmer and Ottenbreit-Leftwich, 2010; Johnson, 1994; Kagan, 1992; Woods, 1996). As explained in the previous section, research suggests that prospective teachers acquire an intuitive and imitative model of teaching through hours of observing and evaluating professionals in action which will ultimately influence their cognitions (Lortie, 1975). “By the time pre-service teachers start their training courses, they have already formed personal beliefs about teaching, images of good teachers, images of self as teachers, and memories of themselves as pupils in classrooms” (Kagan, 1992, p. 142). Such beliefs tend to be stable and resistant to change (Pajares, 1992, p. 440).

Due to the influence of this period of observation, teacher education courses are believed to have a weak effect on prospective teachers. Teacher educators are confronted with what Belland (2009), drawing on the work of Bruner (1996), describes as folk pedagogies about the nature of knowledge and how people learn, which affect both how pre-service teachers will receive messages about pedagogy and
how they will ultimately teach (p.356). This is why, once entered in the profession, teachers apply methods and techniques that they experienced as students instead of what they have been trained to do (Borg, 2006; Busch 2010; Johnson 1994).

Examples in the literature include the study of Calderhead and Robson (1991) which describes that images of teaching from their schooling years influenced how preservice teachers interpreted teacher education courses and how they will ultimately teach. They argue that “the different conceptions of teaching and of professional development held by students can influence what they find relevant and useful in the course, and how they analyse their own and others' practice” (Calderhead and Robson, 1991, p. 7).

Likewise, Johnson’s research (1994) provides a clear example of the influence of apprenticeship of observation in teachers’ cognitions. The study describes the impact that formal language learning experiences had on pre-service teachers who felt powerless to change the practices learnt at school despite recognising the inadequacy of these images.

The most striking pattern that emerged from these data is the apparent power that images from prior experiences within formal language classrooms had on these teachers’ images of themselves as teachers, teaching, and their perceptions of their own instructional practices. This occurred in spite of the fact that these preservice teachers were cognizant of the inadequacy of these images, and even held projected images of themselves as teachers that directly conflicted with those images (Johnson, 1994, p. 449).

A review by Borg (2003) also identified that teachers’ initial ideas about second language teaching were largely based on their own experiences as language learners. In the same vein, Belland’s study (2009) describes a participant who used a teacher-centred approach in her classes despite professing constructivism, which she attributed to her experiences as a student in teacher-directed classrooms.

In the case of ICT, Ertmer (1999) maintains that because many preservice and in service teachers have had little, if any, experience with integrated technology classrooms, they typically have few images or models on which to build their own visions of an integrated classroom. This view is supported in Windschitl’s research (2002) which explains that since most teachers attended teacher-directed classrooms
where technology was not integrated, they enter teacher education programs believing that technology is not needed to help students learn.

However, Johnson (1994) notes that although teachers’ beliefs might be based on images from their formal language learning experiences, and most probably they will represent their dominant model of action during their practices, such beliefs can shift if preservice teachers are provided with alternative images of teaching (p. 450-451). According to Ertmer and Ottenbreit-Leftwich (2010) teacher education programs can influence teacher technology change by facilitating the adoption of a new definition of good teaching, one that incorporates the use of technology to improve teaching and learning practices.

Teo (2008) suggests that in order for teachers to integrate technology in their jobs, pre-service teachers should be provided with tools and experiences during their training. Similarly, Belland (2009) states that research has focused on post-teacher education barriers to technology integration when preservice teachers should be encouraged to get the skills to be able to incorporate technology in their classrooms. Teacher educators must develop in students their disposition to use technology and this integration should be long enough to produce any change in students’ habitus and included in other methods courses not only at the beginning of their teacher education program (Belland, 2009). Since teachers with constructivist beliefs are more likely to use technology in classrooms (Sang et al., 2010), pre-service students should also be exposed to classes run in a constructivist manner and incorporate technology-based field experience in which students could observe how technology is integrated (Belland, 2009).

Ottenbreit-Leftwich et al. (2012) maintain that one of the reasons for teachers not fully exploiting technology relates to the lack of specific skills acquired in pre-service teacher education programmes, or professional education, that are meaningful to their teaching practices. After examining topics included in teacher preparation programmes in the US, the researchers concluded that it is important to provide teachers with experiences that are as similar as possible to future classroom practices and to help them understand the different affordances that technology offers in order to select the most appropriate tool for their specific contexts. Similarly, the study of Polly et al. (2010) in the US suggests creating mentoring approaches and workshops
which could improve technological knowledge, resulting in more frequent use in methods courses and more pre-service teachers using technology during coursework.

Hall (2010) states that the Achilles heel of many promising technologies is ‘a lack of understanding about what is involved in helping teachers to fully implement and integrate their uses’ (p. 232). Teacher training programmes, then, need to support teachers in identifying the appropriate ICT environments and challenge teacher’s fundamental beliefs about how to teach their subject and how specific ICT resources can enhance student learning (Cox and Marshall, 2007).

3.4.4 Classroom practices

Teaching is a process that involves two major domains: (1) teachers' thought processes (i.e. teacher cognition) and (2) teachers' actions and their observable effects (Clark and Peterson, 1986, cited in Fang, 1996, p. 48). “As teachers’ experience in classrooms grows, their professional knowledge grows richer and more coherent, forming a highly personalized pedagogy - a belief system that constrains the teacher's perception, judgment, and behaviour” (Fang, 1996, p. 74).

Angers and Machtmes (2005) explain that how teachers view their role in the classroom influences how they teach with technology. Teachers’ beliefs about classroom practice appear to shape their goals for technology use (p. 774). They form their own beliefs about the role of ICT as a teaching tool and its value for student learning outcomes. “These beliefs intersect with teachers established pedagogical beliefs. This intersection can be a ‘collision’ or ‘collusion’, both having implications on how ICT is used in the classroom, as an add-on to established curriculum practices or as a tool that effects change in their practice” (Prestridge, 2012, p. 449).

Although student-centred practices have been advocated as an indicator of exemplary technology uses (Bigatel, 2004) using ICT does not embody a specific instructional paradigm but a wide range of approaches to teaching and learning. Consequently, teachers use technology in ways that are consistent with their cognitions.

Research has shown that teachers can select and use educational software, as they select and use other instructional materials, to match their personal instructional philosophies, whether traditional or reform-oriented. Hence, when exposed to a
variety of technological applications, activities and approaches, they decide to use those that will help them accommodate their own perspectives on teaching and learning, as suggested in Niederhauser and Stoddart’s study (2001) in the US.

Several studies provide evidence on the influence of teachers’ cognitions on ICT uptake. For example, Gobbo and Girardi’s study (2001) in Italy suggests that personal theories of teaching played an important role in how teachers implemented ICT. Participants in the study did not replace traditional teaching in every aspect despite finding positive aspects about introducing computers in their classrooms, and in fact, they attempted to assimilate the new tool into existing teaching models and routines.

Similar conclusions were reached by Windschitl and Sahl’s study (2002). The ways teacher integrated computers were mediated by their interrelated belief systems about learners, what constituted good teaching in the context of institutional culture and the role of technology in students’ lives. The participants of the study assessed the potential of technology in their classroom instruction according to how congruent it was with their beliefs about students and their needs, and what counted as legitimate learning activities in specific subject matter areas, as well as whether the technology allowed for teacher-centred or student-centred approaches. The technology, in this case, was not an influence on their pedagogy.

Zhao and Frank’s research (2003) in the US also found that the stronger the belief that computers were compatible with their teaching style, the more often teachers used them in class. Similarly, Jamieson-Proctor et al. (2006) noted that teachers preferred to enhance the curriculum rather than transform it with ICT, which, from their point of view, highlighted a reluctance from a conservative profession to move beyond familiar practices. They concluded that teachers are more likely to implement ICT when it is linked to their existing pedagogical philosophy, hence the rapid acceptance of whiteboards.

More recently, Mama and Hennessy’s study (2013) identified a relationship of specific types of beliefs with specific types of practice. The authors describe that ICT use was incremental for some of the participant teachers since it did not affect their pedagogy to a great extent. The technology enhanced their traditional, existing practices and ICT was fit into established pedagogies. For some other teachers the use
was incidental and although they acknowledged that technology could promote autonomous learning, that is, a student’s ability to set appropriate learning goals and take charge of his or her own learning (Wang, 2014), their teaching remained traditional. ICT, in this case, was an occasional tool used for the sake of using it or to fill time gaps.

Overall, although some teachers have changed their teaching practice radically, the majority still think of ICT as an add-on or as a tool to enhance their existing practices (Cox and Marshall, 2007, p. 65-66). Using technology in classrooms does not automatically make teachers rethink the purpose of the lesson, the nature of tasks set and students’ assessment. (Lim and Chai, 2007, p. 2). Ottenbreit-Leftwich et al. (2010) suggest that “rather than expecting technology to change the nature of teaching and learning, it may be more beneficial to help teachers use technology to enhance the curriculum in ways they see fit” (p.1323).

However, as noted by Nespor (1987), beliefs might change due to a conversion process or Gestalt shift. Haney et al. (2002) define the relationship belief and action as bidirectional where beliefs lead to actions and these actions lead to new beliefs. Personal experiences, vicarious experiences, and social-cultural influences are strategies that seem to promote change in teacher beliefs about teaching and learning (Ertmer, 2005). In this context, for teachers to change their beliefs, they must be dissatisfied with their existing beliefs and this can only happen if they are challenged or cannot be assimilated into existing ideas (Ertmer, 2005, p.32).

An example of this is Windschitl and Sahl’s study (2002) who describe that the introduction of laptops in a school was a catalyst that enabled one of the participants to change her practice towards a constructivist pedagogy. The researchers attributed this to a dissatisfaction with an earlier approach to teaching. Levin and Wadmany’s study (2005) identified that a technology-rich learning environment can lead to a change in teachers’ educational beliefs, knowledge and classroom practice. Their research specifically attributed this change to non-structured tasks, rich sets of technology-based information resources and the exposure of teachers to new visions of teaching with technology.
It is important to remember that teachers’ instructional decisions are sometimes modified to suit different objectives and lesson plan modifications are the result of teacher’s pedagogical choices and their perceptions of the instructional context (Borg, 2003). This raises questions about the extent to which context impact on teachers’ cognitions which will be explored in the next section.

### 3.4.5 Context

The study of Cuban et al. (2001) draws our attention to the fact that few ICT reforms have taken into consideration the workplaces within which teachers work and that affect classroom uses of technology. Considering teaching contexts when introducing innovations is paramount since they have a great influence on the way teachers perform their instruction. These contexts and the way teachers relate to them constitute the ways in which they make sense of their work as teachers (Tsui, 2004, p. 245). Hence, as Mama and Hennessy state (2013), both educators and policy makers need to understand the ICT benefits “within particular modes of teaching, for particular phases of education and student groups, within particular social, cultural and political contexts, and for particular educational contexts” (p. 380).

Research has found that teacher cognitions and practices are mutually informing and contextual factors determine the extent to which teachers can implement instruction that aligns with their cognitions (Borg, 2003, p. 81). Contextual factors impact on teachers’ practice to an extent that sometimes they might cause inconsistency between their technology-related pedagogical beliefs and implemented technology-related practices (Ertmer, 2005).

Teachers find themselves working in contexts which define good learning in terms of student performance, in classrooms that are regulated by global educational policies and curricular expectations (Johnson, 2006). Large classes, unmotivated students, examination pressure, a set syllabus, peer pressure, students’ English proficiency and heavy workloads are some factors that might influence teachers’ decision to abandon their principles (Borg, 2006). These complexities of classroom life can constrain teachers’ ability to attend to their beliefs thus providing instruction which does not align with what is considered good practice (Fang, 1996). This is why even when pre-service teachers leave their education with student-centred beliefs, they tend to adopt
traditional practices when faced with the realities of the classroom (Roehrig et al., 2007).

The influence of contextual factors on teachers’ cognition can be seen in Chen’s research (2008). Inconsistencies between teachers’ practices and their pedagogical beliefs were attributed to the influence of external factors, a limited or incorrect understanding of constructivist instruction, and other beliefs conflicting with the teachers’ expressed pedagogical beliefs. The emphasis placed on competition over collaboration, the school organization and the examination system discouraged teachers from using technology and made them compromise their beliefs in order to meet the expectations of students, parents and administrators.

Lim and Chai’s study (2007) also shows that despite being competent in using ICT and being aware of the affordances of computers to support constructivist-oriented lessons, teachers’ lessons had traditional elements in them. The participants attributed this to contextual factors such as an examination-oriented society, block time tabling and objective-driven curriculum of the school, a fixed scheme of work by the department and classroom management issues.

Research also highlights the impact of schools’ subject cultures on teachers’ cognition. A subject culture is a “general set of institutionalized practices and expectations which have grown up around a particular school subject, and shapes the definition of that subject as a distinct area of study” (Goodson and Mangan, 1995, p. 614). Within these areas, teachers share assumptions of valuable knowledge, effective learning, conceptions about students and suitable tests and examinations to check the knowledge of the subject (Erixon, 2010).

Subject cultures have an impact on technology integration because they are built in deep traditions and have a conception of effective teaching, student achievement and quality learning (Hew and Brush, 2007; John and Sutherland, 2005). The study of Cowie et al. (2011) shows that teachers from different subjects might use their laptops in qualitatively different ways in the classroom for instructional purposes. The researchers considered that such differences were associated with pedagogy and practices rather than different levels of classroom access to a certain technology or differences in personal knowledge and proficiency. A more recent study carried out
by Erixon (2010) in Swedish secondary schools with teachers of different subjects describes that variations in ICT uptake might be explained by what is considered “sacred”, the specific substance of the topic, and “profane”, the contextual demands placed on that subject.

Research shows that teachers are unlikely to incorporate technology into their practices when learning experiences with technology have no specific connections to grade or content learning goals (Ertmer and Otteinbreit-Leftwich, 2010, p. 263). When technology is introduced, it encounters techniques and tools that are already familiar and predictable and that embody certain values for teachers (Olson, 2000). Teachers then will question the usefulness of a certain technology tool if this is not commonly used in their teaching area and determine how well a particular tool will support instruction (Slovic, 2000). For example, Hennessy et al.’s study (2007) of teachers’ perceptions of ICT and its impact upon subject pedagogies in 6 secondary schools in Cambridge showed that teachers were concerned about the use of ICT being appropriate and “fitting” for the learning goals of the subject itself. They realised that the aims and values of these subject cultures remained in line with the core subject curricula (p. 183).

Moreover, it has been suggested that teachers cognitions of the value of ICT for teaching and learning will be influenced by the bias of faculty and colleagues resulting on “certain technologies outright devalued in a subject area and determined by individual teachers to be not worth the risk of integration in their practice, or a technology may be over-valued in practice and inappropriately integrated in teaching” (Howard, 2013, p. 361-362). In addition, Selwyn (1999) suggests that the use of technology might seem more congruent with some subject histories thus creating a sense of ownership for some subjects and unfamiliarity for others which is in line with Olson’s argument (2000) that ICT sometimes does not fit into the existing teaching culture and may even undermine the teacher’s sense of efficacy.

In general, understanding the contexts in which teachers perform their instruction is paramount to the study of ICT. Since personal theorizing and vision do not occur in a vacuum and the physical spaces, classrooms, schools, communities, and systems where teaching takes place influence teachers’ cognition (Fairbanks et al., 2010). As Borg (2003) points out that “the study of cognition and practice without an awareness
of the contexts in which these occur will inevitably provide partial, if not flawed, characterisations of teachers and teaching” (p. 106).

3.5 Summary

The literature review presented the process that informed the development of this thesis. This started by exploring several influencing factors and barriers reported in previous studies that can have an impact on ICT implementation. The literature suggests that there are complex interrelations between both external and internal barriers to the extent that the importance that teachers attach to the former might affect the latter. Research also shows that teachers are more likely to integrate technology in their practice if they can identify technology as supporting their pedagogical beliefs (Zhao and Frank, 2003). They must be convinced of the usefulness of using particular technologies and how they fit within the context in which they work. Therefore, understanding how teachers perceive technology in their classrooms and social environment is crucial for successful technology integration.

Exploring different studies about technology integration led me to teacher cognition research and this helped me to situate the focus of the study on the teachers and their thinking processes. As explained before, teachers in Mexico are expected to use technology in their teaching, they have to learn to operate the machine and understand the affordances of the digital milieu, but also figure out how to use these newly discovered tools and resources with their students, in the everyday reality of their schools and the concrete work conditions of their institutional sites. These recurring reforms in the educational system in Mexico are top down, policy driven, so I wanted to focus on the teachers and how they make sense of such reforms. Therefore the research questions are about the nature of cognition in relation to that bigger picture.

Identifying influences on teacher cognition has been an important avenue of enquiry in the field. Thus, an investigation into teacher cognition about teaching with technology in the context of educational reform can provide a useful perspective on teachers’ understanding of technology-mediated language teaching situated in particular sociocultural settings.
The following chapter discusses the methodology used in this study. The research design, as well as the participants, the methods of data collection, the data analysis and ethical considerations are also described.
CHAPTER 4 METHODOLOGY

4.1 Introduction

As was pointed out in the introduction to this thesis, this study aims to explore how EFL teachers engage with ICT within the context of Mexican reform initiatives. Specifically, it conducts research into teacher cognition in order to understand what teachers think, know, believe and do related to ICT integration in their practice within a context where there is constant development.

This section first provides a description of the methodological approach that guided this study. A qualitative research design was chosen for the study since, as explained by Merriam (2002), this design is most appropriate if the researcher wants to understand a phenomenon, uncover the meaning a situation has for those involved, or delineate a process (how things happen). The chapter then presents the setting of the research and the rationale behind the selection of cases, as well as the data collection procedure, and the instruments used for data collection. Finally, there is a discussion about how trustworthiness was achieved as well as ethical considerations.

The research questions for this study were:

- What is the nature of Mexican secondary teachers’ cognitions about the teaching of EFL?
- What is the nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context?
- What is the relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context?

4.2 Qualitative Research Design

The study was designed to use a qualitative research approach since it allows access to what happens in the world and examines what people actually do in real life (Silverman, 2013). It focuses on meaning in context and as such, it requires a data collection instrument that is sensitive to underlying meaning when gathering and interpreting data, namely the researcher (Merriam, 2002).
Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. (Denzin and Lincoln, 2005, p. 3)

Considering these characteristics, the study was framed within the interpretivist paradigm, in order to understand the complex world of lived experience from the point of view of those who live it (Schwandt, 1994, cited in Denzin and Lincoln, 2005). In order to investigate my research questions I chose a case study design. The following section presents the features of this approach and explains why I considered it suitable for my study.

4.3 Case Study

The use of qualitative case studies is a well-established approach that allows for in-depth, contextualised understanding of cognition which have strong local relevance (Johnson, 1994; Borg, 2012). However, despite the widespread use of case study methods in qualitative research, no consensus has emerged as to the proper definition. For example, Stake (1995) defines it as “the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances” (p. xi). For Merriam (2002) the case study is an “intensive description and analysis of a phenomenon or social unit such as an individual, group, institution or community” (p. 8). Yin (2003), on the other hand, defines the case study as “a research strategy, an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13).

Since, according to Yin (2003), phenomenon and context are not always distinguishable in real-life situations, it includes a set of technical characteristics that form part of the case study definition. The case study enquiry then,
Copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result relies on multiple sources of evidence with data needing to converge in a triangulation fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis. (p. 13-14).

Finally, Cresswell (2007) defines case study research as a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g. observations, interviews, audiovisual material, and documents and reports) and reports a case description and case-based themes (p. 73).

According to Yin (2003) a case study should be used to answer “how” and “why” questions, when you cannot manipulate the behaviour of those involved in the study, there is a need to cover contextual conditions because they are relevant to the phenomenon under study and when the boundaries are not clear between the phenomenon and the context.

The case study approach was chosen to enable an exploration of a phenomenon within its context, specifically the implementation of ICT in the context of educational reform in Mexico. This investigation used a collective case study to explore the research questions, since this is often considered more compelling and the overall study is therefore regarded as being more robust (Herriot and Firestone, 1983). In collective case studies, the researcher chooses several instrumental case studies to explore differences within and between cases (Stake, 1995, p. 3). This allowed me to explore each teacher in particular and subsequently relate them all as a group. An overview of the data collected can be found in Appendix 1.

4.4 Accessing the field

Doing research in a school where I had previously worked put me in a unique position to study the context in depth. Being an insider researcher allowed me to get access to people and information which otherwise would have proven difficult due to the reluctance of both teachers and teacher unions to accept the presence of outsider observers in the classrooms. Thus, doing research in this manner can present great advantages. For example, it leads to a greater understanding of the culture under
study. Also, the flow of social interaction is not altered unnaturally. Familiarity can promote both the telling and the judging of the truth (Bonner and Tolhurst, 2002). Besides, doing research as an insider involves knowing the politics of the institution, how “it really works” and how to best approach people, something that for an outsider might take a long time to acquire (Smyth & Holian, 2008).

The participants were positive about my presence in the school. They made comments about the importance of making a contribution and especially to be able to share their stories, to be heard and perhaps initiate a change. Knowing my participants beforehand allowed me to arrange the time for observations and interviews easily. Although they said I was welcome to come in unannounced to their classes, I proposed making a timetable to formally allocate the time and place for collecting data, they agreed but remarked their willingness to participate any time, which I appreciated. This familiarity also allowed me to ask questions and clarify missing information, whenever it was possible, that is, running with them sometimes in between classes, seeing them in the corridors and asking if they had time for a quick chat, going for a coffee after classes to continue an interview. All these moments gave me the opportunity to enrich the data.

When I asked about videotaping the observations some of them were hesitant because they had concerns about feeling intimidated by the camera, thinking it could affect the flow of the class. I had a trial observation with all of them and knowing their personalities allowed me to understand that in fact they were feeling self-conscious, which they corroborated at the end of the observation. Besides, the students also seemed affected by the camera. The teacher would say something like “come on, what’s wrong with u today?” Or “why are you so quiet? It doesn’t look like you”. They would sometimes wave at the camera or try to get my attention. Knowing the source of the problem, I changed the camera for a smaller model. After a couple of observations everybody stopped noticing my presence and I could see their usual selves. This allowed me to collect more valid data.

However, there are also disadvantages to undertaking research as an insider. According to Hewitt-Taylor (2002) familiarity can lead to a loss of objectivity, that is, unconsciously making wrong assumptions about the research process based on the researcher’s prior knowledge can be considered a bias. Also, role duality and
assuming the participants’ views and issues can affect the research trustworthiness (Sikes and Potts, 2008). A tendency from the participants to assume that the researcher knows what they know and closeness to the situation can hinder the researcher from seeing all dimensions of the bigger picture while collecting the data (Smyth and Holian, 2008).

Firstly, I did not consider role duality a problem. It had already been some years since I last worked in the school and I had also worked in another institution before enrolling as a student in this university. Before doing fieldwork I was already an accepted and trusted member of the faculty. Thus, despite the familiarity with all the people involved, I made it clear from the beginning in a meeting held with all the participants involved in the study, that each one of their accounts and observations would remain confidential to others, including the headteacher. Although there were times at the beginning of the study when they would make comments like “is X doing the same?” “What does X think?” “How is X working these topic?” I did not share any information and in the end they stopped asking these questions. This allowed me to gain their trust and made them feel that, if I did not share information about X, I was not sharing information about them either, which eventually ensured obtaining more valuable data.

The cyclical process of collecting data helped me to deal with the participants assuming that I already knew some facts. Having to constantly analyse the information they provided allowed me to realise that some aspects needed more clarification. My researcher journal also gave me the opportunity to reflect on different questions that required extra information. Respondent validation was also used to minimise bias. I asked the participants to review the information provided and to let me know if there was anything they felt that did not correspond to their answers. I tried to avoid interfering with the participant’s work, especially regarding ICT use in class in an attempt not to influence their answers. I tried to set aside any pre-conceived notions I may have had of the participants or the setting. I tried to be as objective as possible during all stages of the study.
4.5 Selection of the Cases

The participants of the study were 3 teachers from the Galicia High School in Mexico. The process of selecting the participants started once I had the ethical approval from the university. I then contacted the head teacher via email and explained the objectives of the research and my intention to carry out the study in the school. He found the research interesting and considered that it would be beneficial for the teachers in the school to participate and have some feedback on their practices. However, although he granted permission to contact the teachers, he also explained that participation might be scarce if any, since the union did not approve external researchers and most teachers did not like to be observed in class. As a way to show his support for the study, he offered to email the EFL teachers first inviting them to read what the research was about. I then contacted the teachers and I emailed a participant information sheet to them (Appendix 2) giving information about the study and how this would be carried out. It explained how confidentiality would be maintained and it also included contact details about me as the person conducting the research, in case they had further questions or if they needed clarification at any stage of the study. I also sent a copy of the consent form (Appendix 3) that they would need to sign in case they agreed to participate in the research.

Initially, nine out of the eleven EFL teachers that work in the afternoon shift in the school agreed to collaborate and I considered them as potential participants. Once I could travel to Mexico, I visited the school at the beginning of the school year in 2012. Although convenience was the first criterion to select this school, once I gained access to the site and with the head teacher’s approval, I talked to the teachers and observed some classes so that I could identify meaningful cases for the study. I chose participants who could help me “maximize what we could learn” (Stake, 1995, p. 4). Thus, purposeful sampling was the procedure I used to select the cases. “The logic and power of purposeful sampling lies in selecting information-rich cases for study in-depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research” (Patton, 1990, p. 169, in Merriam, 1998, p. 61).

The criteria to choose teachers included those who had the necessary knowledge about the RIEMS objectives, which were explained earlier on Chapter 2, in order to
answer my questions, who had a varied level of experience using ICT in their classes and enough teacher experience to reflect about their teaching practice. It was important that the teachers had time to be interviewed and observed and who were willing to participate in the study. I selected five teachers out of the nine to collaborate, and a meeting was then organised where each teacher was given again a copy of the participant information sheet and a consent form. I reminded the participants the aims of the project and welcomed their questions. Some of the teachers were hesitant to participate because they thought that the head teacher would be involved but I assured them that the data collected would be confidential.

Since it was likely that interactions with students would appear in the recorded observations, information sheets (Appendix 4) were also sent to the students’ parents to explain that a research study would be carried out in the school but that their children would not take part in it. With the headteacher’s authorisation, a letter of consent (Appendix 5) was also included indicating that they could choose whether or not their children could be present in the observations.

Although fieldwork was planned to last the whole school year, that is, from September 2012 to July 2013, in the end the study was carried out from September 2012 to January 2013 due to unforeseen circumstances, mainly a heavy workload for the teachers and the constant interruption of classes. I was asked to cut short the study and return in February to continue. However, when I contacted the participants again, they stated that they would not be able to continue because they had to prepare the students for examinations.

Being an insider researcher, I was aware of possible eventualities that could have an impact on opportunities to collect the data, that is, teachers’ busy schedule, multiple shifts in different jobs, school sudden closures, class interruptions, several bank holidays, besides their usual responsibilities in school. I thought that planning for a long-term study would allow me to carry out the in-depth study that I had planned, without the research process suffering if any of these situations happened.

At the same time, I expected to minimise reactivity, that is, the response of the researcher and the research participants to each other during the research process (Paterson, 1994, p. 301), thus ensuring the collection of more valid data. I considered
that, despite the familiarity with the participants, they could feel conscious of the research process on the onset of the study leading them to share the information that they thought prudent to expose, therefore, I wanted to allow time to minimise this situation.

However, once in the field, I understood that planning for the whole school year was too ambitious given the context that I faced there. My understanding of this context as a teacher did not take into account how the same contextual factors would affect my role as a researcher. Therefore, designing a study like this over that period of time, in retrospective, was not a good idea, so I learned also to make the most of my time in there.

Ultimately, I was able to carry out the in-depth study that I had planned, and I used different strategies to identify reactive effects. These included my research journal, member checking, writing memos, which allowed me to critically examined the data and explore any issues with the participants.

Also, one of the participants had to abandon the project shortly after starting due to a car accident, which prevented him from working for a few months. Another participant was so concerned about being filmed due to a bad experience in another study, that he only allowed me to observe two of his classes. I considered that this would not give me an in depth understanding of his case and would compromise the validity of the study therefore I decided not to use his data. In the end, the three teachers that participated in the study were Ely, Jaz and Fer. As indicated before, pseudonyms were used to maintain confidentiality and anonymity both for the participants and the school.

### 4.5.1 The participants

The EFL teachers work in the evening shift at Galicia High School besides different jobs as teachers in different schools during the morning, and sometimes weekends. The first case presented in Chapter 5 is Ely, an English teacher with over 12 years of experience in her field. Her first job was in a private primary school where she still works in the mornings to date. Five years into her teaching career, she had the opportunity to join the public sector and she was offered a job in this school. She has
a BA in English Language Teaching and a Master’s in Education, as well as a postgraduate Diploma in Development of Teaching Competencies that all teachers were required to take when the reform was first implemented. Apart from 2 technical courses provided by this institution, she has not received any formal training in ICT use, although she describes herself as a technology enthusiast.

Chapter 6 presents Fer’s case. He is the only participant who has gone through the pre-service teacher education programme in the *Normal Superior*, which is the national institute of teaching education in Mexico. Fer has been a teacher for twenty years but it was three years into his professional career when he began to teach English. He has a BA in Biology and a BA in English from the Normal Superior which, he acknowledges, he took as a requirement to get a diploma in another subject. Also, he studied a Fisheries Technical Degree, a Masters in Educational Technology, a postgraduate Diploma in Development of Teaching Competencies in both High School and Technical High Schools and a Postgraduate Diploma in Emotional Development. In 2008, Fer took a summer course in Canada offered by the government which certified him as an English teacher in this school. Fer works 2 shifts. In the morning he is a teacher in a Junior High School and in the afternoon he teaches English in Galicia High School both in 3<sup>rd</sup> and 5<sup>th</sup> semesters.

Chapter 7 describes Jaz’s case. She has over 12 years of experience working in both university and high school. She teaches English in 3<sup>rd</sup> and 5<sup>th</sup> semester in this institution. Coupled with her position as a teacher, Jaz has other responsibilities. She is in charge of the English department and just recently she also accepted a post in the teachers’ union. As most teachers in Mexico, Jaz also has another job in the mornings as an English teacher in a university where her work is divided between the School of Foreign Languages, the Language Centre, as well as teaching English in the School of Engineering and in the open university system on Saturdays. She has a Bachelor’s degree in English Language Teaching. Despite her busy schedule, she has continued her education, obtaining a Master’s in Education, a Postgraduate Diploma in Development of Teaching Competencies, as well as a Certificate in English Teaching from a University in Canada. She has a diploma as a Computer Technician and has taken courses for the use of blogs in education.
4.6 Methods of Data Collection

Since teacher cognition research is interested in phenomena which cannot be directly observed or measured, researchers need to be able to identify the methodological options through which this phenomena can be elicited (Borg, 2006, p. 167) and make inferences from what people say, intend, and do (p. 314). Traditionally, teacher cognition has been assessed using a variety of methods that aim to elicit teachers’ thoughts about teaching and learning. Given the limitations in studying language teacher cognition through one method, most studies are multi-method in nature (Borg, 2012, in Barnard and Burns, 2012, p. 19). The most common approaches used are classified into four groups:

1. Self-report instruments: questionnaires, scenario ratings, tests.
2. Verbal commentaries: structured interviews, semi-structured interviews, scenario based interviews, repertory grids, stimulated recall, think aloud protocols.
4. Reflective writing: journal writing, biographical accounts, retrospective accounts, concept maps. (Borg, 2006, p. 168)

**Table 4.1 Data collection process for each participant**

<table>
<thead>
<tr>
<th>Interview</th>
<th>Interview</th>
<th>Interview</th>
<th>Interview</th>
<th>Interview</th>
<th>Interview</th>
<th>Interview</th>
<th>Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience in SL learning and teaching, teacher training</td>
<td>ICT use in EFL classes, perceptions as teachers</td>
<td>Strategies used in lesson planning, Aims, factors that might influence practice (Materials and lesson plan used as prompts)</td>
<td>Situations presented during the lesson, Teaching practice</td>
<td>Teacher’s evaluation of the lesson Stimulated recall through videotape</td>
<td>Previous lesson outcomes, upcoming aims</td>
<td>Situations presented during the lesson, Teaching practice</td>
<td>Teacher’s evaluation of the lesson Stimulated recall through videotape</td>
</tr>
</tbody>
</table>
In order to gain insight into the teachers’ cognitions, I decided to use qualitative methods that allowed me to collect data from multiple sources at various time points during the study. The methods comprised an analysis of the documents that described the objectives of the RIEMS, semi-structured interviews, lesson observations, stimulated recall as well as syllabi and when possible, some of the teachers’ lesson plans (See Table 4.1). The next section describes how these methods were used in this research.

4.6.1 Document analysis

One of the methods used in this study was the analysis of documents related to the introduction of the RIEMS in the school. Document analysis is used in qualitative research as a vehicle for understanding and making sense of social and organization practices. In this sense, documents can provide an unfiltered perspective on the field of study and its processes, thus allowing to go beyond the perceptions of members of the field (Flick, 2009). When used with interviews and observations they can provide rich background information of the context of study, as well as a means of triangulation (Patton, 2002).

Scott (2004, cited in Flick, 2009) suggests four criteria to decide whether or not to employ a specific document in a study. The researcher should take into consideration the following points:

- Authenticity, that is, whether the document is of unquestionable origin and genuine.
- Credibility, which establishes the accuracy and reliability of the document.
- Representativeness, that is, the evidence that the document is typical of its kind.
- Meaning, that is, the intended meaning of the author.

In this perspective, my difficulty lay not in deciding whether the documents that I wanted to explore fulfilled these criteria, as they were officially released by the Ministry of Education in Mexico, but in the extensive selection of papers that were published during the RIEMS implementation. Mr. Cobos, the headteacher of Galicia, indirectly helped me in the selection, after he
explained which ones were considered more relevant. The rest of the documents, he explained, repeated the policies in different terms. After exploring the documents, and informed by my research questions, I chose the ones that explained the RIEMS objectives in general, the teachers’ suggested practice, and the ones concerning the EFL teaching subject.

The next step was the consideration of the method of analysis that could help me set the context to answer my research questions. Coffey (2005) explains that although documents can be considered as sources of information, they are also artefacts for exploration in their own right, which can tell us something about a social setting, organization, event or a person. So, as well as analysing the form and content of the document it is also useful to consider how it is used in everyday life and social context. In the same vein, Wolff (2004) states that documents should be seen as a way of contextualising information and analysed as methodologically created communicative turns in constructing versions of events. Understanding that the documents should be considered within their social setting led me to choose thematic analysis as the method of exploration. The analysis allowed me to identify the overarching themes and set the framework for the study.

4.6.2 Interviews

Interviews are one of the methods often used in the study of teacher cognition. As explained before, one of the problems in studying teachers’ cognitions is the fact that they cannot be inferred directly due to different factors: they are held unconsciously, teachers might have difficulty expressing their beliefs or they may state beliefs different than the ones they have (Pajares, 1992). Teachers’ cognitions then can be best accessed indirectly through extensive interviews (Kagan, 1992). They provide a space within which teachers can talk about their beliefs, thoughts and similar mental constructs (Borg, 2006, p. 190).

Three major categories of interviews are identified. Structured interviews have a predetermined agenda which is applied in standardised manner to all interviewees (Borg, 2006). The questions elicit responses which ideally will be comparable and the researcher makes different assumptions. (Berg, 2009, p. 105). Non-structured interviews unfold much like conversations instead of following a pre-set course
(Borg, 2006, p. 190). Semi-structured interviews are directed by a set of general themes and researchers have more flexibility in how they might encourage the participants to talk about these themes (Borg, 2006, p. 190). The interviewer is expected to probe far beyond the answers that the interviewees provide (Berg, 2009, p. 107).

Specifically, I chose to use semi-structured interviews to explore the nature of teachers’ cognition about using ICT in the classroom. Semi-structured interviews are a medium to interact with the participants in order to understand their experience, opinion and ideas (Silverman, 2010). The questions were designed considering Borg’s teacher cognition framework (2006) which set the basis to analyse the data. In the teacher cognition framework that past experience in school and professional coursework are part of our cognitions. The questions in the first interview are designed like this because, in order to understand the teachers, I need to have a sense of their background, their training experience. The second interview looked at understanding this reform and their role, so that intended to elicit their thinking around what is happening. The design of the interviews aimed to encourage teachers to feel comfortable to express their thoughts in order to obtain data that was grounded on actual behaviour. For example, when I asked them about their perceptions of the school, I was looking to get information about how their beliefs chime with Galicia High School. The interviews were then treated as a form to actively construct narratives from the participants answers (Silverman, 2010).

Thus, taking into account teacher cognition research, I considered a set of questions based on themes that I wanted the participants to address. Some probes were also anticipated in order to elicit good responses, more information or clarification about a certain point. These interview schedules were translated into Spanish. Initial interviews with the school head teacher (Appendix 6) and the coordinator of the English department (Appendix 7) were informed by the document analysis of the ICT policies introduced in the present reform. The documents were used as a prompt in order to elicit the expected practice at both national and institutional level in relation to ICT use in EFL classes.

A series of semi-structured interviews which lasted no more than one hour on each occasion were then carried out with the teachers. The first interview (Appendix 8)
aimed to elicit an overview of their experience in second language learning, second language teaching and teacher training. A second interview (Appendix 9) explored their understanding of the RIEMS reform and their role within this as well as their ICT use in EFL classes and their perceptions of themselves as teachers.

The interview was recorded and transcribed and the analysis of this data, as well as the lesson plans and the materials used to deliver the class, prompted the questions for a third interview. This interview aimed to elicit the strategies that teachers used in the planning of their course, the aims of the class and the factors that might have influenced them. A subsequent interview was informed by the previous lesson outcomes, as well as upcoming aims. This cyclical process continued until reaching the point of “data saturation”, when no new information was provided by the participants.

4.6.3 Observations

Another primary source of data in qualitative research are observations. Unlike interviews, “observations take place in the natural field setting instead of a location designated for the purpose of interviewing […] observational data represents a first-hand encounter with the phenomenon of interest rather than a second-hand account of the world obtained in an interview” (Merriam, 1998, p. 94).

Observation plays a central role in the study of teacher cognition since it provides a descriptive basis in relation to what teachers know, think and believe. However, as a research method it presents both advantages and disadvantages. Although it allows direct evidence of behaviour, it is in theory non-interventionist and produces large amounts of descriptive data to be collected, it also represents a time-consuming activity and the presence of the researcher has an effect on the situation being observed (Borg, 2006, p. 227).

Patton (1990) summarizes several methodological dimensions that researchers should consider and make decisions about the role of the observer, the extent to which those observed know that observation is taking place, the extent to which those observed know the purpose of the observation, the duration of the observations, and the focus of the observations (cited in Borg, 2006, p. 228).
The use of observations helped me to collect rich data within the natural context of the study. At the same time, the observations generated information that was used to inform subsequent interviews with the participants. I requested to observe at least 2 ICT-mediated lessons per week. However, the teachers informed me that, being a technical school, sometimes the students were late from their workshops or they had to leave their EFL classes to finish some activities. This, coupled with the fact that classes were interrupted on a regular basis meant that teachers had to change the flow of the lesson or the planned activities to finish their learning objectives, that is, ICT-related activities might have had to be cut short or not used at all if class time was reduced.

Interviews were conducted and recorded before each lesson observation in order to discuss the lesson plans. As most lesson plans were not written down, the interviews gave me a general idea of what to expect during class. An observation guide (Appendix 10) was used and field notes were taken during the observations. The observation guide included lesson objectives, classroom layout, number of students, types of ICT used, ICT-related activities, roles of the teacher and students in order to complement the information about specific moments that required follow up with the participants later. The observations were video recorded with prior consent from the participants in order to be able to analyse the data in the original form as often as needed (Silverman, 2010). Video recording the observations provided more contextual data about the participants in their natural setting and the activities they engaged in (Dufon, 2002). The video camera was set at the back of the classroom without any sort of manipulation (Dufon, 2002).

During observations, the researcher can assume one of four possible roles: complete participant which means that the researcher takes an insider role, is fully part of the setting and often observes covertly; participant as observer where the researcher gains entry to a setting by virtue of having a natural and non-research reason for being part of the setting; the observer as participant, where the researcher has minimal involvement in the social setting being studied; and the complete observer, when the researcher does not take part in the social setting (Silverman, 2010).

For this study, my role was that of a non-participant observer in order to see the situations presented without interfering with the people or activities under
observation (Denzin and Lincoln, 2003). I asked teachers not to think about my presence in the classrooms and to explain students that the focus of the observations would be the teachers. However, although I did not interact with the teachers or students during the observations, as an outsider my presence in the classroom was noticeable at the beginning, especially because of the video camera. Switching to a smaller model seemed to make a difference and after a couple of sessions both teachers and students acted more naturally.

Finally, after each observation, short interviews were again conducted that aimed to make teachers reflect on certain parts of the lesson regarding the achievement of lesson objectives, strengths and weaknesses of the lesson, as well as student behaviour, classroom context, activities and materials. Usually these interviews took place in between lessons and had a form of a conversational talk trying to create a relaxed atmosphere (See Table 4.1).

4.6.4 Video Stimulated Recall

One of the main advantages in using videos in qualitative research is that it “extends the capacities of other approaches in several directions” (Flick, 2009, p. 251). For example, they include the non-verbal parts of interaction, they capture more aspects and details than observations and they allow for repeat observation of the phenomenon (Flick, 2009, p. 251).

Video recorded data can provide us with more contextual data than can audio recorded data [...] They can give us a more complete sense of who the people are, and acquaint us with the setting in which the people function and the types of activities they engage in from day-to-day as well as the nature of these activities themselves (Dufon, 2002, p. 43).

Particularly in the study of teacher cognition, video stimulated recall interviewing is a research method that allows the investigation of cognitive processes through eliciting verbal commentaries of the participants when prompted by a video sequence or some other form of visual recall (Borg, 2006). The use of this method in the study of teaching dates back to the mid-1970’s and has been widely applied to the ‘study of teachers’ interactive decision making’ (Borg, 2006, p. 210).
According to Gass and Mackey (2000) “the theoretical foundation for stimulated recall relies on an information-processing approach whereby the use of and access to memory structures is enhanced, if not guaranteed, by a prompt that aids in the recall of information” (p. 17). The participants are then asked to vocalize what is going through their minds as they are solving a problem or performing a task, which can uncover cognitive processes that are not evident through simple observation (Gass and Mackey, 2000, p. 20).

As this was the first time that I used stimulated recall, I followed Gass and Mackey’s (2000) guidelines on how to proceed with the methodology. First, I decided to pilot a session in order to anticipate possible problems in advance. This session was recorded and subsequently analysed. I took notes on how to set up the camera during the observations in order to facilitate further sessions and I took notice that, in some instances, I had focused more on what we were watching in the video in that moment and I did not focus on eliciting responses on what was happening at the time the event was filmed. I also noticed that some segments were not clear enough to analyse because the video was still playing while the stimulated recall was taking place. After considering these problems, I proceeded with the stimulated recall sessions. There were a total of three stimulated recall sessions per participant with a duration of one hour each. An extract of one of the participants’ recall sessions can be found in appendix 11.

Gass and Mackey (2000) explain that one potential pitfall when using this methodology is the time frame between the event itself and the stimulated recall, since memory becomes less accurate as time passes. Likewise, Fang (1996) observes that it is important to carry out the interviews shortly after the observation in order for teachers to recall the events more accurately, thus avoiding reconstructing or inventing the missing information. Although ideally it is recommended to have the session immediately after the participant performs the task, this was not always possible with the teachers in this study due to their prior commitments. However the sessions took place as soon as possible, within two or three days maximum after I filmed the classroom observations, at a time that was most convenient for the participants.
Before each session, I explained to the participants that we were going to watch the video of one of their classes and that I was interested in listening to what they were thinking during that lesson. I asked them to pause the video at any point to share their thoughts about their teaching, and I also reminded them not to feel pressured to talk when they did not want to, keeping in mind that ‘the researcher needs to put participants at ease, convey the impression that the participants are not being asked to do something very difficult or unnatural, and help participants provide recall comments without challenging their preconceived notions of appropriateness and without leading them’ (Gass and Mackey, 2000, p. 61). I also explained that in some cases, I might also pause the video if I had a question about a particular moment.

Although the stimulated recall sessions were planned to be video recorded, they were audio recorded and transcribed afterwards instead when the participants expressed that they did not feel comfortable having a camera around, and that they felt self-conscious and could not focus on what they were saying. This was probably due to the fact that I had to use the camera that I initially used for the observations because I had to return the smaller model. During these sessions, the teachers would stop the video whenever they felt like making a comment about a particular moment of their classes. There were moments when teachers did not stop the video and I would do so in order to ask them about particular situation in the lesson. After some time, the teachers felt more at ease to stop the video themselves and talk about their thoughts or behaviour during their classes.

4.7 Data Analysis

The data was organised during the fieldwork according to the different sources from where it was collected. Both the semi-structured interviews and the stimulated recall interviews were transcribed and the data from the observations and the field notes were filed according to date and participant. The qualitative data from the interviews, observations and stimulated recall was analysed using both an inductive and deductive approach informed by Borg’s teacher cognition framework and thematic analysis (Boyatzis, 1998).

The data was analysed deductively from pre-established categories derived from the research questions and Borg’s theoretical framework of teacher cognition. However, as
this study explored a new area of investigation, the use of thematic analysis alongside Borg’s theoretical framework allowed me to identify emergent themes and patterns from the data. I found that working both inductively and deductively through the data analysis to explain the nature of the findings, helped me enrich the analysis and complement the answers to the research questions.

I found Borg’s teacher cognition framework particularly interesting and useful to analyse the participants’ data. There are different factors impacting upon teachers’ cognition and ICT integration, some of these factors are in the context, and some actually reside in the individual, but what resides in the individual is also impacted upon by the context. However it is difficult to see sometimes how they all integrate and how they all contribute to the teachers’ thinking and their identity.

Borg’s framework of teacher cognition provides a schematic conceptualisation of teaching that helped me to talk about and understand the relationship between these different factors and allowed me to see that they are not isolated. These are guiding labels which give me a space to situate not only contextual factors but the teacher’s identity. But it is a bit more dynamic, for example, schooling helps me to talk about the different teachers’ background, where they are coming from, their own school experiences and how those beliefs have been shaped. Confidence, for example, is within the teacher, but confidence may come from classroom practice, it may be shaped by professional coursework, it may be impacted upon by the contextual factors. Thus, the framework helps me to understand the elements of context which seem to have shaped everything else that is going on.

Alongside Borg’s framework of teacher cognition, I used also thematic analysis. The process involves the identification of themes through careful reading and re-reading of the data. It is a form of pattern recognition within the data, where emerging themes become the categories for analysis Boyatzis (1998). The four stages that Boyatzis (1998) describes as part of thematic analysis were followed: sensing themes consistently, developing themes that capture the essence of the observations and interpreting the information in the context of teacher cognition, which might contribute to developing knowledge in this field.
Boyatzis (1998) describes thematic analysis as a way of seeing, of making sense of seemingly unrelated material, systematically observing a person, interactions, groups, situations, organizations or a culture. It is a process that can be used with most qualitative methods and that encodes qualitative information, which requires an explicit code which is “the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon” (Boyatzis, 1998, p. 63). Thematic analysis presents various advantages: it is very flexible and can be used with different types of data; it is accessible for researchers with little or no experience; the analysis results can easily be communicated to practitioners, policy makers and educated general public; it allows the summary of key features of large amounts of data and it is not tied to a particular level of interpretation (Robson, 2011, p. 477). However, there are also some obstacles that can impact on the analysis, which include the researcher’s projection as well as sampling and mood and style (Boyatzis, 1998, p. 12).

According to Boyatzis (1998) projection, or reading into another person something that is the researcher’s characteristic, emotion, value or attitude, can be prevented by developing an explicit code, applying it consistently, using several people to encode the information and a diversity of perspectives, as well as sticking to the raw information in the development of themes and codes (Boyatzis, 1998, p. 13).

Obstacles in sampling can be prevented by reviewing the unit of analysis versus the unit of coding, clarifying both units and examining them from multiple perspectives to review the appropriateness of the sampling plan. It is also advisable to establish a guide for information collection. Likewise, since qualitative research is subjective, the researcher’s mood and style are also factors that can threaten the collection, processing and analysis of information (Boyatzis, 1998).

After coding the data, the researcher looks for themes in the information. Once the themes start emerging, the process of interpretative analysis begins. Different codes have to be sorted into different themes and then all the relevant coded extracts are put together within the identified themes (Robson, 2011). Validating themes in the early and late stages of data analysis is essential (Miles & Huberman, 1994). It has been suggested that the researcher should involve an outsider reviewer during this early stage to evaluate and identify themes. Initial codes were discussed with my supervisor.
and a step-by-step process of analysis is outlined in Appendix 12, as a method of demonstrating transparency of how the overarching themes were formulated from the initial participant data. Overarching themes are supported by excerpts from the raw data to ensure that data interpretation remains directly linked to the words of the participants.

I assessed whether the potential themes reflected the meanings in the data set in order to provide an accurate representation of the participants' experiences. I read the data several times to determine if current themes relate back to the data set.

In this study, data analysis started in the fieldwork. For example, since the analysis was on-going, it was not possible to transcribe the information immediately after collecting it, therefore, the process would start by listening to an interview recording, taking notes, writing general thoughts and starting the process of noticing the most salient themes (Appendix 12). This would inform lines of enquiry for follow-up interviews. Later, comparisons across methods would allow me to confirm themes and seek further support from subsequent data in order to define categories.

**Table 4.2 Coding example, sensing themes (Data-driven approach). Excerpt from interview session with Jaz.**

<table>
<thead>
<tr>
<th>Support</th>
<th>Collaboration</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>we really need, urgently, more collaboration in our areas, identify what it means to work the competencies in the EFL area, how to use ICT in our teaching subject, those are three things that we need to work on and we need feedback from an expert in the area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Once the data was transcribed, I worked directly from the raw information through a deductive and an inductive approach and I started the process of coding segments of the text. The interviews were transcribed by myself in order to be better familiar with the data.
Table 4.3 Examples of emerging sub-categories. Excerpt from interview session with Jaz.

<table>
<thead>
<tr>
<th>Interview data</th>
<th>Sub-categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>There is a part in using technology that is called</em> time investment. You have to <em>spend hours in front of the computer looking for information. British English or American English? That accent is not clear, let’s find another one, and those things take time, and personally, I don’t have as much as I want.</em></td>
<td><em>Time investment</em></td>
</tr>
<tr>
<td><em>I’m always running</em>. What wouldn’t I do in my classes? I’d look for different resources, audios, videos, extra work, extra activities, but I don’t have time*</td>
<td><em>Time spent finding suitable material</em>, <em>Lack of spare time</em>, <em>Lack of time to look for resources</em></td>
</tr>
</tbody>
</table>

The next step consisted of taking these sub-categories in order to cluster them together under a broader level. The resulting categories were subsequently developed into themes.

According to Yin (2003) following the theoretical propositions that led the case study is the most preferred strategy for data analysis. Therefore, the next stage involved encoding these themes consistently using both data-driven and theory-driven codes from the literature on teacher cognition. The aim was to enhance the analysis by sensing features of the data that otherwise might have been overlooked.
Table 4.4. Coding example, themes. Excerpt from interview session with Jaz.

<table>
<thead>
<tr>
<th>Interview data</th>
<th>Sub-categories</th>
<th>Categories</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a part in using technology that is called time investment. You have to spend hours in front of the computer looking for information. British English or American English? That accent is not clear, let’s find another one, and those things take time, and personally, I don’t have as much as I want. I’m always running. What wouldn’t I do in my classes? I’d look for different resources, audios, videos, extra work, extra activities, but I don’t have time</td>
<td>Time investment</td>
<td>Reasons for not using ICT</td>
<td>Time</td>
</tr>
<tr>
<td></td>
<td>Time spent finding suitable material</td>
<td>Time for ICT development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of spare time</td>
<td>Reasons for not using ICT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of time to look for resources</td>
<td>Time for ICT development</td>
<td></td>
</tr>
</tbody>
</table>

The information was then interpreted in the framework of teacher cognition. Creswell (2008) explains that through describing and developing themes from the data we can answer the major research questions and form an in-depth understanding of the central phenomenon through description and thematic development (p. 254). Although the analysis of data is here presented as a linear process, in practice there was a constant moving back and forth between the data and the evolving construction of an understanding (Woods, 1996).

The analysis of data was organised according to each participant. The total information collected from every participant will be presented in chapters five to seven. The analysis includes a description of the context where the participant works,
as well as the participant’s profile, since “description can transport the reader to a research site or help the reader visualize a person” (Creswell, 2008, p. 255). Extracts from the interviews were used to exemplify the themes that arose from the participant’s answers.

Afterwards, a second level of analysis was done in order to put together the findings arising across the participants. A cross-case analysis report allowed me to look for themes, shared responses, patterns of response and to compare emerging themes across cases, as well as to summarise the data.

4.8 Ethical Considerations

The study complied with the regulations of The University of Manchester. Access was sought from the school’s head teacher. Consent forms were sent and relationships were negotiated with the headteacher, the coordinator of the English department and the chosen participants in order to have access to those stories that could answer the research questions (Maxwell, 1996). After gaining access, the participants were informed about the purpose and duration of the study to allow them to make an informed decision. They were notified that their involvement would be voluntary and that they could drop out of the study at any time without prejudice or penalty for them. Consent forms and information about the study were also sent to the students’ parents since the lessons were videotaped.

Confidentiality was guaranteed by ensuring anonymity for both participants and school. The data generated through interview transcripts and observations was only used for the purpose of the research, and no records will be kept unless otherwise authorised. The terms for the dissemination of results were explained to the participants.

Since the video camera was set at the back of the classroom and a wide angle view of the setting (Dufon, 2002) was required in order to capture the activities, it is likely that interactions with students appear on camera. In order to protect the students, the videotapes were only used for the stimulated recall technique with the teachers and no videos will be kept after analysing the data.
4.8.1 Trustworthiness

There are a number of potential issues regarding the collection and analysis of the data for the study. Since all research is interpretative, the researcher should be self-reflective about his/her role in the research and how he/she is interpreting the findings because it is his/her personal and political history that shapes his/her interpretation (Creswell, 2008, p. 266). Being an EFL teacher myself entailed bringing my own theories, preconceptions and values (Maxwell, 1996) about this field to the study, which means that the interpretation of data could be framed on my theoretical constructs. A prior relationship with the participants also posed a threat to the trustworthiness of the research, as well as my influence on the setting or individuals studied (Maxwell, 1996), specifically, the use of videotapes which could have changed teachers’ behaviours leading to less spontaneous lessons.

Lincoln and Guba (1985) suggest building an audit trail in order to enhance trustworthiness in the research. In this study, this was achieved using the following procedures: First, taking into account my previous relationship with the participants, I kept a research journal in order to eliminate bias and to reflect on the research process. Also, the triangulation of methods allowed me to collect data from different sources. Member checking provided more accuracy first to interview transcripts and observation guides, then to the case study drafts.

4.8.2 Validity

In order to enhance the credibility of the study, it is imperative to ensure the validity and reliability of the research. Both concerns “can be approached through careful attention to a study’s conceptualization and the way in which the data were collected, analysed, and interpreted, and the way in which the findings are presented” (Merriam, 1998, p.199-200).

Validity is “the extent to which an account accurately represents the social phenomena to which it refers” (Hammersley, 1990, p. 57). There are different forms in which validation of the study can be achieved: Comparing different methods (triangulation), or taking the findings back to the subjects being studied (respondent validation) (Silverman, 2013).
Triangulation refers to “combining multiple theories, methods, observers and empirical materials, to produce a more accurate, comprehensive and objective representation of the object of study” (Silverman, 2013, p. 369). The researcher examines each information source in order to find evidence to support a theme, thus ensuring that the study will be accurate because the data draws on multiple sources of information, individuals or processes (Creswell, 2008).

In case study research, the use of multiple approaches within a single study are more likely to illuminate or nullify some extraneous influences. In this study, the use of interviews, observations, videotapes and field notes to gather data helped to find correlations between the participants’ answers, thus allowing a better assessment of the explanations developed (Maxwell, 1996) and different perspectives on the same topic (Richards and Morse, 2007). Yin (2003) states the importance of using correct operational measures for the concepts studied. In this regard, the selection of these methods corresponds to the ones that have generally been used in the study of teacher cognition. Triangulation, the use of multiple data sources and research methods, which allows the researcher to view the focus of inquiry from several vantage points, has been called “the heart of qualitative research’s validity” (Davidson and Tolich, 1999, cited in Yin, 2003, p. 34).

Respondent validation involves research participants responding either to forms of initial data, for example, transcripts of interviews, or observations of activities, in order to check them for accuracy, or to first drafts of interpretive reports to respond, again, to their accuracy, but also to the interpretive claims that are being made (Lincoln & Guba, 1985). Participants may be asked to examine drafts or review material for accuracy which may lead to two different problems: whether the participant will be able to follow the report or even if they will be interested in it (Bloor, 1978, cited in Silverman, 2013, p. 372), or whether the results of the analysis are compatible with the self-image of the respondents (Abrams, 1984, cited in Silverman, 2013, p. 372). Fielding and Fielding (1986) however, explain that although the respondent feedback might not be taken as direct validation or refutation of the researcher’s interpretation, the process can still be treated as another source of data and insight (cited in Silverman, 2013, p. 372).
The participants were asked to provide feedback about the accuracy of the data collected and the conclusions drawn both during the early stages of the analysis and towards the end of the study. The teachers were asked to read drafts of the accounts emerging from the initial interviews and the stimulated recall sessions. I asked them to comment on whether they thought that the emerging account seemed as a fair reflection of the information that they had shared. This ruled out possible misinterpretations to see if what they said is what they actually intended and at the same it provided their perspectives on what was going on (Maxwell, 1996). Moreover, in the case of stimulated recall, it provided configurational validity (Goldman-Segall, 1995, 1998, cited in Dufon, 2002, p. 45), since having the participants commenting on the video added strength to the interpretation of data (Dufon, 2002).

### 4.8.3 Reliability

Reliability deals with replicability, “whether or not future researchers could repeat the research project and come up with the same results, interpretations and claims” (Silverman, 2013, p. 360). There are different ways to make a research more reliable. For example, the researcher could make the process more transparent by describing the research strategy and data analysis methods in detail. Also, the theoretical stance from which the interpretation takes place should be made explicit in order to show how particular interpretations were produced by excluding others (Silverman, 2013, p. 360).

An audit trail with a description of the decisions made and the steps taken during the research (Lincoln and Gubba, 1985) also ensured the reliability of the study. Keeping records of all the phases of the research process, that is, the research design and implementation, transcripts, fieldwork notes, decisions on data analysis, will allow readers to establish whether proper procedures have been followed and the theoretical inferences can be justified (Lincoln and Gubba, 1985).

### 4.8.4 Generalizability

Although each case study is unique and it is more concerned to the local situation rather than how it represents other cases in general (Stake, 2006) it can have a degree
of transferability, not to populations or universes, but to theoretical propositions (Yin, 2003). Case studies rely on analytical generalization, “the investigator is striving to generalize a particular set of results to some broader theory” (Yin, 2003, p. 37). A rich description of the context of the research allowed me to make comparisons of the results described to those found in similar studies.

4.9 Summary

This chapter presented an overview of the research design used in the study. The rationale for choosing the participants and a description of them and their context were also described. The methods of data collection as well as the analysis of the data were exemplified. Ethical considerations regarding the trustworthiness, validity, reliability and generalizability were discussed.

The qualitative data from the interviews and observations was analysed using both an inductive and deductive approach informed by thematic analysis. Chapters 5, 6 and 7 present the data collected from each of the participants. The lessons described at the beginning of each chapter intend to provide an overview of the teachers’ practices and they were chosen to exemplify the participants’ use of ICT in context. Unlike chapters 5 and 7 which only describe one lesson, Chapter 6 includes a description of two lessons, in order to exemplify how different settings seem to impact on Fer’s teaching practice.
CHAPTER 5 ELY

5.1 Introduction

This chapter introduces Ely, the first of the participants who took part in this study. This, and all the three participant’s chapters, will be divided into three sections. First, I provide a small overview of the teacher’s routine in order to have a context for their work. Next, I describe one of the lessons that I attended as an observer to give a general sense of how the lessons are developed. Finally, I present the analysis of the information collected through interviews, observations and stimulated recall sessions.

Ely is a 37 year old English teacher with over 12 years of experience in her field. Her first job was in a private primary school where she still works to date. Five years into her teaching career, she had the opportunity to join the public sector and she was offered a job in this school. She has a busy daily schedule and her day is divided into two shifts. The first one starts at 7 am in the primary school where she teaches English to 4 groups of 40 children each, ages 10 to 11. As part of the requirements of her job, she has to grade both students’ books and notebooks every day, which can be rarely completed during lesson time, so it is not unusual for Ely to finish this task at home.

After her shift finishes in the primary school, Ely has one hour left for a quick lunch before her next shift starts in this school, where she teaches English in first and third semesters. Usually, the time that Ely has left in between shifts is just enough to commute between schools, so it is very common to see her eating lunch on her way to her first class. After school, around 9 pm, Ely returns home and grades homework, exams, prepares lessons and reviews pending work for both schools, sometimes even working during weekends.

5.2 Ely’s class

It is almost fifteen minutes before her class and Ely and I engage in conversation after I point out how tired she looks. She explains that she had a busy day and she is just arriving from the primary school where she teaches in the mornings. Today it was particularly busy because she had after school meetings with the students’ parents to discuss their grades. With four groups of over forty children each, she is dreading the
week to come. Ely explains that she was worried about not having the projector available for the class since she forgot to book it beforehand. She just had enough time to commute from her job in the morning, grab a sandwich and eat it while running to the main office to get the projector. Luckily, she explains, nobody booked the equipment today and she could get one just in time to start the class. This will be the first of the observations and Ely suggests to start looking for a place to set up the video camera because once her students arrive, the place will get very crowded. *The front row might be convenient for you* she explains, and I set the camera in front of her desk. This is a small classroom with an old whiteboard that Ely uses to project her Power Point presentations. All but two chairs have an integrated desk. These were left from a project that aimed to have chairs and small trapezoid desks that could fit into one another in order to make team work easier. *Another project with no follow up*, she explains. The projector is placed on one of the chairs in the front row and Ely takes the seat behind it so that she can adjust the height and manipulate the image to project it in the middle of the whiteboard. However, the projector does not work and Ely makes a sound of desperation when her students start to arrive and she is still fiddling with the projector. *I had the same problem the other day in another classroom and I ended up with a 15 minute class*, she says. While we are talking, one of her students volunteers to help and after some time he manages to turn the projector on and open the file, but there is still no image on the whiteboard. By now, the class has been delayed 10 minutes and Ely decides to let the students fix the problem while she takes the register. On her way to the desks, she calmly asks students to stop talking and pay attention to the register. More students arrive and Ely checks her watch before letting them in. She takes her place one more time behind the projector to check the file that she wants to use while she explains in Spanish that they will be reviewing the house and furniture vocabulary, how to rent a flat and the difference between there is and there isn’t. At the end, they will be able to describe their dream house, she explains. The projector is working now and, in English, Ely asks students to remember the vocabulary they have studied about houses and furniture. After brainstorming some ideas, the class agrees on the right examples. It is then that Ely projects the first slide with the picture of a house and asks students to identify the rooms. A mobile rings and Ely kindly reminds all students to switch all their mobiles off. She resumes the activity and asks students to repeat the vocabulary after her. She points out the words, reads them and students repeat. This goes on for several minutes until she is happy.
with the pronunciation. Ely shows the second slide and asks them to match the furniture with the right rooms. She continues to ask students to repeat the vocabulary over and over again. I notice that some of the students start to doze off and only appear to wake up when she turns the lights on and continues with the next activity. This time, she asks them to listen to a conversation between a landlord and a prospective tenant. This audio is from an audio resource pack that is included in the teacher’s book. While she explains the activity, another student arrives late. Ely gives an exasperated look at her watch and for the first time since the class started her voice raises to ask the student to leave while reminding him that they are only allowed to be late 10 minutes. She moves on and asks students to have their copies ready to listen to the conversation for general comprehension. Some of the students say that they have forgotten their copies and Ely gives them some of the spare ones that she has. The students seem to struggle to follow the conversation and they ask Ely to replay the audio one more time before some of them start to look for the transcription at the back of their copies. Noticing this, Ely calmly reassures them and says that they can start by recognising some words in order to infer the rest of the conversation and that, little by little, they might be able to understand more words. To prove her point, she asks what the general gist of the conversation is to which students answer with hesitation at first until most of them join in sharing their ideas. Some of the students seem to have a good grasp of the language and are more willing to participate, but Ely tries to include everybody. She resumes the activity and asks them to listen to the audio again and answer their questions in their copies. She walks around the classroom reminding them that she is there in case they have any questions. She makes her way between the chairs and when it looks like she might not be able to reach another row, a student moves his chair without her having to ask them, while she continues pacing around the classroom. At this point, her students’ respect and willingness to engage in her classes is quite obvious. Her tone of voice is soft and controlled and she very rarely needs to ask them twice to stop being disruptive. Once she is back at the front of the class, Ely checks their answers and resumes her Power Point presentation to elicit the grammatical rule of the day using some examples. She asks them to work in pairs and write their own sentences. While some students manage to move their chairs, others can only turn to see the person they will be working with, which shows how crowded the classroom is. In the meantime, Ely turns both laptop and projector off and tells them that they have five more minutes to
complete the activity. She stays in front of the class and asks for volunteers to read the sentences. Two students volunteer and start reading while the rest of the class laughs at their pronunciation from time to time, but neither of them seem to mind and laugh along with the rest of the class. Ely checks the time and for a moment she looks undecided. She moves swiftly to the next activity, explaining that they will now put into practice what they have learned that day and write a description of their houses using the vocabulary and structures they have studied. To make sure that everybody has understood, she gives the instructions in Spanish. She starts to walk around the classroom to check that the students are doing the activity correctly, when the bell rings and Ely has to ask them to complete the descriptions at home so that they can share them next time in class. She frowns while looking at her watch one last time.

5.3 Cognitions about schooling experiences

From a young age, Ely has enjoyed learning English. She used to observe her father listening to songs and she would often be seen imitating him and trying to sing along without knowing the correct pronunciation or meaning, just enjoying the sound of the language. Later on, she would see one of her cousins studying for her bilingual secretary course, listening to audio tapes and completing exercises for her classes.

Back then, it was very fashionable to be a bilingual secretary after high school. I used to think that I wanted to be one when I grew up so I used to sit and listen and try to catch some words (Interview, 10.09.2012).

Seeing her motivation, her parents enrolled her in English courses and from the beginning she enjoyed these early experiences learning the language. When she was questioned about these first experiences as an EFL student she responded,

They were really motivating, really nice, because I started when I was a small child and we learned through games, songs, stories, we used to draw and paint...yes, I really enjoyed it (Interview, 10.09.2012).

She remembers a particular EFL teacher in one of those courses,

There was this teacher who used to plan different activities, always making us work in teams and I remember that her class was different every time, she’d write a word, show an image, and she’d ask us questions. Then she would say today we are going to study this or that and we’d have all these activities, songs, games it was all very dynamic, and she would make sure
that we had understood the class at the end, give me some examples, she said, and you’d feel motivated to learn (Recall, 17.09.2012).

In contrast with these first experiences with the language, further education showed her a different aspect of language learning. Once enrolled in formal education, she found that teachers advocated more traditional approaches and focused more on grammar and drilling exercises than in trying to motivate learners,

These teachers were more traditionalist, they didn’t use any resources and we spent the lesson taking notes and copying from the blackboard (Interview, 18.09.2012).

Despite her dislike for this traditional approach, she liked learning grammatical rules. She felt more in control of her learning,

I know many people don’t like grammar, and maybe I’m weird but I really like learning rules, I feel that it helps me understand better. It’s like you learn the rule, learn the different parts of the sentence and that’s it, an endless sea of possibilities (Interview, 10.09.2012).

However, as Ely associates teaching grammar with traditionalist classes, she tries to break away from this image by setting the grammar in context, motivating students to discover the rules by themselves. Motivation is a constant theme in Ely’s account. She believes that students need to be motivated in order to learn a language and, from Ely’s perspective, traditional classes lack the effectiveness to improve language proficiency,

I believe that the most effective classes were those that used different methods and learning approaches, teachers used resources other than the blackboard and textbooks. Like those classes in which teachers used the CD player and had extra activities like games (Recall, 03.10.2012).

As a result of these first images, she advocates classes in which students feel motivated to learn. She considers that she takes this into account when planning her lessons, preparing different activities to practice the language skills, and she identifies the use of ICT as a means to keep her students interested,

Technology is great because it keeps students’ attention; it’s something different for them, more motivating, more dynamic, students are used to technology, it’s something they live with nowadays and it gets their attention, so if you use technology in class by getting their attention I believe they can learn better (Interview, 12.10.2012).
She relies on Power Point presentations to introduce students to grammatical rules. However, despite her enthusiasm when talking about technology, she does not have enough images of teachers using ICT in classes to help her successfully integrate it in her lessons,

*At most, they would use tape recorders and videos in class in that time (Interview, 08.12.2012).*

As a result of this lack of images, she is not sure on how to enhance her language lessons and provide her students with the kind of experience that she would like them to have.

**5.4 Cognitions about teacher education**

By the time Ely began training as a teacher, she already knew the kind of teacher that she wanted to be and, although classes were mainly traditionalist, she also encountered images of teachers that reminded her of those she had experienced as a child. In particular, she fondly remembers a teacher whose approach influences her practice nowadays.

*Even though we were adults, we had different activities, games, videos, songs, so it was really motivating. There were always different activities and we had to work in teams. Her lessons always developed in three different stages and she marked these stages, making the class interactive [engaging and encouraging participation] for students. (Interview, 10.09.2012).*

She believes the approach helped her improve her efficiency in the language mainly because she and her classmates felt motivated to learn and she has tried to replicate it in class in order to help student motivation,

*I learned to develop the lessons like this and I’ve seen that it works. We had a given context and inductively you could learn grammar. We brainstormed [...] got into the topic, found the rules and gave our examples. (Interview, 21.09.2012).*

Ely builds her vision of a successful class on images of lessons that she believed helped her improve her language skills. However, although she professes a student-centred approach and advocates constructivist practices, in reality this does not consolidate and her classes remain mainly traditionalist. When reflecting on this, Ely describes how most teachers focused more on theory and less on practice, so although
she knows what she would like to achieve in class, she does not know how to make it happen. She believes that her teacher education training did not provide experiences that were more similar and more meaningful to real classroom practices.

*You realise that what you learn in university falls short to what you have to know to be a teacher. I had trouble doing my lesson plans, preparing activities, thinking about strategies, methods that I could use in class and that could lead my students to learn in a better way. (Recall, 24.10.2012).*

Ely believes that teacher education did not prepare her for what she would encountered in the classroom and once she started working as a teacher, she realised that there are several factors that can have an impact in a class and that she had to take into account for the lesson. Because of this and despite advocating for student-centred approaches, she reverted to a traditional teaching approach in order to face the challenges that she encountered in her classes, which mainly related to class control.

Regarding ICT, Ely acknowledges that it was not central in her training because teachers did not use it during pre-service teacher education.

*Back then, it was something unusual because it was something new and it wasn’t used that much. Besides, there weren’t many available resources (Recall, 03.09.2012).*

The use of computers, for example, was limited to the self-access language learning centre and it was not integrated in the classroom,

*If you wanted to work in an interactive way, you had to go to the self-access centre because that’s where the computers were (Interview, 05.10.2012).*

Ely recognises that she did not have enough images of how ICT could enhance student’s learning. Because of this, she acknowledges that she lacks the expertise to fully profit from technology in her classes and although she has some notions on how to integrate it, she finds her understanding very limited,

*It was during the last year [of training] when teachers took us to the computer lab because that was the only place where they could work with slides, but it was only a few teachers, two if I remember correctly, who started to introduce slides in their lessons. (Interview, 09.11.2012).*

Even then, she remembers that the projector was only used for teacher-generated information,
Back then, the slides were only used to introduce the topic, that’s it, at the beginning of the lesson as a warm up. (Interview, 23.10.2012).

Ely’s lessons replicate the teaching experiences observed as a student and ICT also remains as a presentation tool in her classes, using it also to present warm up activities or to explain the class. Despite her beliefs about raising motivation in students to keep them interested in class, Ely can only accommodate ICT into her existing practice and she uses ICT in a traditional way to present the lesson. Although she wants to allow more autonomous thinking, for example, at the beginning of the class when the students brainstorm, in general, the activities are more guided.

5.5 Teacher cognition, ICT and practice.

This section examines Ely’s data regarding her cognitions about ICT integration in her classes. The main themes that emerged from the analysis are:

- ICT’s role
- Pedagogical compatibility
- Beliefs about students

5.5.1 ICT’s role

Ely acknowledges the role that technology plays in her students’ lives. She observes that they spend most of their time online with different social applications and everything that has to do with technology is interesting for them. By taking advantage of this inherent interest, Ely believes that ICT can be a valuable tool that can raise motivation among students thus increasing the potential to improve learning. As explained earlier, raising motivation in EFL classes is important for Ely since she considers that many students are apathetic and lack the interest to learn,

Students here have different interests, sometimes they are not interested in a language class because, after graduating, many will start working straight away and they think that learning English is not going to be of great use for them, so there’s a lot of apathy. (Recall, 03.10.2012).

Ely has found this lack of interest challenging at times. However, she perceives that when she introduces ICT in her classes it fosters students’ motivation,
They like it when I use a different approach. They feel, they see that their teacher is interested in them and that you really care about their learning. They really enjoy it when I bring technology (Recall, 03.10.2012).

In another situation she says,

I can see that I can get their attention when I bring the projector. It’s something different and they pay more attention. (Interview, 07.11.2012).

Despite acknowledging ICT as a valuable tool, she does not integrate it in her classes, its use is low and restricted to the use of the CD laptop and projector. The impact of apprenticeship of observation is evident in her choice of applications in her teaching practices. A lack of meaningful examples on how to integrate technology in EFL leads Ely to replicate its use as observed in pre-service teacher education, so technology is used as a presentation tool that supports traditional practices and it is not fully exploited. Although she talks about importance of ICT, she provides examples of traditional resources in class and still considers it as an innovation, word she uses to describe technology.

**5.5.2 Pedagogical compatibility**

Ely associates the use of technology as a medium to engage students in class and to achieve language competence. She relies on tools she is familiar with and she incorporates CD players and audio recordings to foster activities that can develop oral communication. Ely identifies these resources as essential in her teaching practice,

I use the CD player a lot and we don’t have it in the institution. English teachers can’t count on that resource which is basic in teaching English, so I need to bring my own CD player from home (Interview, 10.09.2012).

Although Ely is not happy with the CD player activities, she continues to use them in class and adapts them so that her students can understand the conversations. Ely acknowledges that not using real conversations is a problem for the listening activities, students get used to fake recordings and when faced with authentic material they do not understand, however, Ely mentions that she does not have time to look for real material.
To a lesser extent, Ely also identifies that the laptop and projector can provide additional practice for her students. She observes that although it is difficult for her to use the projector due to availability, she can use it to enhance her practice,

*You can practice oral skills, from an image you can start a discussion, a description, you can do a reading activity or even practice listening skills.* (Interview, 21.11.2012).

Ely contemplates the impact that being able to communicate in English will have on her students’ professional lives and her choice of applications looks to enhance both listening and speaking skills,

*English is important in all areas...customs, for example, they work with many people who speak English...the food and beverage area usually works in hotels and restaurants and especially because this is a tourist port, we have a lot of foreign tourism, so they also need to speak English. Fishing and scuba diving areas also work with tourism; they need to give instructions if people come for a tour or to dive in the reefs, so they also need to speak English.* (Recall, 03.10.2012).

### 5.5.3 Beliefs about students

Ely explains that EFL teachers have to face students who do not feel as motivated as they would like them to. Students are apathetic and lack the level to continue their EFL course. Interestingly, Ely finds differences between areas, not only regarding their relationship with teachers, but with their motivation to learn. Ely seems to have a specific idea of the different areas attitude towards EFL, behaviour and learning in general. She finds that there are areas that are known for their good English performance and also some where students lack more motivation which might be due to the teachers they have had.

### 5.6 Teacher cognition, practice and context

Several constraints in Ely’s socio-cultural context arise from her data as impacting on successful integration of ICT. The following section addresses these factors.

#### 5.6.1 National policies

Ely sees this reform as just another proposal from the government which will not have any serious impact on education. To Ely, these are just random, expensive
proposals which started several years ago and which do not have a follow up nor offer any real help to teachers in their work. Since the reform advocates student-centred classrooms, the government has made changes to encourage an equal teacher-student relationship. For this, the dais was removed without consulting the teachers, which for Ely is a mistake since they used it to better monitor the large number of students per class.

You really cannot take these proposals seriously when they do things like this to encourage student-centred classes, it’s just ridiculous, we need effective training and guidance, not having our classrooms dismantled. (Interview, 05.10.2012).

Ely observes that there has not been too much change regarding EFL teaching under the current reform because teaching a language already implies being competent in that language and she mentions that it has been years since they started working this approach. Although in theory the educational model proposed by the reform aligns with the nature of EFL instruction, in practice it is sometimes challenging for teachers to make this approach work in class,

You could say that in the EFL classes there hasn’t been a great change in the way English teachers lead the class, because learning a language is somewhat competitive, so you need to have the knowledge and the language skills to be able to communicate, so it’s already been years that we are working under the competence approach, the communicative approach, so more or less we are working in the same way. (Interview, 28.11.2012).

However, Ely identifies some important factors that impact the successful implementation of this model in practice,

Although it’s the same, they have changed the names of things. For example evaluation, we have to adapt the activities to fit the evaluation criteria because now we have to assess students under both generic and disciplinary skills. (Interview, 12.11.2012).

This places a huge demand on teachers who have to assess a large number of students under this criterion daily,

The problem is the number of students that we have in class, we have in average 50 to 60 students, so it’s quite difficult to work under the competence approach with this many students. (Recall, 03.10.2012).
For Ely, EFL teachers already had a way of evaluating this approach which is inherent to learning a language. Now teachers are asked to evaluate in a different way which proves problematic because of the large number of students. Students need a personalised attention and teachers that follow up each student’s progress. They are required to record several aspects of evaluation during class each day, which include students’ work, behaviour, willingness to work, textbooks, homework, participation in class. This has to be repeated every day for each of her more than 50 students per classroom, in 6 groups. In this context, ICT for Ely represents another thing to do in class,

_They stressed the importance of using ICT in our classes and in how to make students competent with this. The problem here is that it’s already difficult to work under this approach. We need smaller groups so that, as a teacher, you are available for all your students and you can evaluate them and supervise them in class. (Recall, 17.09.2012)._

According to the reform’s policies, both students and teachers have to use ICT in the teaching and learning process. It is suggested that since students are inherently interested in technology, using ICT in class will provide a familiar experience for them. Students have to use it in their research and to present their work, while teachers are required to use ICT, especially internet-related activities, in order to keep students motivated in their learning.

### 5.6.2 Institutional context

Within the institutional context, several factors are identified that impact the extent to which Ely is able to successfully implement ICT in her classes.

#### 5.6.2.1 Institutional policies

Teachers in Galicia have academic freedom and they can choose how and what they teach. Because of this, there is a lack of continuity regarding teaching content between semesters: while some teachers focus on teaching vocabulary about the technical area others focus on improving students’ language skills and grammar like in Ely’s case. As a result, there are disparities in students’ language level. Consequently Ely starts each semester teaching the basics and continues the semester
trying to catch up with the contents in her program before the examinations take place, leaving little time to other activities, like using ICT in class.

However, although ICT is encouraged, teachers do not have specific guidelines on how to use it in class. They know the objectives, why they should use it, and what is expected from them, however, since there is a lack of policies regarding ICT use within the institution integration is difficult. As nobody checks that they are actually using technology in classes, implementation cannot be enforced.

Despite not being observed or regularly monitored, Ely feels a moral commitment towards her job and her students. Ely notes that it would be easier for her to fulfil her job with minimum standards, teach some vocabulary, keep her students quiet, help them pass the exams and that would be enough to keep her job and have everybody happy in school. However, she cares about her students and their learning and is concerned about the image her students might have of her. In this respect, although she does not use ICT frequently, she uses it because she believes her students like it and they appreciate the change in teaching strategy in class to help them learn.

5.6.2.2 Lack of resources

An important factor that influences the extent to which Ely is able to integrate ICT in her classes is the availability of resources in Galicia. Since schools have been given some resources teachers are expected to implement them in class,

"Supposedly, we’ve been given a little bit of material, a little bit of resources. We can use the projectors and laptops to present our lessons using slides, there’s a smartboard and a projector in the audiovisual classroom which can be booked by whoever’s interested so they can teach in there using this technology. (Interview, 04.09.2012)."

Teachers at the school are expected to use the technology that it is available for them. However, there is an apparent discrepancy between what teachers have and what school authorities think that there is available. Although the government has provided resources and budget to schools, Ely identifies that the few resources that they have are not enough for all the teachers in school, and they would need to have more to be fully implemented across the teaching subjects. This also complicates the planning of
ICT-related activities in advance, which leads her to favour the use of traditional resources in class,

*Before each class you have to borrow the laptop if you don’t have one, and the projector, so you can use them in your classes, but sometimes the person who lends you these resources is not there or they’ve been lent already, which makes it difficult to plan your class, or when you plan it and you want to use them they are not available.* (Interview, 04.09.2012).

In another context, she explains,

*I already had the projector, the cable and the extension, but they didn’t have a laptop, but then a teacher returned one of the laptops and I could borrow it, but I almost ended up without any material.* (Interview, 27.09.2012).

Ely acknowledges that she rarely uses technology in class because the process to book the resources beforehand makes her waste time and since there are only 2 laptops for all the teachers in the school, there is little equipment available to book. Most of the laptops don’t work and the ones that work are usually booked by what Ely calls the *main subjects*. Besides, school infrastructure does not allow teachers to fully optimise the resources at hand.

*There are classrooms that already have a projector, those classrooms over there in that same building, they already have the projectors installed, but there is one there where I teach, that already has the projector, it has the speakers, but the plugs don’t work, so you can’t use it anyway.* (Interview, 04.09.2012).

A lack of blinds or curtains in classrooms also makes it difficult to use the projector or the whiteboard because of the amount of light coming from the windows. Besides the lack of resources, the ones available are not properly maintained and when she can finally get hold of a laptop, there are malfunctions that slow down the class. Technical problems prevent Ely from using more technology in class. Obsolete or bad equipment reaffirms the feeling that using it is a waste of time. Although in the interview she seems relaxed when talking about malfunctions, in practice she looks nervous and worried about the lesson.
5.6.2.3 Accessibility

Access to resources is another factor for low technology integration in Ely’s classes. For example, she perceives that booking the computer centre is impractical for her lessons.

Since we have 50 minute classes and, as I already mentioned, a large number of students, it’s very difficult to take them there, because of time and because it’s difficult to access. (Interview, 08.09.2012).

Also, the fact that this centre is in demand from other departments makes the process complicated and discouraging for Ely.

You have to book it and that’s where the computer classes take place, the ICT classes, so it’s really difficult to have access to it, if you as an EFL teacher want to book the place, it’s difficult. (Interview, 17.09.2012).

5.6.2.4 Opportunities for training

Ely believes that it is important to continue her professional education and study. She likes to keep up to date to improve herself as a teacher and acquire specific skills to help her practice. However, although teachers have been offered different courses and scholarships to obtain postgraduate diplomas in teaching competencies, when it comes to ICT training the support has been minimal and they have not had proper training. Teachers have only been provided with short technical ICT courses to show them how to use the smartboard and the flip camera, in what she calls a short assessment spread over three days,

The only course, well, if you can call it course because it was more like technical advice, was about the use of the interactive whiteboard and the flip recorder which is a video camera that you can use to film students’ presentations, and we only had 3 sessions. (Interview, 25.09.2012).

Despite the course being short, Ely perceives the flip recorder as being particularly valuable and recognises the potential in her class.

Sometimes it’s difficult to evaluate in class, especially the speaking skill, so you can record the students and evaluate at home…or you can also use it to give them feedback, they can watch their performance and say what they thought about their presentation. (Interview, 27.11.2012).
Since the courses that have been offered in Galicia have been more theoretical than practical, Ely does not regard them as relevant or particularly valuable for her classes,

*What we as teachers really need is practice, I mean, to know how to apply what we learn, because when you use it [ICT] is when you have doubts, or you forget what you had to do. (Recall, 24.10.2012).*

A lack of adequate training constrains what she is able to do with technology in the classroom. She perceives herself as low in ICT competency and she lacks the skills to use ICT to its greatest potential. We can observe that in her practice, ICT is merely used to support traditional instruction and as a medium to present teacher-generated information. This lack of competence in turn impacts Ely’s confidence to implement technology in class,

*Many teachers complain about that...well, it would be rather embarrassing to take a group [to the audiovisual classroom] and not knowing how to use the interactive whiteboard, I mean, we need another course where we could actively participate and we learn how to use the interactive whiteboard. (Interview, 04.09.2012).*

Ely’s lack of confidence is also exacerbated by technical problems,

*I can’t help it, I feel a bit stressed every time I bring the projector because of different problems that happen exactly when you want to start using it and that only makes you waste time. (Recall, 03.10.2012).*

### 5.6.2.5 Support

According to Ely, the government has supported teachers with training, free courses, scholarships, to help them with their work and to carry out the objectives required for this reform, in the belief that since teachers should support students in the acquisition of competencies, they must acquire these competencies first. Teachers have had support to implement the reform at the beginning of the semester and through the school year. Even before implementing the reform teachers were supported to work under the competencies approach.

Nevertheless, despite being one of the objectives of the reform to raise the status of EFL within the curriculum, Ely does not perceive teaching of English as a priority in
general, which she considers is due to a lack of vision on how the language impacts in the Mexican context.

*It’s a matter of culture and Mexican mentality because English is seen as a foreign language in the country, it’s not even second language so it’s not given the due importance. Imagine if it was official and nobody would hire you if you didn’t know English.* (Interview, 18.09.2012).

Ely believes that this general feeling, in turn, impacts EFL classes in the school since they do not hold the same status compared with other teaching subjects.

*It’s not as important as, for example, Maths, Physics, Chemistry, although supposedly it’s becoming a bit more important.* (Interview, 18.09.2012).

Unlike these subjects, she thinks that EFL teachers are not provided with enough resources to deliver effective instruction. Teachers are left to do their job without supervision or feedback, which increases the feeling that ICT is optional.

*It should be given a little more importance at institutional level, maybe this could even raise awareness in students, and well, they could give us the necessary tools to deliver our lessons effectively, in general, it should be as important as other teaching subjects.* (Interview, 05.10.2012).

Whereas other disciplines have access to resources, like the computer lab as previously explained, Ely believes that there is a lack of support regarding technological resources that EFL teachers need in their teaching practice. From her point of view, EFL should either be more supported or be a priority in schools.

*We don’t even have CD players, things like that, we should be given more support precisely because we are teaching another language, we should have more support regarding technology, even priority, but we don’t have it a 100%.* (Interview, 10.09.2012).

For Ely, giving the same status to EFL as to other subjects would be key to promote its importance in school. For her, this would also change the students’ attitude towards the subject. Ely would appreciate some feedback in her practice, some guidance on how to improve her teaching in order to understand what she might be doing wrong so that she can change it.

As for technical support to implement ICT in class, Ely mentions that she is not able to use the technical support available in school, because she lacks the time during
school hours to access it. Because of this, she relies on and appreciates her students’ help in learning how to use the projector in the classroom. In different occasions during her classes, her students help her setting up the equipment while she tried to make most of her time doing something else. The students were happy to help her and Ely was confident and appreciative of their help. She explains that she rarely has to ask them, usually they bring the equipment and have it ready for class.

5.6.2.6 Teacher collaboration

Teachers face a lack of continuity in their students’ language level from one semester to the other. Ely considers that instead of going forward and begin with the semester objectives, most of the time she has to start all over again because students lack the basics to continue their EFL education because other teachers have been focusing on just teaching vocabulary of the area. Despite recognising the advantages of learning vocabulary about each technical area, especially because some students start working straight after high school, she is concerned both about the future of those students who continue their education and who are not taught EFL properly and about the time she has to take from her own programme to help students at the beginning of each semester. She considers that being a technological school, students must be as ready as possible to prepare themselves because for many this is the last formal education they’ll get before facing working life. Most if not all will work with English speaking people, however they are not interested in learning.

Ely comes across in her data as a highly regarded member in the institution who is usually chosen to represent the school in front of external examiners. As such, she feels responsible to fulfil her obligations and to give her best in her job as a teacher.

*You have the moral commitment with both your job and your students. You really need to cover all the content so they can learn, because I do worry that the next semester their teacher will say no, she didn’t teach them anything.* (Recall, 03.10.2012).

There is not only lack of collaboration between teachers but also a lack of responsibility to fulfil their teaching chores according to Ely. This in turn affects ICT implementation in the school. For Ely, there is a complete lack of support within the department which leads not only to inconsistencies in students’ language level but to a heavy workload for some teachers, and continuous planning during the school year.
Although they have to plan their teaching sequences each semester, very rarely they have them all ready to start the classes. Therefore, they have to continue planning during the semester. She perceives the language department as lacking unity which results in teachers working in relative isolation.

*Jaz [as the coordinator] has tried to bring us together and I work a lot with her, we agree on how to evaluate, we agree on many things but not everybody participates, nobody attends the meetings* (Interview, 14.11.2012).

These work demands restrict the time that Ely has to explore the possibilities that ICT offers,

*If you have time, you can bring extra material to your classes, you can use more slides, more technology, other resources, more activities to practice grammar for example, but we don’t usually have time.* (Interview, 14.11.2012).

Ely believes that lack of collaboration is exacerbated by the fact that not all the teachers in the Language Department share the same background. Teachers who are “normalistas” are trained in various disciplines and teaching methods, while the EFL teachers are specifically trained in that teaching subject. There are also teachers from other disciplines that know English and are part of the EFL department now. Ely perceives these differences as the reason why there is a lack of collaboration among teachers, a lack of common ground.

5.6.2.7 Time

Time is a recurring theme in Ely’s data. Working in two different schools every day leaves her with little time to experiment with ICT and to plan ICT-related activities for her class.

*The problem is time...as I work in the morning and afternoon and I come home at night, it’s difficult to find time to prepare activities like these [ICT-related activities]* (Interview, 06.12.2012).

She uses any free time she may have to plan her lessons.

*Usually, I do my planning late at night, or during weekends...sometimes even during class time, when they [students] are working.* (Interview, 06.12.2012).
However, despite expressing positive views about the use of ICT in EFL classes, she recognises that this is not a priority in class.

_I commute sometimes one hour between schools because of the traffic. Sometimes I don’t even have enough time to grab a bite and just to think that I have to use the little time that I have left waiting to see if I can get the laptop…and then it doesn’t work in class!...no thank you._ (Interview, 28.11.2012).

Her main concern is having time to cover the content in class, which sometimes is affected by different factors within the school such as events, demands placed on students from other teaching subjects and frequent class interruptions. For Ely, integrating ICT in her lessons is a disruptive process that consumes too much of the time that she feels should be devoted to achieve her instructional goals.

_To be honest, I don’t use it [ICT] very often, maybe once or twice a month because of time, because you have to book it in the Academic development department where you ask for the laptop and projector and they only have 2 for all the school._ (Interview, 06.12.2012).

In another context she mentions,

_Personally, I’ve never used it, because we only have a 50 minute class and taking the group to the audiovisual centre means wasting 10 minutes of class. By the time you arrive and everything is installed and you take the register, you end up with a 25 minute class, that’s why I don’t take my students._ (Interview, 12.09.2012).

A lesson has to be spread sometimes over several sessions in order to be completed due to these interruptions. As a result, she is more concerned with completing the objectives before the examinations than with using different resources like ICT. Time then informs the kind of activities she introduces in class.

As Ely plans from the beginning of each semester the materials and resources that she is going to use in class, ICT is considered as an extra tool, something that she uses if she has time to spare and if the resources are available. According to Ely, due to ICT’s unreliability she cannot afford to plan to use it in advance because she does not know if the resources will be available on the day. Because of this, Ely relies on the textbook, since it is the only resource that she knows that it will be available from the beginning of the semester. During the semester, she weighs in different factors like
availability of resources, students’ behaviour, how far she is in her teaching, her own free time, and she decides then if she can use ICT.

Frequent technical problems also mean a waste of time for Ely and prevent her from using more technology.

You install the projector, you install the laptop and then the laptop is not configured and you can’t project the image and you waste time and then there’s a bit of disruption because the students are waiting for the class to start and you are busy fixing the problem. (Interview, 06.12.2012)

Ely believes that she would integrate more technology if she did not encounter these situations,

It wouldn’t be the same if you arrived and the projector was already installed and you were certain that you’d turn the laptop on and you’d start your presentation, I mean, if everything was already installed. (Interview, 06.12.2012)

5.7 Summary of findings

Images of early schooling experiences had an impact on Ely’s cognitions regarding EFL teaching and learning. She was introduced to English language learning by her family and found that learning English through songs, games and stories in an informal environment motivated her to acquire the language. She disliked subsequent experiences in formal education which focused on grammar and drilling exercises. In spite of her dislike for traditional approaches she identified grammar as an important aspect of learning a language which she teaches through inductive approaches, trying to break away from images that she encountered as a learner, using Power Point presentations in the belief that this format is motivating for students.

Teaching approaches remained traditionalist during professional coursework with a few exceptions which she tries to base her current practice in. She realised that courses taken during teaching education did not prepare her for the practicum, which made her adopt traditional approaches in order to take control of the class. ICT was not central in her training as examples of technology use were scarce at that time. The few images that she encountered were mainly teachers using ICT for presentation purposes, something that she now replicates in class.
Ely holds positive beliefs about the value of technology in education which she thinks can be used to raise motivation in students. She advocates communicative approaches in EFL teaching and learning and her choice of ICT resources is based on the belief that they can help her develop skills that will be useful for her students’ professional lives. However, she mainly uses it to support traditional practices and it is not fully exploited in class.

Several contextual factors impact on Ely’s decision to use technology in class. Under the pressure to work using the competencies approach and with a large number of students per class, ICT is seen as extra work. For her, ICT use cannot be enforced in the school because of teachers’ academic freedom and the lack of resources or the difficulty in accessing the ones available in the institution. These factors, coupled with technical problems, the lack of training and support in school, the lack of teacher collaboration which increases teachers’ workload and the lack of time due to different commitments in her different working places prevent her from implementing ICT related activities in class.
CHAPTER 6 FER

6.1 Introduction

Fer’s day is divided into two shifts. In the morning he works in a Junior High School and in the afternoon he teaches English in Galicia High School both in 3\textsuperscript{rd} and 5\textsuperscript{th} semesters. Fer is the only participant who teaches two different semesters which differ in their instructional objectives, the way they work and the technological area. 3\textsuperscript{rd} semester groups require Fer to provide students with the necessary skills to effectively communicate in the language. In here, Fer uses a textbook but only as a guide for himself and so that he can ask students to investigate the topics that they are going to see in the lessons.

5\textsuperscript{th} semester content focuses on teaching reading strategies. Fer uses the learning sequences that the English department developed with the teachers’ collaboration. His classes are mainly based on WebQuests, which are lesson models, an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web (http://webquest.org/). He provides links to different websites, tasks and activities for the students. Students also bring examples of authentic texts in the areas they are specializing in order to practice skimming and scanning reading techniques mainly although they also translate the texts and look for the vocabulary. The next section provides an overview of how Fer’s classes develop in both semesters.

6.2 5\textsuperscript{th} semester class (Aquaculture technical area)

This is the first observation of Fer’s 5\textsuperscript{th} semester classes. As previously agreed I arrive 15 minutes before the class starts only to find that everybody is already in the classroom. Fer points at a chair in front of his desk that he has saved for me, which is fortunate considering how overcrowded the classroom is. With almost 60 students in there, there is no place to walk around. I tell Fer that it is a shame I was not there earlier to talk with him about his lesson plan for today. He explains that because he used the 5th semester learning sequences in a proposal he wrote for a research project, he already knows what each lesson is about and he does not need to check it for the class or to have a lesson plan. So he cannot show me anything written but he
can explain the objectives for today which he starts to write in the whiteboard. While we talk, he mentions that he would rather have me observing only this group because they are from the aquaculture area and he shares the same background with them. He does not feel as comfortable with the group that I will be observing the next day, because the students are part of another technical area and sometimes they misbehave, he explains. While I finish setting the camera, I look around and I see that this classroom is one of the few that has a whiteboard and a projector, which allows Fer to bring his own laptop to every class. It does not feel as hot in here as in the other classrooms that I have been to because it has air conditioning. There are also speakers and blinds which are useful when the sun is shining bright early in the afternoon. He sets up his laptop and the projector and shows the students one of the websites they can use to find the meaning of some words. He explains that they can use Google translator but a better option for them is the Thesaurus dictionary online where they can choose the meaning of a word depending on the context and also listen to the words in order to learn how to pronounce them correctly. He clicks on a word to show them an example but the volume in the speakers is not loud enough to be heard and some students complain that they cannot hear the pronunciation. Fer gently observes that if they are quiet enough perhaps they can listen clearly. They try again to repeat the word but after some time they stop. Fer then asks them to copy the link so they can listen to the words and practice at home. Fer moves on to the first activity and displays on the screen the text that they will be working on. He talks about how they will learn to read it using skimming and scanning strategies with the aid of affixes, prefixes, suffixes and cognates. Fer highlights examples of these words and the students say what category they belong to. After agreeing on the colours they will use to differentiate them, Fer asks them to get their photocopies and continue with the activity in teams. He reminds them to use the dictionary applications in their mobiles or to approach him if they need help. Some students approach him with their lists of words which he quickly looks up using Google translator. He explains that this way is easier for him because he does not waste so much time; after all, he says, he is not a machine and he cannot know all the English words, especially because these are technical terms. While he looks up the meanings, he shows them how to use a translation programme he has downloaded in his laptop. It would be good, he says, that we could have some laptops in the classroom and we could all work together online. He jokes and laughs with the students at his desk and from time to time he
makes some comments about the text on the screen and clarifies some words for the group so they know how to find the right meaning for their translations. His teaching style is friendly, sometimes this makes students cross the line and be disruptive in class, they come and go as they please which interrupts activities. Fer knows this and acknowledges that although students should work more sometimes he is a little laid back with them. After some time they review the activity together. Fer explains that one participant from each team will read their translation while the rest listens and writes down any comments about it. He reminds them to especially observe parts that seem unnatural in Spanish. The students take turns to read and after a while Fer realises that since they cannot display every team’s work on screen, it would be easier if at least each student had a photocopy but he acknowledges he did not think about it before. Since the class has been mostly in Spanish, Fer leaves some time at the end to practice speaking. The students have been listening to the words and repeating the ones they did not know how to pronounce. They take turns to read and Fer encourages the rest to listen attentively. He tells me that not everybody is brave enough to read in class so the students can record their reading in their mobiles and email him the files so he can add these to their grades. I notice that students have had little participation in class apart from the times that Fer has asked them to participate because Fer has been talking throughout the lesson and has rarely let students express themselves. At the end of the class Fer explains that they will keep on practicing the strategies they learned today because they will use them for their exam. He reminds them to access the group’s Facebook page and asks them how many have used it and half the students raise their hands. He then remembers that they can also download their texts to work in class from there. See? he says, We use the technology for everything.

6.3 Fer’s 3rd semester class (Hospitality technical area)

Fer agreed to also let me observe his 3rd semester classes. He previously mentioned that these classes do not read nor translate texts, they are just normal EFL classes, he says. When I arrive, there are already six students waiting outside the classroom and the rest are coming back from their break. We wait outside for Fer who is already running fifteen minutes late. He finally arrives and apologises to everybody and he asks us to go to the classroom. He looks annoyed and after turning his laptop on he tells me that he was waiting for a projector he booked the day before, but the person
in charge of the office had to run a personal errand and nobody else had a key for the
lockers where they keep the resources. *We are going to do it the old way* he says, and
takes some photocopies from his briefcase. While we wait for the computer to start up
we talk about his lesson. They are going to review modal verbs and some vocabulary
they have been studying for the past two sessions. He leaves the photocopies on the
desk and asks students to get one each. Only half of the students attended today and
they are spread in small groups, mainly in front of Fer’s desk. Fer notices that I have
been looking around and he says that these classrooms are almost like shells, only
walls and nothing else. He shows me the only plug in the room next to his desk,
which makes it difficult to work with the projector. Even so, he would rather use the
projector because, when it is not available, he has to rely mainly on the whiteboard
which he feels makes him waste time. After writing up the objectives on the
whiteboard, the lesson starts. Fer begins by asking some questions and elicits the use
of the modals. The students brainstorm and Fer writes the examples they give. After
that, he asks them to work in pairs and complete the activity filling in the blanks with
the right modal. The students work by themselves for some time but they seem to
struggle to understand some vocabulary, to which Fer replies that they could check in
the dictionary application they have previously downloaded in their mobiles. One of
the students says that they cannot find the meaning of a word in there. He says the
word incorrectly and Fer asks them to listen to the right pronunciation. He clicks on
the word in his laptop and the students laugh while saying it sounds like a duck. Fer
firmly asks them to stop playing and repeat the word so that they can learn how to say
it. The role teacher-student is more stressed in this class and he is not as approachable
as he is in aquaculture. He clicks on different words and after practicing for some
time the students continue working on the exercise. He encourages team work in this
group and asks the most advanced students to help in class and supervise their peers.
The students seem to rely on 3 of their classmates who kindly help them and take
their time to explain in detail how to use the modals. From time to time, the students
would approach them to check their doubts. In the meantime, Fer is at his desk
grading some homework. After some minutes, Fer stands up and tells them that they
are going to review the activity together. He asks them to read the complete sentence
and then write the answers in the whiteboard. The students take turns until they check
all the activity. Fer then moves on to explain the second activity and in that moment a
student from another classroom arrives carrying the projector. Fer looks at his watch
and after some consideration he tells two students to set it up while he looks for his flash drive. However, when he opens his file, the picture is not displayed and he wonders what the problem might be. One student says that it must be one of the cables; another one stands up and says that this projector had already malfunctioned in another class and they could not make it work. We have been waiting 7 minutes for the projector to work and most of the class is standing next to it trying to help. Fer is already exasperated and finally gives up. He asks the students to sit down and complete the activity for homework. The bell rings and the class is dismissed.

6.4 Cognitions about schooling experiences

Just like Fer, his father was not originally an EFL teacher. As a child, he used to see him listening to audio cassettes that he acquired to learn the language to prepare himself for his classes. He has always admired his father’s determination to train himself to be an EFL teacher. This motivated him to learn the language initially and the image of his father’s self-taught learning has remained with him. As a result, he is in constant search of ways to improve himself which he says he also tries to instil in his students.

Fer remembers that his father’s classes had a very traditional approach due to his lack of experience as a teacher and he resorted to drilling exercises and asking students to fill in the blanks in their textbooks. He found the same images in formal education, endless classes of just filling in the blanks in his textbook. His first formal experience as an EFL student is deeply embedded in his memory. He remembers that,

> It was never enough for me just filling in the blanks, that’s why I don’t use a book in my classes…that made me distance myself from books. I use a book as a guide but I don’t ask my students to buy it. (Interview, 11.10.2012).

Fer learned English through a very traditional approach which was focused mainly on learning grammatical structures. Fer is critical of this approach which did not allowed interaction with the teacher or his classmates since as a student he did not use authentic resources and they only focused on completing the book exercises in class.

> The teacher would explain a grammatical structure, for example, present, verb to be, affirmative, interrogative and negative forms and then he would say, ok now answer the questions in your books…just grammar, no communication, not setting an appropriate English learning environment,
Although it was easy for him to learn English under this approach because of his interest in the language, Fer rejected these images of traditional learning during formal instruction. He is critical of the activities he had in class, doing the same exercises every lesson, filling in the blanks. He believes that learning a language should have a purpose, and this can be achieved by setting the language in context, playing, doing research so that students see the language as a living entity instead of considering it a series of activities in a book.

Prior images of formal education had a powerful impact on him at the beginning of his teaching practice. Despite recognising that his own experiences were not ideal for the kind of teacher that he wanted to be, the lack of alternative images of teaching would make him follow the same patterns.

*I'd read a text in front of the students and they would listen to how I read and then they would ask questions and I’d ask them to write them down and then I would continue the same vicious circle of now change the affirmative sentences to negative.* (Interview, 29.10.2012).

Informal language learning experiences had a greater impact on Fer’s cognitions. Fer would practice talking with foreigners at work, trying out different strategies in order to be able to communicate with them.

*I worked in this fishery plant and during breaks I used to talk to two of my colleagues who worked in there who were American. I learned a lot about the field talking to them, lots of vocabulary that I don’t think I would have learned from a book. That’s why I mean when I say you need a context, I knew what they were talking about because that’s my field, it was easier to learn like that. You ask me how to say peces anadromos [anadromous fish] and I can tell you...ask me how to say...I don’t know...delantal [apron] and I have to look for it.* (Recall, 09.10.2012).

Context is a recurring theme in Fer's narrative. Learning English in context is easier for him and he believes that students should be given the opportunity to learn that way. He needs to place the language within a specific context, see how the students are going to use it and why. In this sense, Fer believes that being a technical school, students should learn EFL for specific purposes, so that they can master that area, which is better than teaching EFL in general because English is so vast that it is not
possible for students to learn everything. Students should know just enough about the language so that they do not get bored with too much or too little information. His argument is that since students cannot learn everything it is better that they are proficient in a few aspects of the language, in this case, the vocabulary of their technical area, than having incomplete knowledge about everything.

6.5 Cognitions about teacher education

EFL was not his primary teaching subject in the school when he started working. Although he enjoys learning English, he had to become an EFL teacher because he needed to get the diploma to continue working. Usually, when asked about his career, he identifies himself as a biologist.

The image that Fer holds of himself is that of a self-taught teacher. He believes that he learned everything he knows about teaching through experience along his life and professional career. As a pre-service EFL teacher, he learned, in theory, how to be a teacher in general, how to prepare lesson plans and exams. He had different classes about phonetics, linguistics, culture, constructivism among others. For him, teacher education training focused on developing his skills as a teacher, but failed to provide him with the necessary English knowledge to teach EFL.

_They teach you how to be a high school teacher first, an EFL teacher second. Yes, you take all those subjects, but you can’t find...how can I explain this? You don’t want to copy your teachers, they all have their own styles...I cannot tell you that what I am now is because of what I studied then. I have created myself a way of working with all the failures and successes that I had in Jr High, in High School and university. (Interview, 25.10.2012)._ 

Despite being prepared in different fields, to date, he is constantly studying because he is aware of his limitations as an EFL teacher. He still struggles to understand some English accents, for example, and sometimes, he identifies himself more as a student than as a teacher. Since teacher education focused more on theory than on practice. Fer recalls his lack of experience in actual classroom instruction the first time he worked as an EFL teacher. Despite disliking traditional approaches, and the use of books, his lack of teaching experiences led him to teach using the same traditionalist approach he disliked as a student, filling in the blanks in the book. Recalling this
experience, Fer comments that he had this picture in his mind of the kind of teacher that he wanted to be but he lacked the knowledge of how to make it happen.

Despite his years of experience and his dislike for books and traditional exercises because he finds them restrictive and lacking authentic communicative situations, he still resorts to use them if he lacks the necessary knowledge in his lessons. For example, in Aquaculture, Fer does not follow a book which he believes makes him a better teacher, confident in his practice because he teaches the field he has experienced throughout the years. This is clearly seen in the observations, he uses his personal background to cover his language weaknesses in class, and as a result he is friendlier and confident in his lesson.

However, out of his comfort zone in the hospitality group, he uses books as a guide and changes his teaching strategy, giving students drilling exercises and not looking as approachable as a teacher. He keeps this distance between him and his students perhaps to avoid being questioned. Although he tries to make the exercises more appealing by looking for examples online that relate more to what students know about, his use if ICT ends up as a tool to show traditional activities. He provides several examples of the same structure on the whiteboard, asking later the most advanced students to explain such structures and encouraging discussion. In this way, he does not have to explain directly.

The observations showed that he struggles to explain EFL and, as a result, it is difficult for him to explain basic grammar to his students. Despite his struggle, he refuses to check the answers in the book. He believes that anybody should be able to answer it by themselves without any help. His weaknesses as an EFL teacher often confuse his students. Fer often explains that in classes that have not been observed he provides a more communicative and interactive lesson.

The images he encountered in pre-service teacher preparation programmes did not have an impact on his cognitions. On the contrary, they only reinforced the belief that his self-taught method worked better for him than what he learned in university which, in his view, sometimes interfered with the way he thought he should teach.
Many times I taught English, even before going to university, and I think I was more successful then, before studying, because I based my classes on something different and the students used to tell me that they liked how I taught my class. (Recall, 09.10.2012).

Fer rejects the images of teachers during pre-service teacher preparation and states that nobody wants to be like their teachers, that everybody is different and that each person has their own perspective and methodology to teach. He cannot find an experience that he can relate to his current teaching situation.

It was during in-service teacher education that Fer encountered alternative images of teachers that looked more meaningful for his teaching. Fer learned English through a student-centred approach and focused on language use with different activities during the class. He found images of teachers that related to the kind of teacher that he wanted to be. Attending different training courses made him question his own practices and he began to think that EFL classes should look like those he attended, more like a conversation, like an exchange of information, in which lessons had a cultural focus and were situated within a communicative approach and a given context.

The turning point for Fer was a training course he took one summer in Canada. To Fer, both culture and context are important for language acquisition and being immersed in an English speaking context seemed significant to him. He was exposed to a different way of delivering classes and although the experience just lasted a few weeks, it was meaningful enough to shape his cognitions. He recognises that this course had a profound effect on his thinking about language teaching and learning and he takes this into account when he teaches EFL.

Most importantly, the course introduced him to the use of technology in an EFL class, which was a first time experience for Fer. The teacher in charge of the course would show them videos to introduce a cultural aspect, Power Point presentations and she would use the interactive whiteboard as well as the laptop in every class. Of special significance for him were the online activities that the teacher set for them which, once again, promoted the cultural aspect in EFL lessons that Fer so often refers to in his narrative.
Another positive experience as a student, was the use of an online programme that combined both e-learning with classroom learning, which Fer believes help him improve his English. Because it was a paid programme, he could not use it for his own lessons. He remembers this as being one of the best experiences that he had not only in teacher education but as a student in general. The course helped him improve both as a teacher and as an EFL student. Acknowledging that one of his weak points is mastering the language itself, he recognised this method as something that could also help his students improve their own language skills and he adapted this approach for the development of his lessons.

Armed with these experiences and recognizing that technology could benefit his lessons, he went on to study a Masters in Educational Technology, which focused on effective teaching with technology in higher education. It was in there that he had a first encounter with the use of WebQuests in education, an approach that he uses nowadays.

In spite of Fer’s eagerness to breakaway from teaching images as a student, advocating a student-centred classroom, his classes are mainly traditionalist, translating texts and making lists of vocabulary. Fer remains in control of the class and students only participate to read the texts they have been translating. Teacher talks, students listen, he does not believe in equality between teacher and student. He explains,

*When is a student going to be the same as a teacher? (Recall, 14.11.2012).*

However, Fer believes that his role is that of a guide and although in theory he advocates a student-centred classroom, images of traditional lessons impact his practice and he fails to develop classes like the ones he had as a student. He comes to the realisation that his class is not as student-centred as he wants it to be when he sees his recall and surprised he exclaims *I talk too much!*, being immediately concerned of how little he lets the students participate. He explains,

*My idea here was to start a discussion after class with the information they had from the WebQuest, but I can see myself leading the students, talking too much and I cannot get them to participate...if you see, I’m starting to get frustrated because they are still working in their teams, and time was up already. (Recall, 14.11.2012).*
6.6 Teacher cognition, ICT and practice.

This section examines Fer’s data about implementing ICT in his teaching practice. Four broad themes emerged from the analysis:

- **ICT’s role**

- **Pedagogical compatibility**

- **Teacher’s role**

- **Beliefs about learners**

6.6.1 ICT’s role

Fer acknowledges the importance of both technology and language in 21st century education. He believes that this is required by a global society and trends such as globalization have made this world a “global village”, where people can communicate with anyone anywhere in the world. Within this context, Fer appreciates the role that technology plays in his students’ lives and he is positive about the impact that ICT resources have in his student learning outcomes.

He is appreciative of the varied range of resources made available on the internet, especially the array of authentic material that he can introduce in his teaching practice. This, he notices, is an advantage for his students compared with his own experience when materials were scarce and mainly available through photocopies provided by the teacher.

*The teacher would give us copies which sometimes we used only because they were available. Now, I realise the power of the internet and of the different authentic materials that I could use in class that are related to the technical area my students are in.* (Interview, 11.10.2012).

At the same time, technology supports him in the search of specialized vocabulary. Observing his classes, it is common seeing him using different applications to help his students in their classroom activities.
I’m always connected to the internet, to Google translator in particular, I’m not a machine, you know? to know all the English words, especially because these are technical terms. (Interview, 29.10.2012).

For him, technology is a tool that saves resources in school and for students, because he does not have to photocopy exercises just project them on the whiteboard. Technology use also encourages team work and participation and allows him to save time in evaluations. He takes advantage of mobiles, technology familiar for students, to help them practice listening and speaking skills. He would ask students to send him the files so that he can evaluate them at home.

6.6.2 Pedagogical compatibility

Fer takes up the affordances that he believes can help him enhance student learning. He uses tools that he is familiar with and relies specifically on the data projector, his laptop and the Internet. ICT, for him, works as a set of learning tools that can foster collaborative activities with his students. He believes that peer collaboration in the classroom, benefits students more if they are working with ICT. They can share ideas and support each other to complete the activities, which is especially needed when learners work with WebQuests.

I emphasise team work in the classroom because students can learn more from their peers than from their teacher sometimes. (Recall, 09.10.2012).

Fer’s belief that teachers are in charge of their own knowledge and should prepare themselves to be educated in different areas makes him favour the use of WebQuests, which help him place the language in context and at the same time they give students practice on how to solve problems. This encourages not only students’ independence but helps them to take control of their learning. His main goal is to help students successfully understand the language and he believes that by using WebQuests he is giving his students a method that will help them throughout their professional life. He also recognises the potential of other applications that can enhance student learning, like translating apps in their mobile phones.

We can use these apps to look for words in the dictionaries and for the ones that are shy to talk in class, there’s the option of recording their voices and this counts towards their grades (Interview, 28.11.2012).
Fer’s decisions to introduce mobile apps in the classroom not only seek to take advantage of students’ inherent interest in technology, but they also help him with group control, which he believes is compromised due to the fact that the school allows students to keep their mobiles in class.

*Instead of constantly arguing with them [students] about using the mobile in class, we can make good use of it and turn students’ indiscipline into work.* (Interview, 05.11.2012).

Fer likes experimenting with other ICT tools that he would like to introduce in his teaching practice and he especially refers to interactive applications.

*I know how to use technology for presentation, so that students can see, but not the interactive ones to teach, that’s different.* (Interview, 13.12.2012).

Fer understands students’ contexts and uses familiar tools for them in class. Regardless of a lack of computers he uses mobile apps. ICT tools that are not compatible with Fer’s pedagogical beliefs are seen as distractors and avoided in his lessons or used rarely.

However, although he uses technology in most classes, this is mostly used as a presentation tool and the image that Fer has about student-centred activities do not materialise in class. However this is difficult for Fer to admit, although this was noticeable during the observations.

**6.6.3 Teacher’s role**

For Fer, the student is the leading figure in education and he tries to prepare them so that they can face future situations not only in further education but in their jobs where they will have to become self-sufficient. He is determined to help his students to see their learning according to their future, not only as an obligation, but as an opportunity they have in order to take advantage of their careers and to be competent at work.

Because of this, he explains, he tries to recreate a university setting in class in order to instil in students the sense of independence and responsibility that they are going to need in university. In this sense, he believes that WebQuests help him to this end and
uses them both to guide students in their learning and as a tool to develop different skills: Language skills, researching, understanding texts from context.

However, although Fer holds constructivist pedagogical beliefs, he also thinks that everybody has a role to perform in class and the teacher’s role is that of a guide. Students cannot be too independent. Teachers cannot give them the activities and expect them to do them by themselves, his job in class is to guide them.

Despite believing that he encourages student ownership through the activities that he sets for them in class, in reality, his approach is teacher-centred and although students seem to be engaged in the activities, Fer does not allow them to have control of their own learning also providing a great deal of direction in class.

We can notice this when he asks students to work in their WebQuests. The fact that he can guide them through their search by setting the links beforehand, allows him to stop his students getting confused with so much information at hand. Fer tries to guide students on how to look for valuable and reliable information online but he acknowledges that this is a struggle because students have so much information at hand that they get distracted. He acts as a guide by giving them the links and narrowing their options

> All these websites...when you search online the web is so broad that instead of being an advantage so much information turns into a disadvantage, so you have to guide them, which websites, which links. (Interview, 11.10.2012).

Fer believes that his teaching style positively influences students’ outcomes. He believes that his teachings have impacted students and their success in their careers.

**6.6.4 Beliefs about learners**

Fer’s decisions to introduce ICT in class are influenced by the beliefs he holds about learners, their contexts and their learning needs. For example, Fer’s use of ICT changes depending on whether he is teaching in the aquaculture area or in the hospitality area. His decisions to use ICT with the Aquaculture group are informed by the skills that he tries to develop in learners and by what Fer considers as meaningful activities for them.
We need to practice reading strategies, but we need them in context, and how can we look for information for 5th semester in the aquaculture area? Through a WebQuest. (Interview, 29.10.2012).

Fer sees students in the aquaculture area as colleagues, there is familiarity and empathy with them that he does not have in other classrooms and he advises them according to his experiences in the area. Because he shares the same background as his students, he understands the context that they are going to face in their future careers. This informs his choice of materials, activities and methodology that he uses in class, which he chooses according to the students’ area not to confuse them.

Fer feels compelled to guide them through their learning in aquaculture. He believes that in this learning context a WebQuest enhances students’ learning. Despite advocating for students to be able to use the language to communicate, he restricts his students’ learning to searching for some vocabulary from WebQuests. His decision is based on providing students with projects related to students’ interests and future goals, looking to make the class more interesting by motivating them and engaging them in class. Fer believes that if students are not familiar with the topics there is no understanding and they cannot develop their language skills.

On the contrary, Fer feels that ICT does not fit the pedagogical aspects of the lesson content in 3rd semester when he is with the Hospitality group. In this context he does not perceive the use of ICT as valuable as in the other group.

In this class students don’t read or translate texts, they don’t need that. This is a normal EFL class and that’s why I don’t use technology here. (Recall, 14.11.2012).

Fer thinks of himself as a Biologist first and an EFL teacher second. As a Biologist, he is an expert in his area. As an EFL teacher, he recognises that he is still learning. He considers students in Aquaculture as his colleagues. He feels more at ease with them and he describes their relationship as friendly. His expertise in the field gives him a vision on how to teach the language and how ICT can be used in this context as a method to enrich their future professional development.

My job as a teacher is to set them in the context they will working in and show them how to look for the information they will be using then. (Recall, 09.10.2012).
These links, however, are not established with the students in the Hospitality area. His relationship with them is different and although he is also friendly, he prefers to set boundaries and keep his distance from the students. His lack of content knowledge of the teaching area does not allow him to introduce ICT in his practice here because his priority is to see first, how to develop skills in his students that he has yet to master. In this context, he does not see potential of ICT to improve learning and in fact, he believes that ICT is a distraction and he associates it with loss of control.

*I have some speakers but, how can I say this?...if I bring the CD player or we watch a video from any website...I think it’s a distraction, because they only want to listen to music and that could be like a cultural activity, maybe once a month, maybe a song to listen and sing, but no, I realise it’s a distraction. (Interview, 19.11.2012).*

In another context he explains,

*I should speak more English, work more listening activities, but with so much noise...it’s terrible. (Recall, 14.11.2012).*

Fer himself admits that he changes his practice according to the school context where he works. Fer is empathetic with people who share his same background and has a vision of how to use ICT in this area, however, outside aquaculture, he fails to recognise the need to learn English, especially if he believes that students will not be exposed to other cultures because of factors like students’ socioeconomic background. His use of ICT is almost non-existent.

### 6.5 Teacher cognition, practices and context

This section will examine different contextual factors that impact on Fer’s cognitions to implement technology in class.

#### 6.5.1 National policies

Fer’s beliefs about the importance of situating the students’ learning in a context align with the expectations of the reform.

*Before you could make up different situations in the classroom, now you have to understand the students’ context and find a learning experience that is appropriate for the students, otherwise the students are doing something that is alien to them, that is not of interest for them. (Interview, 06.11.2012).*
However, when it comes to technology, Fer considers that there is a mismatch between the reforms proposal and technology use in general because this is seen as something external, a different teaching subject and not a tool for teaching and learning that can be immersed in education. For him, the government has yet to create the conditions to integrate ICT not only in EFL but throughout the national curriculum.

Fer believes that students can learn better with an online education like the one he experienced. He believes in blending education and thinks the reform should have encouraged this way of learning, especially because students have computers available at home. However, the reform advocates traditional classes, in the classroom, and discourages asynchronous communication between teachers and students. This leads Fer to try to simulate activities in class like the ones he experienced.

Regarding the government’s ICT project, Fer considers that that it would have been easier to adopt *Impulsate* in EFL classes if every teacher would have been in charge of the programme instead of giving this responsibility to somebody else. He also found the whole procedure disruptive, since it was not up to Fer to decide which students could benefit more from this programme, how many times they could go to practice or what they should be working in, since this was decided from the Education Department in Mexico. Despite favouring technology in his classes, the fact that he could not guide his students through their learning process made the project unappealing to him.

> *You cannot just say ok, here are the resources and now you [student] go and let’s see what you can do, because you, as a teacher, build that knowledge in them.* (Interview, 11.12.2012).

### 6.7.2 Institutional context

This lack of clear policies at a national level has consequently impacted technology integration within the institution, which has not adopted a shared ICT policy that can facilitate its adoption. Fer comments that to have a sense of direction within the school would be of great advantage not only for him, but for everybody else. However, it does not seem like a priority in the institution’s agenda, he says.
An important fact that transpires in his interviews is that he believes that the institution needs to demand more from them as teachers. Although he appreciates that they are given academic freedom, he considers that this has impacted on the extent to which the teachers are willing to use ICT since this has not been promoted as a requirement in the school. He compares the tolerant atmosphere in his workplace with that in private schools.

*I don’t know if you’ve ever worked in a private school, the headteachers there are really demanding and that encourages you to try hard, to give your best in your planning, in your job. If we did the same here, God knows where we would be, not only in using technology, but as a school in general.* (Interview, 11.10.2012).

Fer considers that this academic freedom is to a certain extent a handicap and he recognises that school authorities need to observe and demand teachers to be more professional and hardworking in their jobs. The school should have the work ethic of the private schools who demand teachers to excel in their jobs.

**6.7.3 Availability of resources**

Fer believes that one of the main constraints for ICT implementation within the school is the lack of available resources. Because of this, ICT use is not enforced as a requirement in the institution.

*They cannot ask us to use technology in our classes if they don’t have the resources. If every teacher asked for a laptop or a projector to use in class they couldn’t provide for everybody...because we have to remember that not only EFL has to use technology, according to the reform all the teaching subjects have to use it.* (Interview, 13.12.2012).

He perceives lack of resources as contributing to an unsuccessful integration of ICT in the Hospitality area, since groups in this semester lack the appropriate resources.

*You go to the classrooms in 5th semester and they have screens, they have internet, they have projectors and we can use them for the English class...you go to 3rd semester and there is nothing in those classrooms, only the walls.* (Interview, 13.12.2012).

In another comment he says,
Maybe we have 4 or 5 laptops, before we only had 2 and another EFL teacher used them all the time so we didn’t have. Now we have more but still it’s not enough to meet our needs. (Interview, 14.12.2012).

Although he brings his own laptop and speakers to class, he still needs to get a projector from the school which is not always possible either because another teacher is using it or because the resources that he has available to work in class are sometimes faulty and slow down his work. Support is not usually available and it takes time to have equipment fixed. What he can teach in one class he is not able to do in the same way with another group because of the lack of resources. Therefore, he uses mainly the whiteboard and asks his students to fill in the blanks in some exercises.

The other day we didn’t have projector, it didn’t work. I asked one of the students and I said what happened? And he said, it doesn’t work, they said we can use it next week. No, that’s not...so I went to the office and I asked for their projector and I said you’ll get it back next week when I get mine. (Interview, 06.11.2012).

6.7.4 Resourcefulness

Despite these problems, Fer’s data reveals that he is very resourceful when he has a vision on how to integrate technology, when he is knowledgeable about the subject. It is worth noting from his data that there have been times when ICT in 5th semester groups has not been available because of technology failures, and in these situations he finds ways to get the resources he needs for his lesson.

For example, although teachers can use the schools’ broadband, the signal is not strong. However, Fer manages to use it as much as he can to do the WebQuests, although there is a limit to the links that Fer would like to have access to because they are not for free. He considers that if the school or government do not have enough budget for equipment, they could at least provide them with reliable broadband and teachers could bring their own laptops. Fer believes that there is a lack of will not only from the school authorities but from the teachers also.

Fer considers that there is enough material in the web and resources in the school if teachers really want to use ICT in class. For him, it is a matter of really wanting to do it. Interestingly, he only shows this disposition in the aquaculture classes. In general,
Fer considers that there is enough technology in school for teachers to use in their lessons.

Although he recognises that sometimes it is difficult for teachers to access resources and they do not have a specific place for EFL classes, he considers that getting an exclusive classroom for EFL is not difficult. The problem is a lack of specificity of what ICT entails and it is usually seen as a separate teaching subject instead of something that should be integrated in each lesson.

6.5.5 Opportunities for training

Fer thinks the school has helped him to develop professionally despite not being rewarded economically. He feels at ease and appreciates the fact that the school has given him opportunities to continue learning. Teachers have received the support of the government in the form of different training workshops, and it has also been ordered by decree that they must prepare and study a postgraduate diploma focused on teaching competencies. This preparation will ensure teachers’ understanding of how to educate students to be useful citizens for the 21st century society, recognising within this project the need to provide skills both in language and ICT as a priority.

Although teachers have received training regarding how to work under the competencies approach, there has been a lack of appropriate ICT courses that help EFL teachers implement technology in their pedagogical practices. Only a few courses have been organised to develop basic ICT skills as well as a workshop addressed to the Mathematics teachers who were taught how to use a programme for their classes.

Despite having experience using ICT in the classroom, Fer recognises that his knowledge of how to exploit new technologies in EFL lessons is still very limited. Although he knows about a wide variety of programmes that can be used in EFL, he does not know how to profit from them educationally and he is aware of this. Describing the image of the type of classroom that he would like to have, he acknowledges that, without training, he would not know how to create a meaningful experience for his students.
It’d be wonderful to have an interactive classroom where the students are in control of their own learning. But we don’t have it and we haven’t been trained anyway, so even if we offered one now I wouldn’t know how to use it. (Recall, 26.10.2012).

6.5.6 Teacher collaboration

Fer’s data suggests that he is isolated from the rest of the EFL teachers. His participation in the Language Department meetings is sporadic and he rarely collaborates in team planning or producing and sharing resources. This lack of collaboration does not expose him to other teaching practices that may allow changes to his own instruction. Also, it is preventing him from sharing his own vision on how he integrates ICT in his practice. Fer is aware of different websites that can help teachers to implement ICT in their class according to their learning differences. He uses different links from renowned websites which could benefit his colleagues and encourage ICT use among them.

Part of his reluctance to collaborate with his peers is the beliefs that he holds about himself and his self-taught formation as a teacher.

I don’t believe in lesson planning. How come a teacher has to plan classes? What does that mean? Is he going to learn what he doesn’t know? A teacher only needs to check, ah this is what we did last time, that’s what I think. (Recall, 14.11.2012).

Fer does not have lesson plans, he guides himself with the learning sequences that the EFL department prepares. He does not believe in planning ahead for the class, he sees this as a weakness and as a sign that a teacher is not knowledgeable enough about his or her teaching subject. Teachers should be able to teach a lesson without planning, only with their background knowledge.

Noticeably, although peer collaboration does not play an important role in the development of cognitions about his teaching practice, we have seen that he believes in fostering team work in his students.

6.7.7 Support

Fer considers that teachers have had full support from the government regarding training about competencies. However, both school administration and government
are not aware of teachers’ needs. Fer believes there is a lack of support especially in school regarding ICT use and teachers are left to their own devices. He considers that they are like lone rangers, each teacher gets what they can. For example, classrooms are not designed for ICT use and they have to be resourceful if they want to use it, like placing curtains or papers in the windows if they want to play a video because of the amount of light that sometimes makes difficult it difficult to see the images.

6.8 Summary of findings

Apprenticeship of observation has had a great impact on Fer’s teaching practice. He has encountered images of traditional approaches both in formal and formal education which he intuitively imitates despite advocating student-centred approaches in class. His father has especially been a model for his teaching career from whom he learn that determination is key to learn a language. As a result of experiences as a student, he dislikes teaching grammar and using drilling exercises or books to practice English and advocates instead focusing on technical vocabulary in class. However, he modifies his teaching approach depending on students.

Pre-service teacher education did not have an impact on his cognitions because the content of the courses focused on theory but not in developing his knowledge to teach the language. As a result, once in the practicum, he found that he lacked the skills to keep group control, which made him revert to use a traditional approach in class.

In service teacher education provided meaningful images that made him question his teaching practice. The course introduced him to ICT and WebQuests, which he finds useful to teach technical vocabulary to encourage collaboration in students, independence and control of their learning.

He believes in the value of technology as an important resource in 21st century education that offers a variety of authentic materials. He uses different applications in class and takes advantage of new technologies, like mobiles, to practice listening and speaking skills. However, ICT use depends on learners, their context and their learning needs.
Different contextual factors impact on Fer’s decision to use ICT in his practice. He believes that ICT cannot be enforced because of lack of resources, faulty equipment and lack of technical support slow down.
CHAPTER 7 JAZ

7.1 Introduction

Jaz works both in Galicia High School and in one university from Monday to Friday, besides teaching in the Open University on Saturdays. Due to her multiple responsibilities, she has exceptionally long days, usually getting up at 5 am to start classes at 7 am in her job at university. After lessons, she has a small break for lunch and gets ready to commute and start her shift at Galicia High School at 2 pm. It is not uncommon to see her commuting sometimes more than twice a day between her jobs, which leaves her little time for herself. Any free time she may have she uses to catch up with any pending work. She goes back home around 8 pm, has dinner and continues working, checking homework, preparing lessons and sometimes exams, to finally go to bed at around 1 am.

7.2 Jaz’ class

We have been waiting for 10 minutes already for the class to start when Jaz arrives and apologises for the delay explaining that she had to go to the office to get the key to switch the projector on. Before I get the opportunity to ask what she means by this, she gives the key to one of the students who opens a small box and turns on the switch for the projector while she gets her materials ready. She looks a bit flustered and I ask her if she is fine. She smiles and says that she is just tired, having run almost all morning without time to eat. I’ll be fine, don’t worry, she says. Jaz gets ready to take the register and tells students that in the meantime they can check their books. They have been learning how to use skimming techniques and she asks them to check what it involves. While she takes the register she reminds them that their attendance in the class is important. The class is crowded, there are at least 40 students but they are mostly quiet and doing what Jaz asked them to do. It is a small classroom and it only has the projector and a whiteboard. Jaz writes the objective on the whiteboard for today’s class and explains that they will learn how to use the scanning technique to read texts. While she talks, the same student that helped her before sets the laptop and projector ready to start. Jaz asks students to explain everything they remember about the skimming technique they have been using. Most students raise their hands eager to participate and together brainstorm their answers.
while Jaz writes them down in the whiteboard. Some students give their answers in Spanish and Jaz reminds them to use English. The one who was already talking exclaims *Oh teacher!* while the rest laughs but he switches immediately to a basic but understandable English. After agreeing on a definition, Jaz shows a PowerPoint presentation which explains what scanning means and asks them to compare both techniques. She tells them to prepare a short presentation in teams using the information in the PP slides, adding examples from their books. One person from each team will add a short paragraph to the slides in order to compare them later. While they are working, Jaz moves around the classroom checking for any questions and doubts about vocabulary. After a short time they are ready to do their presentations. Jaz asks which team they think gave a more accurate definition. The students vote and they all agree on 2 teams. Jaz tells them they are right and she asks them to explain, this time in Spanish, what they understood about both skimming and scanning. They all seem very attentive and participative and show that they have understood both concepts. The next activity consists of watching a video of a person explaining both techniques and the skills they involve. Jaz tells them that they will have to decide which one the person in the video is exemplifying. Before doing this, they will only have to listen and get used to the accent and fluency of the speaker the first time. Jaz says that she will play the video once without stopping and after this, she will play it again and then they can start working to decide which technique he is talking about. Jaz plays the video and, although they watch attentively, from time to time they look at each other and seem confused. Jaz reassures them and says that they are not meant to understand everything, but just have the general idea and try their best. She plays the video a second time, pausing every time the person in the video explains the skills for each technique and checking for comprehension. Although the students were clear about the concepts, they seem now confused about the definitions and give different answers. Jaz continues the activity this time repeating what the person in the video just said, emphasizing some words that can help them answer. She tries to engage some students at the back of the classroom that have been quiet and asks them what they have understood so far. One of them says that the man speaks too fast and she just got some words. *What can you make of those words?* Jaz asks and the girl answers correctly. *That’s it! That’s why I told you there’s no need to understand everything,* Jaz exclaims smiling. *Let’s try again,* she says and continues with the activity. The students seem more confident and offer some answers, most of
the time correctly. When Jaz is satisfied that the group has understood the video, she explains that it is time to practice. She organises the group in different teams this time and tells them that they will read a short story and explain what it is about. She projects the text on the screen and asks them to take notes to be able to explain in their own words what the text is about. The students start the activity and Jaz moves from team to team and invites them to share their ideas with each other while reminding them that she is there if they need some help. Jaz checks her watch and realising that she will not have time to check the activity, she asks them to finish taking notes and they will continue with the activity next class. They work for 5 more minutes and the bell rings ending that day’s lesson.

7.3 Cognitions about schooling experiences

Jaz’s first encounter with the English language started as a game and was thanks to her father’s influence. He motivated her to learn from the time she was a small child by bringing her different colouring books and story books with basic vocabulary in English. She enjoyed these first experiences which later on encouraged her to delve more into the language.

Her early schooling experiences, however, were discouraging. She did not find her teachers very motivating, something that she believes plays an important role in learning a language. However, her own determination to learn led her to strive despite the circumstances in which learning occurred. These experiences have impacted her teaching practice. She advocates activities that raise student motivation and she believes that this can be achieved by setting learning into a context, showing students how the language works. She believes that this can give students a sense of achievement.

As a student you say, so what is this for? When you see the language applied in a specific context then you say ah! That’s it! I got it now. So I believe that it works. (Interview, 08.10.2012).

As an EFL student herself, Jaz found that her classes did not encourage spoken communication and were taught mainly in Spanish. As a result, she found it difficult to improve listening and speaking skills. Nowadays, she tries to encourage communicative activities in her classroom and provides opportunities for her students.
to hear the language, although she acknowledges that practice is difficult due to the large number of students.

Her classes, she remembers, did not allow interaction with her teachers who would sometimes play a tape recorder and ask them to complete some activities without ever giving them feedback. Observing her classes, it is clear that she tries to break away from this image and she is constantly in the move around the classroom, always making sure that her students are clear in their objectives and have their questions answered.

Jaz also considers important that her students listen to native speakers so that they are in touch with a real accent which she considers important for their future careers. She links this to her first work experience in a travel agency which made her aware of her lack of ability to understand and communicate with foreign people. She found this embarrassing and she perceives this now as part of her students’ learning needs. She continuously refers to the importance of native speakers in her interviews, especially because they live in a port and they are more in touch with people from other countries.

7.4 Cognitions about teacher education

Despite these early negative experiences, Jaz’s perseverance in learning the language encouraged her to enrol in a BA in English teaching. At the beginning of her teacher preparation programme, the classes focused first on immersing the pre-service teachers in the language and although she found the classes at university a little more motivating and challenging, they remained quite traditional.

There was this teacher who would arrive and give us an activity, she had many activities, and she’d sit at her desk and stay there the whole time and the lesson would finish and she’d collect the activities and leave and you’d think what happened? And I promised myself that when I were a teacher I wouldn’t be that kind of teacher. (Interview, 08.10.2012).

Some other teachers reinforced her dislike of traditional approaches. They provided activities but no feedback and there was no interaction in class. During pre-service EFL training most teachers would work in the same way, with some rare exceptions, among them, a very enthusiastic teacher who would use different resources in her
lessons, always bringing extra material to class. Working in teams and preparing sketches were common activities in every lesson. These classes were more motivating for Jaz and more effective to learn the language. The approach helped her understand the use and function of language in context.

However, in general most teachers usually focused on teaching grammar and vocabulary as a central part in learning English than on practicing other skills, for example, listening and speaking skills were difficult to acquire for Jaz due to the lack of practice in the classroom. These early experiences contributed to the traditional approach that she uses in class. Jaz encountered more images of teachers that looked meaningful for her practice in subsequent classes that focused on teacher training.

*We had these teaching subjects where you learned how to prepare lesson plans and materials for your class and we learned how to teach and those teachers had different strategies to deliver the class. They wouldn’t just come to stand in front of the blackboard to explain.* (Interview, 11.10.2012).

Despite being provided with a variety of strategies to deliver her classes, Jaz acknowledges that technology did not play an important role in her learning and technology integration remained minimal. She laughs embarrassed while remembering that the most advanced technology they practiced with as pre-service teachers in that time was the overhead projector and some tape recorders, along with VCRs and television. Lack of examples of ICT use as a student, coupled with a lack of training, makes it difficult for her to keep up with the technological advances nowadays. Her teachers mostly worked on listening skills by using CDs in class. Only one of her teachers would bring movies or foreign TV shows.

Jaz has mostly encountered more traditional practices and further teacher education has not had an impact on her cognitions since she describes that the few courses she has taken have not been helpful in her practice. Although during her training in Canada Jaz encountered practices that involved teachers fully implementing technology in EFL classes, the course was mainly focused on developing lesson plans and not on how ICT could be integrated into her teaching practice. Classrooms had access to technology and teachers promoted the use of ICT in their lessons and encouraged teachers to move away from traditional classes, especially from relying on books. However, Jaz reflects that due to her traditional professional training this is very difficult for her to achieve.
Recognizing the limitation that teacher-centred instructional practices convey to EFL learning, she is eager to stay away from these early models. However she admits that the task has been challenging.

*I've tried to work in a more constructivist way but it’s difficult, I come from a traditional academic formation, traditional training, and it’s difficult to break the mould. (Interview, 05.11.2012).*

### 7.5 Teacher cognition, ICT and practice

This section examines Jaz’ data regarding her cognitions about implementing ICT in her teaching practice. The main themes that emerged from Jaz’s data are as follows:

- **ICT’s role**
- **Lack of ownership**
- **Pedagogical compatibility**
- **Teacher’s role**
- **Beliefs about learners**

#### 7.5.1 ICT’s role

Jaz appreciates the advantages that ICT has brought to the EFL classroom. She believes that the fact that new generations are in constant touch with the English language, thanks to the use of different technologies, has placed them in a better position to improve their proficiency.

*These days they have more advantages to learn English, don’t they? They are frequently bombarded with the language, through music, television. One way or another they are always in touch with the language, orally, visually. (Recall, 07.11.2012).*

She recognises that one of the main advantages of using ICT is the fact that she is able to make use of tools that are familiar for students nowadays and choose from a variety of authentic material that can motivate them in classes. Throughout her data, motivation is mentioned as a key factor to learn a language. Influenced by her own
experiences as a student, she tries to provide a more positive learning atmosphere and she fosters activities that can engage her students.

_You can download something from CNN, for example, a short news segment if their English level is good; you can see sitcoms, that kind of shows that I see kids nowadays like to watch. (Interview, 25.10.2012)._ 

For her, ICT’s best feature is that it can help students to develop listening comprehension, providing students with real situations to make them aware of different accents and intonations, which is why she uses videos that can help them notice even non-verbal clues with situations that they might face in a real life, although sometimes she wonders if using these kind of activities is beneficial for students because she has noticed that they can get self-conscious about their limitations.

_These are challenges that they have to learn, sometimes no matter our level, when we speak with English native speakers we are not going to understand everything, we have to interpret and understand, that’s when ICT can show us and help us practice real language. (Interview, 08.10.2012)._ 

**7.5.2 Lack of ownership**

Jaz’s relationship with ICT is complex. She would like to use it more in class but at the same time she does not like it. Although she agrees that ICT is a valuable tool and she is able to associate the appeal of technology for her students, she is not convinced about the potential to improve her teaching. Jaz makes it clear that for her ICT is only a tool that can be used as long as it does not interfere with learning, and when used in the right way, it gives an advantage to students.

For her, familiarity with technology outside the classroom is a double-edged sword which can engage students but at the same time, render it ineffective in class. ICT as a tool has lost its novelty, according to her, and can no longer surprise students because it is part of their everyday lives.

_I believe that using technology in the classroom is not that fascinating for students nowadays, they are extremely surrounded by it everywhere, at home, on the street, at school, it’s not new for them... how successful it is in your class will depend on how you lead the activities. (Recall, 22.11.2012)._
For Jaz, using ICT in class gives teachers the opportunity to use tools in the classroom that are an integral part of the students’ lives. She acknowledges that integrating technology in her lessons can motivate students and it is the inevitable direction that education is taking. However, she also believes that using ICT in school is overrated and downplays its value as a pedagogical tool. For her, there are different activities and methods that she can use that could give her the same result as technology, she does not find anything about it outstanding.

Jaz does not believe that technology is necessary to learn a language, for her, it is just another teaching strategy which might be helpful sometimes to relax the class, to amuse students or to motivate them but even to do that teachers need to be constantly searching for the newest material, which is not always possible.

ICT has not reached true normalisation in her classes and she sees technology more as a presentation tool that can be easily replaced by traditional practices that she is more comfortable with.

*I don’t think that using technology in class is that important, like I’m really doing something different and it’s going to change the world. The same things that I’m going to learn using a PowerPoint presentation I can learn reading from the whiteboard.* (Recall, 05.12.2012).

Jaz does not perceive the affordances of ICT. Although she considers that ICT can be implemented in class, she believes that it does not make a great difference in learning

*If students are going to learn with a PP presentation, they are going to learn with a chart in the blackboard, if they are going to learn reading a magazine from a website, they are going to learn reading the magazine in paper.* (Recall, 05.12.2012).

In another context she says

*Now any teacher shows a PP presentation and students think it’s boring because what you’re saying it’s written in there.* (Interview, 04.12.2012).

Her comments identify ICT as a presentation tool for traditional activities.
The activities are the same, the resources change. For example, that activity where you listen to the song and fill in the blanks, what happens now? You can project the lyrics instead of giving them copies, so it’s just going with the flow and it helps you, it makes your job easier as a teacher because you can have you PP presentations and use them in different groups instead of writing in the blackboard 3 or 4 times. (Recall, 22.11.2012).

We understand from Jaz’ data that traditional images of practice that she encountered as a student had a profound impact in her cognitions, which in turn makes her less positive about ICT’s extensive use in the classroom. Her lack of pedagogical training on how ICT can be integrated possibly exacerbates her views about technology.

I believe that using technology in the EFL classroom, well, it’s not something that... you are not going to die if you don’t use it, or learning is not going to happen, because many of us come from a traditional approach and here we are, for better or for worse. (Recall, 22.11.2012).

In addition, she perceives that ICT can distract her students from learning, which could render her instructional goals meaningless. For example, trying to encourage ICT use in class, she allowed students to use the dictionary apps that they had in their mobiles. However, she found that these included translation features which students used to do their homework, copying and pasting the translations with bad results. Because of this, she subsequently forbade the use of mobiles in class because she believed that they interfered with students’ learning.

We didn’t have these resources that they now have, and for them that’s a great advantage, and I said, ok guys, you have more opportunities than we had as EFL students some years ago, but come on, don’t let the machine do your work. (Interview, 22.11.2012).

Translating apps for her might help students to a certain extent, but she explains that students may decide to take shortcuts and forget about the real reason for the activities. She believes that that is the great disadvantage of using technology in class and explains,

That’s when I’m against technology (Interview, 22.11.2012).

For her, students nowadays have advantages that she did not have as a student, ICT being one of them, but she explains that students need to see it as a tool that can facilitate their work. However, learning exists irrespective of whether they use technology or not. She cannot see ICT as part of language acquisition because
teachers did not use it when she was a student. For her, this is a separate entity which does not impact on learning. Students learn with or without ICT and ICT is just an excuse, it is not a novelty that will get students attention because they are used to it in their everyday lives. She explains,

*If they are going to fall asleep in class with the book, they are going to fall asleep in class with technology because it’s not new for them anymore.*

*(Recall, 05.12.2012).*

ICT-related activities are removed from the lessons when there are time constraints, for example, after holidays or days off, in order to be able to cover content for the exam. Although ICT cannot be implemented sometimes, Jaz does not see this as a major problem that will not allow her to continue with her lesson. She is very resourceful and explains that in the end she achieves her objectives despite changing the strategy.

### 7.5.3 Pedagogical compatibility

Although Jaz remains sceptical about the role of ICT in her practice, she takes up the affordances that are consistent with her pedagogical beliefs. For example, she values ICT mainly as a tool to present communication activities that can help her improve her students’ skills. Students can hear real language spoken, which Jaz sees as great help in her classes and because speaking is one of the skills she feels less confident about.

*Listening activities are important for me because they can listen to native speakers, real pronunciations, real accents, even if the context is not that real...anyway, it helps me as a teacher, it takes that weight off my shoulders that it has to be me who has to pronounce everything correctly...and a listening activity can lead to a speaking activity.*

*(Interview, 30.10.2012).*

Although she mainly uses audio recordings because they are more practical for her, Jaz considers that videos are more valuable for her teaching practice since they help her develop her instructional goals in a more integrated way and are more motivating for students, although sometimes because of the classrooms infrastructure, the amount of sunshine coming from the windows makes it difficult to watch videos in all the classrooms.
Videos are an excellent technological resource, you can develop many activities...you can listen to the teacher who is not a foreigner, who is not a native speaker, with her accent, it’s different, when you listen to the native speaker and you understand, you can motivate the student, that’s what I think. (Interview, 13.11.2012).

She would like to have a reliable broadband signal and have more access to different websites to be able to use more videos in class. So strong is the belief that videos can be successfully integrated in her classes to help her enhance students learning, that she found out how to download them and save them for her classes, in case that the broadband signal is not available.

I have a program to save videos from YouTube in my laptop, I didn’t know about it, just a few weeks ago I saw one of my students using it, I asked him to teach me and now I know...it’s fantastic. (Interview, 07.11.2012).

The Flip camera is another resource that Jaz likes and she has used for evaluations. Since it is difficult in class to check students’ grasp of the language, Jaz asks her students to film themselves in sketches that she evaluates at home to make sure that students have understood topics, have good pronunciation, they know structures and know when to use them and vocabulary. Jaz admits that they enjoy these activities and ask for more exercises like this, but she explains that although they are a good way to evaluate the students and she is not concerned about class time because she takes these evaluations home, she only does it once a year because of the time she has to invest checking structures, pronunciation and level.

7.5.4 Beliefs about learners

She believes that the technical area that the students belong to impact their motivation to learn English. For example, she finds that students in the Food and beverage preparation area are more willing and motivated to learn and participate in classes, while the groups in the Refrigeration and air conditioning area lack the motivation and are difficult to work with. These same areas show this peculiarity each year and she cannot explain why. She believes that somehow they have stereotyped themselves, despite students knowing that they need to learn English and know vocabulary about their technical areas, some refuse to cooperate and cannot see the need of the language in their future careers. She feels that this attitude also depends
on the teachers related to the technical area and whether or not they encourage them to learn English.

The belief that she will encounter these attitudes each school year has an impact on her own motivation to work with those groups. Jaz finds disappointing the students’ apathy in class especially when she tries to reach out to them offering them several alternatives to improve their language.

*I don’t know what else to do, I don’t know how to guide them anymore because I’ve told them you can do this, or try that, they have their book, I am here to answer their questions after class if they need to but they don’t do anything and I’m getting frustrated, it is frustrating.* (Recall, 07.11.2012).

Despite her disappointment, Jaz claims that her attitude towards any of her groups remains the same. However, in the recall sessions, she notices that there is no interaction with these unmotivated groups, which is something that she had not realised before. She is surprised to see that she spends a long time standing on one side of the classroom, not realising about the loss of interaction with the group. This leads her to compare her teaching experience both in her job at university and in high school. She explains that,

*University students still try to do a good job, they try to please you but in 6 years that I’ve worked here, years of trying and trying and trying sometimes I feel like I’m going backwards but let’s see what happens anyway.* (Recall, 05.12.2012).

7.5.5 Teacher’s Role

Jaz believes in giving her best as a teacher and has a strong sense of responsibility towards her students and their future careers, advocating for students to be more independent and not to expect from teachers all the information in class. She tries to instil in them research skills that will help them later in their careers or if they decide to continue studying, and she believes that ICT might help them do this.

She sees herself as a guide and a facilitator in class. Because students might not see the need to study English in the belief that only people who go and live in another country need it, she tries to instil in them the need for the language and remind them that they need to understand the language even to access information on the internet.
She wants to make sure that they understand that no matter what they choose, either
to go to university after completing studies in this school or to just keep a technical
career, they will need to know English, especially because both living in a port and
having a technical career make it more likely that they might have to work with
foreigners, thus making the need to learn English paramount.

7.6 Teacher cognition, practice and context.

There are different constraints in Jaz’s socio-cultural context that have not
encouraged a shift, from her traditional practices, to a more student-centred teaching,
which might support greater technology-based instruction. This section identifies
National policies and institutional factors as main themes.

7.6.1 National policies

Jaz mentions that the educational model proposed by the reform is complex and
difficult to implement in the Mexican context. Although the model focuses on
teaching competencies, Jaz thinks that there is a mismatch between what is proposed
in theory and what they can do in practice. This is due to different factors that were
not taken into consideration within their workplaces, mainly programmes that are not
really based on the proposed approach, classrooms with large number of students and
lack of resources in schools.

Jaz acknowledges that her traditional learning background has made it difficult for
her to understand how to work under the competencies approach. She finds herself
rethinking her practice in order to incorporate the aspects that the reform requires in
her teaching subject. However, she considers that it is difficult to make the proposal
work in EFL teaching because it has not been explained to teachers how this could be
successfully integrated into each technical area, despite teachers’ best efforts.

Also, from Jaz’s point of view, evaluations should be tailored to each teaching
subject, considering both class objectives and learners’ needs, as opposed to what
they are asked to evaluate now, which for her does not encourage language
acquisition. Jaz considers that the evaluations under the competencies approach
impact negatively on her classes due to the several aspects that are evaluated in class,
which are not related to EFL learning and which give students the opportunity to
accumulate points towards their final grades without learning the required language skills. Besides language objectives, Jaz also has to evaluate attitude, discipline and behaviour, as well as being quiet, wearing the uniform, paying attention, attending classes, which she considers it is the students’ obligation, not an aspect that teachers are supposed to evaluate.

*I’m against that part of the competencies, they want you to give students lots of activities and they want you to take into account everything. I’m not going to give them points for coming to class if it’s their obligation to come to class. I mean, the fact that they’re in class doesn’t mean that they are going to speak English, right? They see their evaluations and it’s 10% this, 10% that, 5%, you give them points even for smiling! And they feel it’s very easy to graduate the course, no effort whatsoever. (Interview, 06.11.2012).*

Evaluations did not need to be standardised according to Jaz because some evaluations are inherent to each subject. For her, EFL evaluations should be straightforward, a written exam, an oral exam. Jaz believes that the pressure to work under these conditions has impacted on their teaching practices, which in turn has placed huge demands on teachers, minimising the importance of ICT in the curriculum. Although her teaching strategies do not change, contextual factors implemented with the reform affect them negatively. With fewer students and a modified evaluation to suit the needs of EFL lessons, she believes that students could acquire basic skills to communicate.

Although one of the main premises of the reform is to introduce ICT in every class, Jaz considers that a lack a lack of guidance on how to perform their jobs under this model and how to implement it in their practices has led to an unsuccessful technology uptake.

*It’s a bit complex for me, because everybody says that you have to use ICT, but what does that mean? How does it work? It doesn’t mean using your projector, CD players, TV, videos, no, those are your resources...nobody has told me, as an EFL teacher, this is going to work like this...I explore, I try to read and apply, but without feedback it’s a bit difficult to know if you are really using ICT in the right way. (Recall, 22.11.2012).*

Jaz thinks she is uncertain on how to use ICT in a relevant way in her current teaching due to prior experiences as a student and to a lack of training.
We are not trained to use technology in a meaningful way in our classes, we come from a more traditional approach and this is new for us. I come from a very traditional teaching and learning approach, very straightforward, very square, and how can you use a video for example to introduce a topic? Oh God, what am I supposed to do? Instead of using flashcards let’s watch a video but I’m just using it as another resource, as another way to teach the same. (Recall, 22.11.2012).

7.6.2 Institutional policies

Jaz tries to teach EFL under the competencies approach, however, without feedback she thinks that she is only guessing what she is required to do. Similarly, without guidance, it is difficult for her to understand how to implement ICT in class, consequently technology ends up being a presentation tool or used to practice traditional activities.

They say use ICT...we change blackboard for PP presentations and a projector, audios to listen to pronunciation instead of me reading. (Interview, 09.11.2012).

She is not sure on how to use ICT as a pedagogical tool because of her traditional learning background

This is also new for us, I come from a very different teaching and learning approach....a video...how do you use it to introduce a topic? What do I do? Instead of flashcards we watch a video but that would only mean that I’m using it as a tool. (Interview, 09.11.2012).

ICT is used according to Jaz’s perspective, she considers it an experiment, a trial and error project because they are required to use ICT but she lacks the pedagogical understanding to introduce it in class.

It’s not only use the projector, videos, websites, no, those are the resources you use to teach, but how do you implement it? [...] nobody has told us, or me personally this is how this is going to work, I’ve tried to do it but without feedback it’s difficult if you are using ICT the right way. (Interview, 03.12.2012).

Jaz considers that it is difficult to break away from traditional practices within the school context since they do not provide them with enough technological resources to use in class. Besides, factors like lack of electricity, bad acoustics, and classrooms without the right infrastructure limit what teachers are able to do with ICT. These
conditions lead her to make use of resources that she considers more convenient for her.

_You choose to work with flashcards because it’s more practical, isn’t it? You don’t have to wait to see if the projector worked, if you can get one. Of course it looks different if you project the image, but I can count the times that it’s worked for me, because you don’t have the resources._ (Interview, 12.11.2012).

**7.6.3 Lack of resources**

According to Jaz, ICT cannot be enforced because of a lack of resources and several problems that happen around school with the few available resources that they have. For example, some equipment in classrooms has either been broken or stolen, such as projectors, speakers or remote controls. Because of this, the ones left are placed under lock and key to prevent students from using them or breaking them if teachers are not around. As a result, teachers have to wait until the keys are available, which translates into a waste of lesson time. Sometimes, the equipment is in the wrong place, which means that a cable might hang in the middle of the classroom distracting students or affecting visibility. Some classrooms do not have ICT and some available resources are faulty. Besides this, most classrooms are not designed to use ICT in them, lack of electricity is usual, there are not curtains and the sunlight does not allow for the projection of images or videos.

Thus, she cannot rely on using ICT in her lessons. Therefore, before planning an ICT-related activity, Jaz has to consider different factors, for example, what group she will be teaching, whether or not the classroom will have a projector or if they will have one available at the office. She needs to plan her lessons in such a way that she has to use her equipment the same day in all the groups to avoid problems.

_There is only one set of speakers that we all teachers have to share. If I arrive earlier and I get them I use them all day but I feel guilty because sometimes other teachers are expecting to use them._ (Interview, 08.10.2012).

Some other resources might be available but they are not accessible for everybody, for example, teachers have broadband available in school but only if they can get the signal in their classrooms which does not usually happen.
What can you do then? Do they want teachers to get a broadband contract and pay monthly? And just then you’ll be able to access websites [...] unfortunately in these situations we are alone, there’s no support. (Interview, 17.10.2012).

In another context she explains,

If they tell me [to use ICT] I ask, is the broadband working? Am I going to have signal in my classroom? (Interview, 23.10.2012).

According to her, there are occasions when she might have found the right material to support a lesson, only to find that she cannot use it because the signal does not reach the classroom. All these factors limit what teachers are able to do with ICT, and particularly for Jaz, these situations make it difficult for her to break away from traditional practices within the school context, which consequently makes her use resources that she considers more convenient for her.

There are 5 laptops but how many teachers are we? There are more than 20 teachers working and not everybody is going to use the projector but if I arrive and the cable doesn’t work or there’s no electricity in the classroom I’m sorry but you’ll have to use your book, your flashcards, your posters and your blackboard. (Interview, 05.11.2012).

In another context she explains,

You choose to work with flashcards because it’s more practical, isn’t it? You don’t have to wait to see if the projector works or if you can get one. Of course it looks different if you project the image than if you just show it, but I can count the times that it’s worked for me, because you don’t have the resources. (Recall, 07.11.2012).

However, she also acknowledges that with so many things to do, sometimes it is her fault that she might not get to book the material for a technology-related activity because she has forgotten to do it in advance. Without a backup plan she has to improvise which leads her to change strategy and use traditional approaches.

ICT in general is seen as an inconvenience that only distracts Jaz from covering themes for the exams. She explains that there are times when she arrives earlier than usual and the switch to turn electricity on in the classroom is off and they cannot find the key. Because of this, she prefers to ask students to present their work in a traditional way in front of the class than having to look or wait for the technology to
be available. For her it is easier and she knows that they will present their homework for sure if they do it in the traditional way.

\[ I \text{ don’t want them to have excuses not to present their work...there is no projector what do I do now?...what if they do it in PP and I don’t have projector or computer available? (Interview, 22.11.2012). } \]

7.6.4 Opportunities for training

It was a national requirement that teachers received appropriate training when the reform was first implemented. The courses, however, have focused on how to plan and organise classes under the competencies model in general and no training has been aimed at EFL nor in how to implement ICT in a meaningful way, which makes it difficult for Jaz to translate what they are required to do into her lessons.

Although Jaz feels competent in using ICT because she took a short technical course in computer systems when she was in university, she knows that she needs to keep up to date with current technological resources and she lacks the skills related to pedagogical ICT use.

\[ \text{They talk about using ICT, so do we swap the blackboard for a Power point presentation and a projector? (Recall, 07.11.2012). } \]

However, the school has only provided technical ICT courses which have focused on developing the skills of beginning users. She has found these courses irrelevant and the trainers unhelpful since none of them has had a teaching background and to properly explain what to do. People in charge of training did not have a teaching background, they were engineers or accountants who could not explain how to implement in class what they were teaching.

\[ \text{I didn’t understand something, I think something to do with Excel, and I asked him what do I do here? And I saw him doing this, this and that and then he said done, and I said how? (Interview, 08.11.2012). } \]

Although every year the school administration offers to create opportunities either within the school or to attend external courses, this can never materialise.
I’ve talked to my boss and I’ve said, we really need to train, you know? And she would say, ok tell me when and we’ll plan it, maybe for summer, but even in summer they’d ask us to teach summer courses, and we have to focus on teaching and we have to forget about our training. (Interview, 08.11.2012).

Jaz had the opportunity to attend a training course in Canada which was aimed at encouraging teachers to use ICT, to think their classes around technology and to be original and more student-centred. However, for her, the course only seemed useful because it gave her some ideas about activities that she could implement in class and overall, she believes that it did not add anything to her practice. Despite ICT use being encouraged during training, Jaz thinks that it could easily be implemented there because the infrastructure in the classrooms allowed it.

*It’s very easy for them. You see the classroom and the teacher can write on this side, or that one or that one or the other one, everything was like a whiteboard. Speakers on each corner and a very nice big screen, I mean, teachers did not suffer in class and like that who couldn’t do it?* (Interview, 13.11.2012).

### 7.6.5 Support

Jaz perceives a lack of support towards EFL classes and feels that the EFL area has been forgotten despite the reform claims. She believes that the teaching subject is not as important as some other teaching areas within the school. For example, as the Secretary of the Language Department in previous years, Jaz requested some equipment for the EFL teachers. However, the school administration ignored her request.

*I got tired of asking for CD players and I said we don’t even want that many, one, two CD players and we can even take turns using them.* (Interview, 08.11.2012).

The turning point for her was the programme *Impúlsate*, which senior management within the school did not fully support. Jaz considers that *Impulsate* not only would have been good for the school’s reputation but EFL teachers would have been supported in their classes with fewer students. For students represented more motivation, working in the right English level thus reducing frustration and low grades.
I thought it was a great idea, it was almost like a language centre, they had enough resources to implement it here but problems within the administration were stronger than any potential benefits. (Interview, 30.10.2012).

Jaz believes that a lack of vision within the school for ICT integration was also part of the problem. She considers that they did not appreciate the positive outcomes and how it would support student learning, not only within the language centre but also in their classrooms.

The students with best level were going to be more autonomous and we were going to have less students in class, the ones who had more problems, and from 40 students we were going to have 30 and that was excellent. Unfortunately, they didn’t see it like that.

For her, the project was not taken seriously because EFL is not taken seriously. She sees this reflected in the belief within the institution that anybody could be an EFL teacher only because they know the language, which she feels highly disrespectful.

Let’s ask the Chemistry teacher to cover some hours, or tell the psychologist to come, he speaks English, let’s ask him to teach the class...I mean, one thing is that I speak Spanish and something different is to think that I can teach Spanish. (Recall, 22.11.2012).

According to Jaz, the school administration considers learning a language as a luxury, as a teaching subject that will not be needed because students usually work after completing their studies and they cannot see how important it will be precisely because it is a technical school. Jaz believes that there needs to be more awareness in schools about the importance of English in everyday life.

7.6.6 Teacher collaboration

A lack of collaboration within the members of the EFL Department is another factor impacting on ICT implementation. Since not everybody spends the same time and effort preparing resources that could be shared by all EFL teachers, the ones who work are left with little time to engage in other activities that could enhance their teaching practices, like experimenting more with ICT.

There are only a couple of teachers, Jaz included, who work to make some materials, which adds to the considerable workload she already has. Working on a teaching
sequence is a hard job because it includes activities, objectives, and resources for the school year, which have to be made for each of the semesters. Most of the time, the sequences are not finished and teachers have to continue working on them during the semester.

Teachers decide if they want to use the sequences so there is no unity in the content they teach during the semester; everybody selects what they are going to teach which affects students, who do not have the right language level for the semester they are in. Teachers’ work is individualist and there is a lack of continuity between semesters. For example, classes could be almost completely in English in one semester and in Spanish the next one, which makes it more difficult to improve students’ language level.

Jaz believes that teachers’ backgrounds impact negatively on their work and are the main reason why they cannot collaborate with each other. Professionals from other fields end up teaching English because of different circumstances.

*Our backgrounds have a lot to do with this lack of collaboration [...] when we have EFL teachers that are accountants, engineers, any other careers, and they don’t feel that they have the necessary skills to do their job properly, then they are going to say ‘I’m going to do this, this is easier, right? I’m going to teach vocabulary the whole semester, or I’m going to teach the class in Spanish and let my students research and present the topics, anyway that’s a student-centred lesson’, all that is going to impact our work, right? (Recall, 05.12.2012).*

Jaz feels that perhaps they would be able to use more ICT if they worked together in the EFL department.

*It would be great to have everything ready, to say this is my topic this week, here’s the material…to be able to share. But it’s like the sequences work, there’s a lot of sequences and it’s only me and another teacher who work on them. (Interview, 29.11.2012).*

More collaboration would mean better outcomes both for teachers and students. However, everybody works with their own resources without sharing ideas, even refusing to work with technology.
Jaz has suggested working together on different proposals to send them to the school authorities.

*Let’s work on a proposal, let’s sign it, send it to Mexico city if necessary but all together as the EFL department, not just me and my opinion, but what we need. But there is no support, it’s like everybody’s going in their own boat, sailing in the same sea, but in opposite directions. (Interview, 29.11.2012).*

Before Impulsate, Jaz tried to work with teachers on a proposal to have an English lab and reduce the number of students per classroom, focusing on those who really needed help. However, it did not materialise.

*Everybody said yes and that was it, and like that proposal there are many things that we don’t do, nobody has ever said we need this, I’m going to do this or that, I’m going to send my project, because nobody supports you, nobody. (Recall, 07.11.2012).*

### 7.6.7 Large number of students

Jaz acknowledges that the number of students per classroom makes it difficult to have a personalised evaluation of students and their problems. It is only during summer courses that Jaz can identify students’ problems and help them improve their grades because there are just a few students, which allows her to give a more individualised attention to them. She notes a change in attitude then, more motivated students because they understand structures. Also, she decides how to evaluate, which impacts on how students work because they do not have as many aspects for the evaluation as during the semester. Large number of students and evaluation impact negatively on grades and motivation according to Jaz.

Developing linguistic skills is the most important competence in EFL. However, due to the large number of students it is difficult to implement activities that help students acquire the language, to supervise them and to check multiple exercises per student.

She has to find new ways to motivate them and has considered giving up sometimes because of the struggle to get students attention. She considers that they are predisposed to dislike English, they miss classes and do not participate and she finds it difficult to change this attitude because of the large number of students.
7.6.8 Time

Time is a recurring theme in Jaz’s data and one that she identifies as another main factor impacting on ICT implementation in her practice. As described in Jaz’ pen portrait, she struggles with time due to the pressure to fulfil work demands both inside and outside the classroom. Although several times she has tried to modify her approach in order to integrate ICT and motivate her students, this has not been successful because of lack of time, which leads her to use the approach that it is easier for her in order to reach her class objectives.

She is reluctant to integrate ICT into her teaching because she thinks it is time consuming and increases her already big workload. Her sense of responsibility and the pressure to cover content, prepare students for examinations, lesson plans and fulfil other administrative duties are some of the reasons that Jaz considers as significantly affecting ICT uptake.

There is a part in using technology that is called time investment. You have to spend hours in front of the computer looking for information. British English or American English? That accent is not clear, let’s find another one, and those things take time, and personally, I don’t have as much as I want. (Recall, 22.11.2012).

She also explains,

Looking for the right material doesn’t take 2 minutes, you need time to find the right video with the right characteristics, with good picture that allows them to practice whatever we see in class…there’s a lot of factors we have to take into account. (Recall, 22.11.2012).

In another context she says,

I’m always running. What wouldn’t I do in my classes? I’d look for different resources, audios, videos, extra work, extra activities, but I don’t have time. (Recall, 05.12.2012).

Jaz designed a blog for students and used to upload classes and activities for them, but she rarely updates it because she lacks the time to do it.

Sometimes I don’t have enough time, working in 2 schools at the same time is very difficult and with so many students…when I see it’s already time to prepare the exam, then I have to check exams, homework, and it could be 2 or 3 weeks just doing that and my blog is still there, waiting, maybe when I
retire I can come back to it [...] but it does take a lot of work to find time for something like that. (Interview, 03.12.2012).

Jaz is overwhelmed with her workload and feels that there are aspects of her practice that she would like to improve and implementing ICT properly is one of them, but she lacks the time to do so.

*Sometimes I think, so many things that I could do but I can’t and why? Why don’t I look for videos? Because I don’t have time. I would have to focus on working solely with the 200 students that I have in this school and forget about the rest and I can’t because honestly if I work in 2 places it’s because I need the money.* (Recall, 22.11.2012).

Working in different places is draining for Jaz who explains that she feels responsible for her job performance to the point of exhaustion trying to do her job to the best of her ability. Her commitment, however, is to reach the objectives of the program, which leaves her little time to do extra work, as she refers to using ICT. In the same token, she considers that using technology in a school context like hers is a waste of time due to the lack of available resources.

*Even if there were a few resources, but we had the right conditions to use them you could successfully implement them, instead of wasting time looking for the projector or electric outlets to plug your CD player.* (Recall, 07.11.2012).

This situation leads her to use more traditional methods because they are more practical. Jaz prefers a traditional approach because she does not have to spend time looking for resources and material that she might not be able to show in class.

*The other day I wasted 15 minutes looking for the guy who has the key to switch the electricity on and you think, what for? To present a 5 minute warm up or to review an activity? You know what? Let’s go to plan B, I can’t waste more time.* (Recall, 07.11.2012).

Jaz has to check and make sure that the resources are in place, the switch is on and working to start the class. Sometimes she is distracted and would spend time trying to fix equipment before understanding that the switch is off. She also has to take into account the classroom where she will have her next class and remember how the equipment works in there. She spends time trying to configure projectors and laptops because they change depending on the classroom. In some occasions these will not
work or they might change her files. As a result, she will have to change methodology and use traditional resources.

Jaz has seen several times that using ICT in class has motivated and encouraged learning and participation in her lessons. Occasionally, she has prepared lessons with other EFL teachers as part of the activities of courses they take. She acknowledges that part of the success of these activities in class is the time invested and the collaboration with other EFL teachers. However, she does not always get the reaction she expects, with students showing little interest and participation in class.

*You could be the best teacher, excellent but when the student doesn’t want to, it doesn’t matter what you do. And it is the same activity, 4 different groups using technology and it only worked in one and I see all this is worth it but then I go to the other group and…I don’t know what this children want, should I get a foreigner and put him in front of the class? (Interview, 20.11.2012).*

For her, it is not the fact that the activities do not work in different groups, because she understands that students might have different reactions and she does not feel like activities like this are not worth it and she would not do it again. For her, the main problem is investing the little time that she has in preparing ICT related activities without getting a good reaction from her class, which reinforces her belief that traditional resources could get the same reaction without investing so much time. However, she also acknowledges that in some occasions she is to blame if a class has been unsuccessful because, due to lack of time, she sometimes uses the same activities in all her groups instead of tailoring the activities for each of them.

Lack of time has also affected other opportunities to implement ICT. Part of the failure of *Impulsate* was due to the lack of time that teachers could invest in it. Impulsate needed a teacher to give up his free time, to supervise activities and to submit a weekly report on 1200 students, on top of their usual workload with the same salary. Due to her work ethic, she was initially chosen to monitor the implementation of the program in the school.
They asked for my support to supervise the program and the students’ work during my free time. What free time? I start at 2 and finish at 6 and this implies working extra hours. Apart from not wanting to stay due to personal commitments, in that free time like they call it, I have to check homework for next class, I have to check my lessons [...] more time than the time I spend in class and for my class...I can’t. (Interview, 04.10.2012).

For her, the main problem was asking teachers to volunteer their time and effort for free when the project needed somebody who could provide both technical support and be an EFL teacher to cover both areas. Despite having a teacher who had both characteristics, the school did not want to offer more hours or salary to implement Impulsate.

The school administration did not support hiring another teacher, giving more hours or paying extra time to support Impulsate, they stated that only if teachers could support in their free time otherwise they would have to forget about it. And nobody had the time to do this and it was a good opportunity to motivate students. Besides, with fewer students in class, we would have had time to focus on the students who needed more help. (Interview, 04.10.2012).

In one of the stimulated recall sessions, Jaz confesses that she is exhausted. She explains that EFL teachers work more than teachers of other teaching subjects because they have to work all their hours in the classroom unlike teachers with more hours who can use some of them for other activities (study, planning, evaluating). She feels guilty because she does not invest as much time as she would like to do everything that she has in mind.

I love my job, but it’s getting exhausting and sometimes I think, so much I could do and I can’t accomplish anything and they ask me why? Why don’t you do it? Why don’t you look for more material? Why don’t you look for videos? Because I simply don’t have the time. (Recall, 05.12.2012).

However, lately she feels that she is not achieving her objectives as a teacher, and she is not motivating her student to learn. She is failing her students and herself when she sees that they do not make any progress.

Sometimes I feel that I’m not doing my job as a teacher, because in the end, when you take an English course you take for granted that you’re going to learn English and when I look around I think, how many do they speak English when I see them in the corridors? 2 or 3 maybe and they only say bye teacher, hi teacher and that’s it, I mean, you don’t need 3 years in high school to say that. (Recall, 05.12.2012).
Jaz is aware that her strategies are not working anymore and she does not know whether this is because of her, her students, the context or the available resources. She finds this demotivating, leading her to question her decision to become an EFL teacher. She believes that there are different reasons that she is to be blamed for, her teacher education, her planning, her strategies, but at the same time, she also believes that there is a generational apathy among students.

She acknowledges that her students are in constant touch with different resources outside school and she feels this as another challenge that she has been unable to grasp, to understand how she can make use of those resources in her class in a way that encourages learning. There is a change starting to develop in Jaz that she is still trying to understand. Although she accepts the need for a change, at the same time she tries to downplay her thoughts blaming these reflections on being tired.

### 7.7 Summary of findings

Early experiences as a student had an impact on Jaz’s cognitions about teaching and learning in EFL. Images of informal education motivated her to learn, while formal classes took a traditional approach and focused on grammar exercises with little time devoted to practice other skills, which she disliked. This had a great impact on Jaz who advocates now communicative approaches which she encourages in class.

Her teaching approach is rooted in her experience as a student as she tries to recreate the strategies that she believes were missing in her own learning, providing opportunities for students to develop communicative skills while considering their context. She did not consider particularly useful the courses offered in pre-service teacher education which did not prepare her to face challenges in the practicum. Classes continued to be mostly teacher-centred and ICT had no role in her learning besides some teachers mostly using CDs and videos to practice listening and speaking skills.

Jaz holds complex beliefs about the role of ICT in EFL. She considers that technology gives young generations the opportunity to learn English easily through constant exposition to the language. Besides, the variety of material available online, can encourage motivation in students and help them develop their communicative
skills. At the same time, she considers that familiarity with ICT outside school is a double edged sword, which might render it ineffective in class as it is a tool that has lost its novelty and teachers would need to be in constant search for material to make it appealing for students. She is not convinced about the potential to improve teaching as she considers it a presentation tool that can be easily replaced by traditional practices.

Besides the lack of images as student to see ICT integrated in EFL, there are different contextual factors that impact on the extent that ICT can be taken up in class. Beliefs about students, the difficulty to work under the proposed student-centred approach because of her traditional background and the lack of guidance on how to integrate EFL into the technical area are some of them, besides the lack of infrastructure which does not encourage ICT use and makes it difficult for Jaz to break away from traditional practices and the convenience and practicality of using traditional materials. However, the most significant factor is that Jaz lacks the time to introduce ICT-related activities due to her different occupations during the week.
CHAPTER 8 CROSS–CASE ANALYSIS

8.1 Introduction

The purpose of the previous chapters was to present the individual data of the three cases of this study. It aimed to provide insights into teacher cognition in relation to ICT adoption within the participants’ teaching context. This part of the thesis discusses the key findings that emerged from the teachers’ accounts, which offer answers to the research questions that guided this investigation:

- What is the nature of Mexican secondary teachers’ cognitions about the teaching of EFL?

- What is the nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context?

- What is the relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context?

The findings of this study suggest that, undoubtedly, the participant teachers face a challenging, complex, multifactorial situation that hinders their adoption of ICT in the school. What follows are the themes that arise from the analysis of the participants’ cases of this study, which answer the questions that led this study.

8.2 What is the nature of Mexican secondary teachers’ cognitions about the teaching of EFL?

The key findings that provide an answer to these question relate to the participants’ early schooling experiences as well as teacher education.

8.2.1 Teacher cognition and schooling experiences

Several studies recognise the impact that teachers’ past experiences as students have on their cognitions. As noted before, teachers’ pedagogical beliefs are well established during their apprenticeship of observation, where they develop ideas during their years as students about what it takes to be an effective teacher and how students ought to behave, internalizing during that time teaching models and teaching
behaviors to which they are exposed. These early experiences shape the philosophies of teachers regarding teaching and have an effect on the beliefs that develop prior to the period of initial teacher training (Lortie, 1975).

The participants encountered both positive and negative learning experiences during their time as students, which provided them with images of practices that they associate with good teaching -teachers who motivated their students to learn, as well as bad teaching -which they link to traditional classes that focused on drilling exercises, and taking notes from the blackboard, with no interaction between teacher and students and no feedback about their learning. Such images were not limited to school settings, as participants also describe the role that family played in shaping their future practice, as seen in Fer’s case.

Informal EFL learning experiences were mostly described as positive and student-centred. Both Ely and Jaz mention memories of some teachers in particular who made the class fun to be in, interesting and motivating. In their cases, motivation is seen as crucial for meaningful learning. In contrast, all three teachers had their first formal learning experiences within the textbook-based educational system that is common in Mexico, where they were taught grammar through traditional approaches in a deductive way focused on controlled exercises. Although they fared well in these classes, they disliked several aspects of this kind of approach.

8.2.2 Teacher cognition and teacher education

By the time the participants entered teaching education courses, they had preconceived ideas of the kind of teachers that either they wanted to be or that they wanted to avoid becoming. These results match those observed in earlier studies (Borg, 2003; Bruner, 1996; Johnson, 1994; Windschitl and Sahl, 2002; Woods, 1996) which suggest that teachers’ schooling experiences influence teachers’ cognitions. This study found that both positive and negative learning experiences had left an imprint in teachers’ cognitions about what they believed they should or should not do in their classes. Calderhead and Robson (1991) describe this as the result of students deriving ‘an image of good teaching from one or more teachers they know, sometimes linking positive images to particular attributes of their own’ (p. 4).
However, their classes remained mainly traditionalist during teacher education and only a few teachers provided them with images of how a motivating and student-centred class could be. Furthermore, the content of their teacher education courses did not provide them with enough knowledge to enact their beliefs in class, especially at the beginning of the practicum, highlighting the fact that they needed more practice and less theory to work in their classrooms. Although they understood the dynamics of a classroom, they feel that they were not trained to deal with contextual factors like a large number of students, discipline, interruptions, among others, that could affect their practice. Feeling unprepared to deal with real problems in their classrooms and faced with the reality of their teaching context, they found themselves focusing more on class control and in developing activities that did not encourage disruption, making them revert to more traditional teaching approaches. This is in line with Roehrig et al.’s study (2007) which shows that preservice teachers tend to revert to traditional practices when faced with the realities of the classroom despite professing student-centred beliefs.

Further teacher education has not had an impact on either Ely or Jaz’s teaching practice. Short training programmes have focused on the transmission of knowledge, on how to plan and control classes but they lack examples in practical terms on how to implement a student-centred approach in class, which is what it is required nowadays from them. In Jaz’s case, training courses appeared to have reinforced her beliefs that her teaching approach is right and she does not feel compelled to change. Fer, however, has experienced classes that have made him look for further examples on how to change his instruction. In particular, a course has been the catalyst that lead to a change in his cognitions, mainly in his use of ICT in class.

The underlying beliefs about EFL teaching of the participants are likely to be based on their experiences as students as well as the perception of their classroom circumstances. Ely and Jaz, for example, believe that small classes encourage learning and motivation is key to learning a language. EFL classes should be enjoyable and students should learn the language in communicative situations. Oral production is paramount and learners can guess the meaning of words by context. Grammatical rules as well as developing listening and speaking skills are important. With this in mind, students should look for opportunities to talk with native speakers in order to improve their proficiency in the language. Teachers should not correct
students immediately when they make a mistake while trying to speak English, but there should always be some sort of feedback during the lesson. Interaction between teachers and students should be encouraged in class. Fer believes that determination is key to learning a language and learning should be set within a context. For him, grammar is not as important as learning vocabulary. He encourages interaction between teachers and students.

A lack of alternative images that allows them to shift to a more student-centred instruction, as required by the RIEMS, makes them replicate their apprenticeship of observation. This is in accordance with Johnson’s study (1994) which shows that despite the participants being critical of their teacher-centred instructional practices, they could not alter these due to having few alternative images of teachers to act as a model of action. We can conclude then that apprenticeship of observation had a great impact on the teachers’ cognitions and their teaching practices, which, in consequence, impacts on the extent to which they can use ICT according to the proposed educational model.

8.3 What is the nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context?

This section discusses the relationship between teacher cognition and ICT use in their practice. The following themes emerged from the teachers’ data, however, not all the themes featured across the three cases.

- Teachers’ beliefs about ICT
- Motivation
- Pedagogical compatibility
- Lack of ownership
- Beliefs about learners
- Teachers’ roles
8.3.1 Teachers’ beliefs about ICT

Images of ICT use were scarce during their days as students. Their teachers mainly relied on CD players for listening activities, using published materials that were included in the text-books that they used in class, with few examples of authentic resources. To a lesser extent, they also saw computers and projectors used as presentation tools to introduce the lesson, to project images that generated discussion in order to encourage speaking, or to practice drilling exercises. It is not surprising, then, that the participants replicate the activities they saw in class having only seen these experiences as examples.

Although the teachers have repeated in their teaching practice the approaches and strategies that they considered effective in their own learning, they try not to replicate what they perceived as negative teaching practices that they experienced in their school years. ICT is used to recreate in their teaching the conditions that they feel were missing from their own education, feeling that they need to prevent students from going through the same negative experiences that they went through.

For example, both Ely and Jaz advocate communicative approaches, which is rooted in their classes focusing exclusively in grammar and vocabulary. As a reaction to their own experience learning grammar, they decide to teach grammatical rules in an inductive way, giving opportunities to students to find the rules for themselves, and they try to make the classes fun and interesting for their students. Ely acknowledges grammar as an essential part of EFL instruction, however, she considers that learning grammar for her was tedious. She introduces grammatical structures using Power Point presentations in the belief that her students would find this format more attractive thus raising motivation. Research has shown that PowerPoint is the most popular way to integrate technology because teachers believe that it can make the class more active and enjoyable, at the same time that it reduces their workload in class, without requiring from them to change their teaching approach (Li and Walsh, 2011).

Jaz believes that her use of videos and listening activities provide opportunities for her students to develop both listening and speaking skills. As also suggested in Watson’s study (2006), her beliefs with regards to technology are based on whether
or not she considers it to be helpful to achieve the instructional goals she perceives to be most important.

In Fer’s case, despite traditional approaches making it easier for him to learn the language, he tries to break away from these experiences in class. As previously explained, he favours learning vocabulary over grammar in the belief that this is more important and can help students in language acquisition. He advocates learning EFL for specific purposes which he believes should help students to be proficient in an area that will be essential in their future practice. Fer does not see grammar as an important part of learning a language, which is perhaps a rejection due to his own experience as a student which saw him learning grammatical rules through drilling exercises. Like his colleagues, Fer also acknowledges a lack of images of ICT use during his time as a student. However, in-service teacher education introduced him to ICT use in EFL and, specifically, to WebQuests. He chooses methods that encourage his students to be more independent and responsible for their own learning and WebQuest is used to this end, which he has adopted in the belief that this approach helps him to develop in his students both independent learning and to set the language in context. This corroborates studies that affirm that teachers take up affordances that align with their pedagogical beliefs.

Despite the lack of image of ICT use as students, the participants hold an optimistic vision on the integration and use of ICT in EFL. The teachers were positive about using ICT in class and believe that it has the potential to increase the effectiveness of language teaching as well as learning motivation because it is appealing for students. Their positive views about technology are related to how useful they have found its use in their practice, which includes saving time during class presentations and evaluations, as well as developing oral skills.

All participants recognised the important role that ICT plays in students’ lives and agreed on the fact that teachers can take advantage of this familiarity to implement ICT in class. They consider that it gives new generations the opportunity to learn more easily due to the fact that they are constantly exposed to the language in their everyday lives. Besides, the introduction of authentic materials gives their students access to a wide range of resources. Both Fer and Jaz see the variety of authentic material as an advantage for their practice. For Fer, this supports the search of
specialised vocabulary in a specific technical area, while for Jaz having authentic material available for class means finding resources that can motivate students in class.

Another advantage that they mentioned was the authentic use of language in context with a variety of materials that allow students to listen to native speakers, which helps them in learning the correct pronunciation. This last point was especially stressed by both Ely and Jaz, who mention several times in their interviews the importance to listen to native speakers when learning a foreign language, unlike Fer who, despite acknowledging the importance of situating the language in context, did not raise the point like his colleagues.

The teachers’ rationale for using technology was also based on their perceptions about how ICT could influence their students’ lives. These results match those observed in Ottenbreit-Leftwich et al.’s study (2010) who found that teachers’ motivation to use technology in their classrooms was the result of beliefs associated with helping students learn and preparing them for their futures. Technology was used to help students master relevant skills that they could apply throughout their lives. In this context, they all perceived ICT as a tool that can help them develop their students’ skills for their future careers. Having in mind that they live in a port and that they would be in touch with foreigners, both Ely and Jaz foster language communication skills in their students. Also, both Jaz and Ely share the same pedagogical background and teaching experience, which is reflected in their practice and the tools they choose for their students’ learning. They both favour spoken communication and they both try to accommodate technology into their existing practices in different ways. Both Jaz and Ely’s choice of technology was similar in terms of selected tools, activities and instructional goals. The ICT resources that they choose to develop listening and speaking skills reflect this.

It is important to note that despite teachers believing that they use ICT in creative ways to enhance learning, in reality they adapt ICT to fit their traditional teaching approaches. The teachers hold a traditional view of teaching and learning and tend to use ICT to reinforce their strategies for presentation and transmission of content. For example, despite Fer believing that he facilitates autonomous learning, in reality there are few opportunities in class where this can be observed as instruction is mostly
guided. They tend to adapt ICT use in their teaching practices rather than vice versa. That is, incorporating ICT in the classroom is not necessarily a transforming factor of their educational practices. In general, ICT is a strengthening element of their existing educational practices. These findings are consistent with those of other studies (Chen, 2010; Culp, Honey and Mandinach, 2005; Gobbo and Girardi 2001; Li and Walsh, 2011; Palak and Walls, 2009; Perrota, 2013) which concluded that teachers were more likely to fit technology into their existing practices rather than changing their beliefs about teaching.

### 8.3.2 Motivation

Among the features that teachers report for introducing ICT in class is their perception that ICT can help them engage and maintain the students’ interest, providing a link between their educational goals and the interest of students. When they use technology, they tend to focus on whether it is adequate or relevant for their learning objectives.

ICT helps them raise motivation in their groups, which, as explained before, both Ely and Jaz see as a crucial factor for meaningful learning in EFL. They consider motivating the fact that it can make classes more interesting, at the same time that it can help them improve the presentation of didactic materials, encourage autonomy in students and facilitate access to different resources online.

For them, motivation can either be the result of establishing clear links with the daily experience of students with ICT outside the classroom or it could be raised from an appropriate use of technology in the classroom which can make the lesson more interesting for students, presenting the lesson in what they believe would be a more appealing way for them.

Teachers are motivated to use technology that is more suitable to the educational challenges that they are trying to address. Their motivation to adopt technology is linked to their belief that a particular tool will help them work more effectively, which translates into saving effort or improving the quality of their teaching. This is seen in their use of PP presentations which allow them to present their classes without having to write down everything again in each classroom.
Teachers feel motivated to use ICT in class in order to improve their students’ learning experience. However, if they find obstacles to reaching their objectives, it makes them resort to the teaching methods that they are used to using every day in class. ICT seems to be an alternative, a backup, rather than embedded with intrinsic value in its own right.

8.3.3 Pedagogical compatibility

The way in which the participants adopt technology suggests that they are only able to integrate those methodological strategies that they understand. That is, they only use those resources that are much closer to their traditional daily strategies and which do not represent a challenge for them. This finding supports the idea that teachers use technology “in ways that address their most direct needs, bring them maximal benefits, do not demand excessive time to learn, and do not require them to reorganize their current teaching practices” (Zhao and Frank, 2003, p. 821).

ICT, in general, is used little in their classrooms, often in activities that they are already doing anyway, for example, seeking information, preparing lessons and making presentations in class. They tend to adapt the use of ICT in their teaching practices. In other words, incorporating ICT in the classroom is not necessarily a transforming factor of their teaching practices. At most, ICT is a strengthening element of their existing educational practices.

The primary factor for adoption is that ICT is relevant for their teaching goals and that it brings solutions instead of being the source of additional problems. For example, when ICT becomes unreliable either because it works intermittently or it is complex, as it has been the case in Jaz and Ely’s lessons, or when they try to discourage disruption, as suggested by Fer, they prefer to return to their traditional practices because they think that in reality, ICT does not bring any improvement but it becomes a source of complications instead.

8.3.4 Lack of ownership

Although lack of ownership is a theme that features only in Jaz’s data, it emerges as an important factor in shaping her cognitions and hindering ICT adoption. This makes it worth featuring as a theme on its own, one that could be considered for future
research. Jaz recognises the potential of technology in schools, however, she is ambivalent about how ICT can improve her teaching practice. She sees it as a source of distraction for students and she does not see that the adoption of technology can provide relevant solutions to improve her students’ learning outcomes or the quality of teaching. Besides, she is not sure about the applicability of ICT-related activities to every classroom because of the students’ lack of interest in learning English. They lack the motivation to participate in any kind of activities which is a source of frustration for her.

Cox, Preston and Cox (1999) found that if teachers see no need to question or change their professional practice, then they are unlikely to make use of ICT. In Jaz’s case, her narrative illustrates how different aspects, such as beliefs about learners and apprenticeship of observation have influenced her perception of how technology-related instruction can improve her practice. Lack of student-centred images both as a learner and as a teacher, make it difficult for her to move beyond her traditional approach to instruction. Because of her traditional learning background, she struggles to implement ICT in her lessons in a meaningful way and she uses it to support traditional activities in the classroom. In addition, contextual factors have been a critical factor impacting her cognitions, thus rendering them resistant to change. This, consequently, makes her question whether ICT makes a difference in language learning.

Despite initial interviews showing a favourable attitude towards ICT implementation in EFL, as time passed, Jaz expressed in subsequent interviews her disagreement about the relevance of using technology in her classes. This might not have been openly manifested initially perhaps due to the risk of being branded traditional or conservative in her teaching, as it has been suggested that teachers feel reluctant to express beliefs that are unpopular (Fullan, 2001; Kagan, 1990; Richardson, 1994).

8.3.5 Beliefs about learners

Beliefs about learners is a theme that comes across in all the participants in the study. As explained before, teachers’ perceptions of technology were shaped by their students’ needs, and this unfolds differently in the teachers’ cases. Fer’s decisions to use ICT in class depend on the images that he has of his students, which informs the
activities he decides to use with them. ICT tools are established from his understanding about his own teaching situation and what students are required to achieve in class.

He uses ICT in aquaculture because it fits the pedagogical aspects of the lesson. Unlike students in fifth semester (Aquaculture) who focus on developing reading skills, the third semester groups (Hospitality) need to practice and be proficient in all aspects of the English language. In this classroom, Fer does not believe that technology is needed. ICT is a distraction that can encourage loss of class control. For Fer, different contexts give rise to a different set of beliefs. While he holds a constructivist view of teaching in Aquaculture that allows him to make associations between ICT use and instructional practices, in the Hospitality group he holds more traditional beliefs regarding teaching EFL.

For Both Jaz and Ely, there is a difference in disposition to learn the language between technical areas. They believe that students’ motivation towards EFL learning depends on the technical area and think that students tend to stereotype themselves and are predisposed towards learning English. As a result, they expect them to show certain behaviours in class, which impacts on their own disposition to work with them, for example, losing interaction with the group and avoiding to use ICT in these groups, resorting to traditional approaches to maintain class control. It is apparent that the participants’ teaching beliefs are in relation to the context in which they teach and their students.

8.3.6 Teachers’ roles

The changes that the RIEMS advocates, a competency-based approach and a pedagogical constructivist approach are significant. This requires from teachers a better knowledge of their teaching subject in order to become real facilitators of the students’ learning. This, however, contrasts with how the teachers were trained as students and with the approach that they have replicated in their teaching practice for years.

Both Ely and Jaz have strong beliefs about the role that they play in their students’ learning. They feel that they need to make sure that their students learn and become
proficient in the language. Nevertheless, they have an image of themselves as teachers that contrasts with the one that they enact in class.

In Jaz’s case, she thinks of herself as a facilitator in class. She believes that she encourages independence and research skills in her students. However, Jaz’s beliefs of teaching and learning about the roles of teachers and students, for example, were traditional as reflected in her interview responses. She believes that teachers should impart knowledge to students through explaining and reinforcing concepts and addressing questions and misconceptions. Her description of the students as being kids and comments like (you) have to lead them, take their hand imply that she does not perceive the students as active participants in the process of acquiring knowledge.

In Ely’s case, she considers it difficult to work the competencies approach because of the large number of students. In spite of this, she believes that her practice has both traditional and constructivist approaches. However, in reality, her classes tend to be teacher-centred, students sit in class listening to Ely’s explanations, she mainly focuses on the accuracy of grammatical structures and most of the time provides mechanical activities for the students. She views her students’ success in terms of how well they performed in their examinations.

Fer’s image of himself also is that of a facilitator, a learning guide for his students. Nevertheless, observations and subsequent interviews show that the beliefs about himself in his role as a teacher were not consistent with his beliefs of being a facilitator in class. Although he did not openly acknowledge it, it was apparent that his role in class consisted of giving students information, providing answers completing their exercises, giving them vocabulary that they are expected to find. In the interviews, he made it clear that he cannot expect students to use ICT in a sensible way without teacher’s supervision and defined purposes. Although he is a guide, he also sees himself as the person who has the knowledge, and as such, his job is to transfer it to his students with a paternalistic attitude. This attitude is more stressed in the hospitality area, where Fer’s main concern is being able to control the class. As a result, he uses a more traditional approach to this end. We can observe that in this classroom, he does not feel motivated to use ICT in his practice and his role as a teacher is different with these students, projecting a more authoritarian figure. Initial
interviews show that Fer’s role in the teaching and learning process is not consistent with his beliefs about students.

Different factors prevent them from acting on the images that they have of themselves as teachers and, although they believe that they encourage student-centred instruction, the class observations confirm that they fall back on traditional practices that they are trying to avoid and resort to teaching models that they were exposed to in their schooling. The examples of the participants’ ICT use in their practice are related to the low level use of technology in language teaching thus rendering ICT as a presentation tool to introduce traditional activities as well as to support controlled language activities in their classrooms. Their use can be associated with traditional beliefs about teaching EFL and their perceptions about what they consider meaningful activities both for themselves and their students’ learning.

How they view their role in the teaching and learning process creates a conflict with the one intended in the reform. Their data suggests a dichotomy between the teacher that they want to be and the role that they are able to perform in class, the new role that they are expected to assume and the traditional role that they are currently performing.

8.4 What is the relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context?

Research findings support the view that teacher cognition is situated and context sensitive and that what teachers do and think is intertwined with their particular teaching contexts (Borg, 2006). Different contextual factors have a great impact on how teachers perceive ICT in their practice and how they respond to affordances and challenges in everyday teaching.

This section aims to analyse the emerging themes that arose from the three case studies in relation to teacher cognition, practice and context. It is important to note that, once again, not all the themes feature across all the three case studies, which leads us to conclude that the weight they place on each of the themes is informed by their cognitions.
The mismatch between actual practice and the perceived potential of ICT in EFL was influenced by several contextual factors, mainly the following:

- **National policies**
- **Institutional policies**
- **Availability of resources**
- **Opportunities for professional development**
- **Support**
- **Teacher collaboration**
- **Large number of students**
- **Time**

### 8.4.1 National policies

A central aspect discussed in the interviews is the lack of clear policies for the integration of ICT at a national level, not only in EFL but across the curriculum. Some points about how ICT will be implemented in the school are vaguely defined in the documents. The ambiguity of how teachers are required to perform the implementation generates concern among them.

Studies show that one of the main obstacles for the integration of ICT is the lack of clear policies at a national level that can be translated into each of the schools. In order to successfully implement ICT, governments need to include clear guidelines in their ICT policies about the potential impact on learning of specific types of ICT resources and uses (Cox and Marshall, 2007, p. 68). However, the participants face the challenge of integrating ICT in school when the RIEMS has failed to provide such guidelines for the teachers and it has not created the necessary conditions to integrate ICT not only in EFL, but across the curriculum. As a result, the participants at Galicia school lack a clear definition of what is expected from them with the requirement to introduce ICT in class.
Although they believe that the educational model proposed by the RIEMS aligns in theory with EFL instruction, in practice, the programmes are not based on the proposed approach. Under these circumstances, the teachers find it difficult to introduce ICT in their teaching. They feel that the educational model that they are required to implement is complex and the government should create the right conditions in the national curriculum so that teachers are supported in the implementation and ICT is immersed in classes instead of being seen as a different teaching subject. Factors like large number of students per classroom and lack of resources make the proposed educational model complex and difficult to implement. Lack of guidance also makes ICT implementation challenging for teachers, who are uncertain on what is expected from them regarding ICT integration. These factors will be discussed in the following sections.

8.4.2 Institutional policies

Since there is a lack of policies for ICT integration at a national level, it is difficult that the right conditions for ICT implementation can be achieved within the school, which, according to the teachers’ interviews, is a major factor preventing ICT integration. The challenge of integrating ICT in Galicia, as voiced by the teachers, lies on the lack of a previous agreement of how teachers will achieve the objectives as stated in the RIEMS, and how and when this will be evaluated.

Research identifies a whole school approach as central to ICT integration (Mumtaz, 2000). Since teachers do not function in isolation, but are part of a socio-cultural environment that can encourage or inhibit ICT use (Somekh, 2008), they need to have a vision within this environment for how ICT will improve teaching and learning (Albion and Ertmer, 2002), since ICT is more likely to influence practice if teachers share the values expressed within the school policy and understand their implications (Kennewell et al. 2000; Tondeur et al., 2008).

Implementation in school is not enforced and, as a result, teachers see ICT as an option for their classes. This is the result of different factors. First, a lack of ICT resources and infrastructure in the school hinders implementation. Second, the fact that teachers have academic freedom to decide what and how to teach. Finally, since there is no evaluation of their current practice, teachers complain about a lack of
guidance and feedback about their work with ICT, which coupled with their traditional education, makes them uncertain on how to use it.

A common view amongst the participants was the lack of leadership in school, something that is crucial in the early stages of adopting innovations (Pelgrum, 2001). Several studies show that leadership is a key factor in ICT implementation (Cowie, Jones, and Harlow, 2011; Dexter, 2008; Hadjithoma-Garstka, 2011; Hall, 2010; Li and Walsh, 2011; Mulkeen, 2003; Ng and Nicholas, 2013; Scrimshaw, 2004; Somekh, 2008; Tondeur, Coopert, and Newhouse, 2010) and that teachers who perceived their school leadership to be supportive of innovative practice were also more inclined to report benefits (Perrotta, 2013). The leadership underlying a school is of critical importance because the school culture reflects new ways of teaching and learning (Maurer and Davidson, 1998). School leaders are in a position to create the conditions to develop a shared ICT policy (Tondeur, Coopert, and Newhouse, 2010) because when teachers feel that the school leader stands behind them, they are more likely to be stimulated to adopt an innovation (Hargreaves, 1994).

Leadership in Mexican schools is represented by headteachers who are considered to be the sole leaders of each institution and who have followed the same models for years, based on traditional approaches to authority (OECD, 2010). In this study, the headteacher’s usual absence from school due to different commitments has left the teachers feeling neglected. Because of this, it was important to know the perception of the school’s headteacher on the application of ICT for educational purposes within this reform in order to understand his willingness to facilitate or inhibit the processes of technological ownership in the school. Being considered as the school leader by the participants, his points of view were potentially important to encourage the implementation of ICT.

Although the headteacher is quite knowledgeable about the objectives of the RIEMS in general, he does not seem involved in leading teachers through ICT implementation nor does he seem aware of EFL teachers’ needs regarding technology use. This was evident in his lack of awareness regarding the available resources for teachers in the school as well as to why Impulsate did not work in the institution, which highlights a lack of communication between the headteacher and the teachers. For him, the introduction of ICT in classes is also optional, however, he sees this as
the result of the academic freedom in school and the fact that he does not feel entitled
to ask teachers to make changes in their practice at risk of getting in trouble with the
teachers’ unions.

The headteacher identifies himself more as a manager who focuses on following the
rules and controlling resources, getting the most out of budgets and keeping
everything well organized. The headteacher himself recognises that this is his the role
when he affirms I am the school’s manager. Consequently, instead of Mr Cobos
playing a pivotal role in leading ICT implementation, its introduction is left to each
teacher’s interpretation. Had the administration offered an articulated and coherent
vision for technology use, the participants feel that they could have achieved a better
ICT integration in school. Instead, they are left feeling that ICT is optional for their
classes. For them, the headteacher is more focused on administrative tasks than on
being a leader.

8.4.3 Availability of resources

Availability of resources is a noteworthy theme emerging from the teachers’
interviews and, as explained before, it relates directly to the role of the management
in the school. Despite the ambitions of the reform to integrate ICT throughout the
curriculum, teachers have few resources available in Galicia, which strengthens the
feeling that ICT is an option since it cannot be enforced. Their perception is that
conditions must be generated in the school context and more resources should be
made available before expecting them to achieve the aforementioned advantages of
incorporating ICT in the proposed educational model.

Availability of resources, directly or indirectly, increase teachers’ technology use
(Inan et al. 2010). Over time, more access to technology increases the demand for
additional ICT resources and professional development (Cowie, Jones, and Harlow,
2011). Even though teachers acknowledge the advantages of using ICT in their
practice, it is difficult for them to act on their beliefs and implement technology in
their daily classes because of the limitation of equipment. What is more, some of the
available resources are broken, faulty, or have been partially stolen. Measures taken
to prevent these problems, for example having the equipment locked and not having
the keys available when they need them, make them waste time. There has also been little consideration on where to place some of the equipment in class.

The extent to which lack of resources impacts on ICT implementation in their classes is different for the participants. For example, both Ely and Jaz see lack of resources as preventing them from using more ICT in class, finding it difficult to plan ICT-related activities in advance. The process of booking the resources seems like a waste of time for them and because of this, they find it difficult to break away from traditional practices which seem easier and more practical to implement in class.

Fer also sees lack of resources as an obstacle for implementation. However, he does not consider this as having an impact on the extent to which he is able to use ICT in class. Fer either manages to make use of the available resources in school or he is happy to take his own resources to class. His beliefs about the capability of technology have enabled him to integrate technology in his classes. Despite his limited availability of resources, his positive view on the impact of technology in EFL is one of the most influential factors that allow him to use ICT in class. His motivation to use ICT relies on the perceived usefulness in his students’ lives and his professional interest.

These findings are in agreement with the studies by Ertmer (1999) and by Ertmer and Hruskocý (1999), which showed that teachers’ perceptions of the criticality of first order barriers can lead to different outcomes in their teaching practices. The weight assigned to such barriers is influenced by whether teachers consider technology relevant to their curriculum and who might see limited access as an inconvenience, or a challenge, but not a deterrent.

Teachers not only have problems with the availability of resources in Galicia, but with how accessible the equipment is for them. A clear example is the smartboard in the audiovisual centre which teachers rarely use despite receiving training. The need for careful planning and the fact that it takes time from class are the main reasons given that prevent teachers from using it.

Teachers ask for more an improved equipment, for a better quality of the broadband signal, for more accessibility to the resources, for having technology ready and
working when they want to use it. Such demands mean that if they are going to use ICT in their classes, this must be facilitated so that the organizational or technical aspects do not interfere with the educational aspects. As Jaz points out, with ICT available in each classroom, who wouldn’t be able to do it? However, teachers face a vicious circle: they will receive more equipment if they show that they are implementing ICT in class, however, they cannot implement ICT in class because there is not enough equipment in school for all of them.

Although necessary, the installation of technological infrastructure is only the basis that could make it possible to integrate it in their teaching practices. However, the participants also express that even if they were provided with the best technology they would not be able to use it pedagogically. Thus, they do not only need to increase the equipment and connectivity but also they express the need to be provided with the necessary training strategies and learning environments in order to increase their competencies to educate students. The next section will provide insights about how their training needs have been considered in the reform.

8.4.4 Training

A central aspect discussed in the interviews was the impact of measures to introduce significant changes in both curricular content and pedagogical model without providing teachers with the necessary means to achieve the objectives. As explained before, teachers are required to develop skills and engage with knowledge on how to promote learning in a very different way that they learned as students and how they are currently used to working in the classroom. Teachers must now adopt a facilitator role to design and plan learning experiences and help their students in managing and transforming knowledge. Such transformation requires changing their role from a transmitter of knowledge to a facilitator of it. This, however, has not resulted in significant changes in teacher training policies and strategies.

School teacher quality is critical and one of the premises of a successful reform. According to Hargreaves and Fullan (1998), all serious educational reform efforts are bound to fail if the quality of teachers is not taken into serious consideration. In this case, however, government efforts have not been enough apparently, and different factors make teachers question the government strategies regarding training.
Although the *SEP* has taken steps to implement the *PROFORDEMS* (*SEP*, 2009) to develop teaching competencies in teachers, this has relied on the availability of each teacher to use their free time to attend. In general, there is little academic support in schools. Courses promoted at the beginning of the school year by the *SEP* are not considered as a professional update but more as information about the new educational system. Teachers mostly critique the poor organization of courses as well as the lack of preparation of the people teach the courses who, in most cases, do not have a pedagogical training background (Becerra and Padilla, 2011).

Short training programmes have resulted in a poor understanding of disciplinary content. Teachers complain that they have not been trained using the same approach that they are supposed to implement, so although they can understand the model in theory they are unsure on how to implement it in practice. They express its low impact in the classroom and feel that it does not match the expectations of improved practices in education.

While most of the government efforts have focused on providing teachers with the necessary training to implement the competencies approach, in comparison, ICT training has been relegated to a few courses, which suffer from some limitations: they are either focused in acquiring technology skills, they are offered by people who do not have a teaching background, that is, training instructors meet the requirements of the school curriculum but they have major weaknesses regarding didactic knowledge, or teachers are required to train during their free time. The training that has been offered appeals to teachers who are willing to use their free time to train. Considering the workloads that they have and the fact that EFL teachers cannot access some of the courses made available by the government because they do not have the required hours in class to take them, they show little or no interest in taking them.

Despite the participants being appreciative for the need for these courses, especially in low level users such as Ely, such training has not shown them how to use these skills in their classrooms, nor are they given opportunities to learn about student-centred practices supported by technology to improve the quality of teaching and learning as stated in the reform. This affects the extent to which ICT can be used successfully in EFL. Considering that teachers still do not understand how to implement the competencies model despite the training that they have received, it
begs the question of how they can implement ICT in this approach when they have not been given the same opportunities for training.

Research shows that teachers’ training is an essential requirement for ICT implementation. The mere presence of ICT in schools has proved insufficient for the transformation of teachers’ practices and although the availability of equipment can contribute to this, it is not enough to transform teachers’ work. The key is how teachers use these technologies to help them achieve the expected learning. Studies like that of Jimoyiannis and Komis (2001) highlight the importance of providing opportunities to teachers to acquire ICT skills in order to strengthen their beliefs about the value of ICT in teaching and learning. (p. 167). Following these initial courses, teachers need to learn how to use ICT in pedagogical settings and how to integrate ICT in the curriculum (Voogt et al., 2011) insufficient training opportunities and support (Pelgrum, 2001).

In this case, the participants see the training programmes as fragmented efforts that have failed to provide real opportunities to implement the expected changes. Teachers are not offered enough learning opportunities in teacher training programmes to prepare them in the use of ICT as a learning resource in the classroom. Perhaps there is a tendency to think that teachers have enough knowledge to handle technologies, which tends to minimize the importance of learning relevant strategies for educational use. As a result, teachers are not given enough opportunities to train in order to ensure that their students make the most of the opportunities to develop skills finding information, critical thinking and communication, as stated in the reform.

8.4.5 Time

Time is seen as one of the main factors that teachers require to fully understand and appreciate what ICT can offer and to undertake the necessary steps to put this into practice (Tearle, 2004, p. 4). Teachers need time to experiment and to get a much deeper understanding of ICT resources and materials available, in order to become confident and implement this in their teaching (Bauer and Kenton, 2005; Venezky, 2004; Webb and Cox, 2004, Wikan and Molster, 2010; Windschitl and Sahl, 2002) thus learning and developing meaningful practice (Tearle, 2004).
In the study, lack of time is signalled as to why teachers have failed to assimilate ICT into their practice. This is a commonly-cited barrier by teachers who already feel that they have too much to do (Li and Walsh, 2011). In this particular study, lack of time relates directly to the Mexican context, as teachers do two or, as in Jaz’s case, three jobs. This is why this theme emerges in Ely’s data and, more strongly in Jaz’s narrative. Interestingly, Fer does not see lack of time as an obstacle for ICT implementation despite also working in two schools.

As explained before, the participants have other teaching jobs in different schools which contributes to the stress and physical exhaustion that Ely, and particularly Jaz, say they experience. The burden of educational activities after their teaching hours is high. Teachers need to prepare lessons, teaching materials, evaluations and extracurricular activities during their spare time. They also have frequent after hour meetings with both parents and students and sometimes administrative work to do. This, coupled with the hours that they spend commuting to and from their jobs, gives them little time to rest and it is a factor that impacts on their teaching performance and that considerably hinders their availability or willingness to plan ICT-related activities.

It is suggested that teachers need time for both professional and curricular development activities (to learn new skills, preview software, explore available resources, create new lessons) if success is to be achieved (Ertmer, 1999). However, due to work overload, teachers lack the time to experiment with different ICT resources. This impacts on how they perceive its use in their classes. Ely, for example, finds it disruptive because of the multiple occasions that she has had to interrupt a lesson due to technical problems or because of the time that she “wastes” taking students to the computer lab. In her case, time informs the kind of activities that she introduces in class. As her main concern lies in preparing students for examinations, ICT is considered as an extra tool that can only be used once she has made sure that any delays will not hold her back from achieving her class objectives.

In Jaz’s case, lack of time emerges more strongly in her narrative. She is aware that this is the main factor impacting on ICT use in her classes. The burden of educational activities for her is high, resulting in immense pressure to fulfil both her teaching objectives and her administrative duties. Because of this, using ICT means adding
extra work to her already busy agenda. Time spent looking for available and working resources and the amount of hours that she needs to find the right activities for every class add to her beliefs that traditional approaches are more practical and reliable for her practice. She believes that the results that she obtains when she implements ICT does not compensate the work and time that she invests in planning ICT-related activities.

Teachers perceive themselves as having an overwhelming work without the necessary time for planning, material preparation, evaluation, teamwork, attention to students among others, that they consider additional to their teaching practice. Exam pressures and curriculum restrictions hinder them from adjusting their practice to fit learning with ICT. The study of Somekh et al. (2002) shows that teachers avoid making use of ICT during periods in which their pupils are studying for or sitting public examinations.

Considering the workloads that they have and the fact that the EFL teachers cannot access the SEP courses (the main motivation for these courses being the points given as a bonus) means that any training that is offered to them appeals more to the teachers who are willing to use their free time to train. In the end, they show little or no interest in taking these training opportunities.

8.4.6 Teacher Collaboration

The RIEMS advocates and promotes collegial co-operation work stating how teachers are expected to work during the reform. It explains the importance of planning, performing and evaluating learning activities in collaboration with teachers who share the same disciplinary field. However, collegial co-operation among participant teachers in Galicia High School does not seem to be present. The interviews suggest that a lack of collaboration among the EFL teachers in the study is affecting ICT integration in the school. This is another theme that surfaced just in Ely’s and Jaz’s data. Each teacher adopts the teaching-learning strategies and makes decisions that are considered best for their students without the benefit of sharing with their peers their experiences, thus enabling them to enrich their practice. Both coordination and the school administration seem unable to require teachers to fulfil this task.
Collaboration has been suggested to promote teacher belief change (Kim et al., 2013; Windschitl and Sahl, 2002) with teachers’ practice more likely to change when they are involved in professional communities that discuss new materials, methods and strategies (Putnam and Barko, 2000). Because of the lack of collaboration, the tasks that need to be carried out in the EFL department end up falling in a few teachers, which impacts on the time that they have left to experiment with ICT. In this scenario, it is not difficult to see the negative implications that lack of collaboration has on the way that teachers work. Their practices are characterised by individualism, professional isolation (like in Fer’s case) which limits access to new ideas, affecting students’ learning, and the teachers’ development itself.

Both Jaz and Ely are in complete agreement with the advantages of collaborative work for them and for the school. Fer, on the other hand, does not seem aware that his participation in the planning and developing of the curriculum beyond being an institutional requirement is an important task to strengthen the EFL department work. Despite himself advocating for student collaboration, he is not exposed to his colleagues’ teaching practices that may influence his own instruction nor does he share his own vision of how he implements ICT in his classes.

Jaz, in her role of EFL coordinator, points out the difficulties in trying to make teachers work together. Communication between teachers does not usually happen during meetings, making it difficult to establish agreements and consensus regarding the development of EFL work. The exchanges arise in an informal level and are conditioned to the times and interest of each teacher. In most cases, collegial co-operation work is determined by personal relationships, that is, teachers work with people that they get along with, as seen in Jaz’s and Ely’s case, and sometimes good results have been obtained working in this manner.

The existence of clear rules and procedures for collegial co-operation work in the school could, in theory, make an important difference within the school context. However, the school administration feels powerless to ask teachers to comply with such rules. Because of the lack of collaboration, the time that might be allocated to work in school is not enough and teachers fail to make progress on working on the planning and curriculum, which has to continue during the school year. Both Ely and Jaz feel that they have to focus on ensuring continuity between semesters which
makes it difficult to improve the language level in their students. What one teacher
did not cover in one semester, they will have to do it using time from their own
programmes. They believe that the fact that some teachers focus on some skills, is
due to a lack of appropriate knowledge about their teaching subject. They teach what
it is easier for them, making other teachers’ work more demanding. As a result, both
Ely and Jaz feel that they have to focus on dealing with language deficiencies,
improving language skills, and covering content before the examinations.

One of the main reasons for this lack of collaboration seems to be teachers’ dissimilar
backgrounds in the EFL department. Because of the school dynamics, teachers tend
to separate by specialty and within that, by their training. This affects relationships,
work organization and isolation. This isolation is strengthened by the conditions of
their employment, especially because the teachers usually distribute their time across
different schools, making it therefore very difficult to engage in a collaborative
project. This problematizes engaging in other tasks, which affects the time they might
have to explore ICT use.

The teachers feel that their job is to work in their classrooms. Everything else, like
meetings, commissions and extra hours are seen as an extra burden. They work
individually and with their own resources and criteria. This does not encourage to
work as an educational unit, which favours the fragmentation of staff, individual
work and isolation.

8.4.7 Support

Lack of support is another barrier highlighted by the participants that hinders ICT
integration. There is a lack of true institutional and systematic support that could
provide feedback for the different challenges faced by teachers in their daily tasks.
Although they recognise support regarding training, they feel that both government
and school are unaware of teachers’ needs and have not been supported in the
implementation of ICT in class.

As explained before, the school infrastructure, lack of equipment and teaching
resources are still precarious, which strongly hinders teaching with ICT. Often,
teachers have to bring their own resources or make economic efforts to comply with
their class objectives, which generate negative feelings regarding the lack of support both from the government and school to their professional work.

Both Ely and Jaz have strong feelings about the lack of support towards EFL classes in general, which they believe are not considered as important as some other teaching subjects in the school and for them, this is reflected in a lack of support to get the resources that fit their pedagogical perspectives and in a lack of vision for ICT integration in EFL.

8.4.8 Large number of students

Teachers cannot be considered as a decisive factor for educational reform if their specific working conditions are not taken into account in the proposed changes. The implementation of ICT, coupled with new approaches and working methods proposed in the RIEMS which seek greater student participation in the construction of knowledge is hampered by the large number of students that the teachers have in class.

The most important challenge for the participants regarding the number of students, which could be of up to 60, resides in the amount of work that they have per class. The organization of school work, which includes 50 minute classes, means that teachers need to perform multiple activities during that time, for example, taking the register, distributing and collecting assignments, performing tests, monitoring and correcting discipline, giving homework and evaluating students under the competencies approach, repeating this in each group. Besides, teachers need to develop the required language skills, which proves difficult considering that not all students have the same knowledge, speed, skill and motivation to learn. This, coupled with the fact that the competencies approach does not encourage language acquisition according to Ely and Jaz, because, as explained before, the evaluations cover several aspects that allow students to get good grades without any effort towards learning English. Evaluating punctuality, willingness to work, cleanliness of their uniforms, homework, among others, leaves a small percentage to the evaluation of language skills and examinations. Students do not feel that they need to make an effort to learn because they are given plenty of opportunities to pass their course. This is frustrating for the teachers who do not see an improvement in the students’ language level. In
such conditions, teachers cannot give an individualised attention to students and be more aware of students’ deficiencies and needs, nor can they have the energy to deal with the implementation of ICT in their class.

Summer courses give teachers a glimpse of how working with fewer students in class could improve their practice and students’ learning outcomes. Jaz’s narrative shows the change in students’ attitudes when they get a personalised attention from their teacher and how this has an impact on their motivation and their learning. This, in turn, impacts on Jaz’s own approach towards her students and her teaching practice. Seeing them motivated and making progress compels her also to introduce different methodologies and resources in class.

8.5 Summary

This chapter has provided insights into the key findings related to the study. The analysis of the data has suggested that teachers see the integration of technology in their classes as an arduous task because they must engage in knowledge and promote learning in a very different way than they learned or are used to working in the classroom. Images of teachers from their years as students impact on and influence their professional training and their current practice. However, different contextual factors also affect teachers’ practices.

The analysis suggests that teachers’ beliefs on working with ICT in EFL are formed by beliefs about their students, their future needs and the potential of technology about teaching and learning. It also reveals that the participants took up affordances of technology consistent with their pedagogical beliefs and their use of technology is established from the teachers’ understanding about their own teaching and what students need in order to achieve their instructional goals. In the three cases, ICT was likely to be implemented if teachers identified that technology was congruent with their teaching approach and their students’ language learning needs. However, they used technology applications to deliver teacher-led instruction and they felt inclined to use technology that they felt comfortable with and adjusted its use according to the perceived affordances of technology in their teaching contexts. This illustrates that teachers fit ICT into their practice according to their teaching beliefs.
It is important to note that teachers function not in isolation, but as part of a socio-cultural environment that encourages or inhibits the use of ICT (Somekh 2008). The demands that the introduction of the RIEMS has placed on teachers are complex and diverse, so that teachers require permanent training and updating so that they are able to respond to the requirements placed by the reform. Teachers are very specific in pointing out their training needs, the need to change how evaluations are done in order to improve language level in students, how to implement the competencies approach. Several first order barriers predominate in the Mexican context. They require greater resources—equipment, support, materials, as well as reducing the number of students per class and an increase in collegial co-operation work. Collegial work is accepted but there is a certain resistance to take it to the practical level perhaps because of the commitment that requires from teachers.

In general, implementing technology is seen as a burden due to time constraints, it takes time from the objectives the teachers see as priority in their class, for example preparing for examinations. Having discussed the analysis of the participants’ data, I will now move on to answer the research questions of this study, as well as limitations, implications and suggestions for further research.
CHAPTER 9 CONCLUSIONS

9.1 Introduction

It is believed that technology has the potential to transform school systems in a much more flexible and effective way. From this perspective, in what it has been a change of pedagogical paradigm, most countries have relied on technology as a catalyst for educational change and development of new roles for both students and teachers. Because of this, many countries have embarked on educational reforms in which technology is expected to play a crucial role in education and Mexico has not been the exception.

As it was pointed out in the introduction to this study, during the 2008-2009 school year, the Mexican government launched the implementation of the RIEMS, an educational model that sought to cover the educational gap in the upper secondary schools. Constructivism and a competency-based approach are the traits on which the authority places more emphasis and which were promoted as an alternative to overcome the schools’ backlogs and the training of students for a globalised world. In addition, it proposed two approaches that I found interesting as an object of study: an important emphasis on the use of ICT in classes and, in technical schools, together with the changes previously mentioned, a greater role for EFL classes within the curriculum.

Of special importance is the expected change in the role of the teacher, who should be able to become a facilitator and leave the leading role in class to students in order to incorporate ICT in their practice. The implementation of ICT in the upper secondary education requires both teachers and students to master a variety of skills that are required in the context of the demands of the knowledge society. Teachers are expected to use computers, the Internet, and specialized software in their classes. However, despite the curricular reform claiming a basis in constructivism, Mexican’s educational approach is still quite traditional.

Teachers face new challenges by implementing a common curricular framework based on generic, disciplinary and professional competencies. They are expected to promote the creation of learning environments that encourage research activities,
collaborative work, problem solving, and the development of interdisciplinary educational projects, without taking into account the complexity of the innovations proposed. This raised questions on how ICT integration would occur within this context.

The study aimed to determine how EFL teachers engage with ICT in their practice in the context of this Mexican reform initiative. Particularly, it aimed to conduct research into teacher cognition in order to understand what teachers think, know, believe and do related to ICT adoption. The following section addresses the conclusions that emerge from this study.

9.1 The nature of Mexican secondary teachers’ cognitions about the teaching of EFL.

The study contributes to existing knowledge on how teachers’ beliefs systems gradually develop during their lifetimes (Lortie. 1975; Johnson, 1999, Borg, 2003). The findings suggest that, in general, teachers develop mental patterns, beliefs about teaching from such a long period of observation as students. Their identity takes shape gradually and in an unreflective manner, through what might be called informal learning by observing educational models with which they increasingly identify and which influence their teaching practice.

Initial teacher training in most cases strengthened or reinforced learning assimilated from their time as students. However, models of learning and teaching remained intact and initial training, in any case, served to enact the representations they were exposed to as students, which mainly had to do with traditional teaching practices.

9.2 The nature of teachers’ cognitions in relation to using ICT in the teaching of EFL in the Mexican secondary context.

The importance of ICT in education is evident for the teachers in the study. They have positive beliefs about the many possibilities that ICT can provide to support teaching and learning processes in EFL. For them, it offers a very different perspective from the traditional work that they are used to doing in the classroom which includes allowing communication between people by eliminating the barriers of space and time, offering a wide of possibilities to access information, promoting
motivation and interest in their teaching subject facilitating teamwork, even making it possible to take virtual visits to different places. Improving problem-solving skills and teamwork, as well as enhancing self-esteem and allowing greater autonomy learning.

However, in spite of recognizing the importance of using ICT in the classroom, the level of integration of ICT in teaching and learning activities is minimal, to the extent that it can hardly be considered that the integration of technology has meant the transformation expected with the introduction of the RIEMS. There is still a big gap between what it is expected from teachers and the reality that they are facing in the classroom.

One of the reasons to which the relatively low rate of adoption of technology in the school can be attributed has to do with the lack of images that the participant teachers encountered during their years as students. As explained by Shaunessy (2005) most classroom teachers practicing today were not educated in classrooms with technology, and those who were probably did not see technology used in meaningful ways to engage learners (p. 46). For the participants of the study, this results in the inability to integrate it in a manner consistent with expected models and teaching methods. The data presented before made it clear that the role assigned to technology in the classroom is still marginal, both in terms of intensity and relevance of use, in sharp contrast to the experience that students might have using technology in everyday situations.

9.3 The relationship between the nature of teachers’ cognitions regarding ICT use in EFL teaching and expected practice in the Mexican secondary context.

One of the main problems in the integration of technology in the school lies in the lack of foresight and consideration of all factors affecting successful integration and incorporation of ICT into the daily life of the school context. Unfortunately, it appears that the effort to integrate ICT in the school has been unsuccessful, partly, because the implementation has not been based on research strategies and evaluation that collect reliable and systematic information on the needs, progress, and problems of the project that the government wants to implement. Therefore, teachers do not have sufficient information to guide decision making for achieving the goals and
expected impact. This results in a significant lag in promoting the use of ICT in the school, with teachers usually showing a rather restricted use of ICT in their classes.

One important factor experienced in this reform has been the provision of minimum investment in infrastructure services. Studies show that although availability of resources per se does not lead to an immediate implementation of ICT and it is not considered as a determining factor, having better access to technology is a necessary condition that creates greater opportunities to introduce it in class. Particularly in developing countries, it is important that policy helps schools to have a minimum acceptable infrastructure at their disposition. The infrastructure not only consists of hardware, software, and network resources but also includes electricity, phone lines, insurance, and safe and secure school buildings (Voogt et al., 2011).

To a certain extent, the lack of equipment and the condition of the few available resources are compelling reasons for the lack of implementation in school. However, the gap between expectations and reality cannot solely be attributed to access problems. The role of the teacher as a catalyst for the teaching-learning process is within the focus of this reform. In this regard, it is problematic to consider teachers as a decisive factor in these reforms if we take into account the specific working conditions and the particular sociocultural context in which EFL teachers are facing this implementation in Mexico, with some of the planned objectives difficult to materialise in practice.

Teachers are affected by having to work multiple shifts (which most do to improve their salary conditions). The fact that teachers and headteachers have more than one job characterizes a teacher divided between two responsibilities, especially because this double shift takes place in different educational establishments, contributing to stress and physical exhaustion and leading to a permanent demand to complete their teaching responsibilities. Multishifting consequently impacts other areas.

For example, the importance of training is clear in the incorporation of ICT since it can significantly impact how teachers perceive technology (Shaunessy, 2005). However, it is difficult to encourage the participation of teachers in training programmes when mostly these programmes are offered during teachers’ free time. Teachers teaching double shifts makes it almost impossible to find time outside
teaching hours to train and to acquire the right skills to introduce ICT in class. Thus, attending the training opportunities that are offered largely depends on the commitment of teachers to attend such courses. This situation could in theory be resolved by offering training courses within the institution instead. However, with the school operating up to three shifts during the week, it is sometimes difficult to find a space to train teachers in school grounds. School multishifting makes it difficult to use the school as a learning community.

As a result, the participant teachers face two problems: they have either not been trained or the type of training they can access has not met their needs nor has it been monitored or had some continuity. The value of programs, courses and workshops for the requirements of teachers at the individual level is questioned, as well as the disengagement of these courses with school life, which makes it difficult for teachers to apply their training in their classrooms. What is more, although innovative educational proposals are encouraged, the formal aspects of teachers’ training remain intact. That is, constructivist educational proposals are taught with traditional teaching methods. This is coupled with a lack of expertise perceived from the people who impart these training courses.

Thus, having to work multiple shifts affects different aspects of teaching and leads to having little time in general to prepare their classes and to work collaboratively in school. This is exacerbated by teachers’ dissimilar backgrounds which impact the organization of teaching responsibilities, including the allocation of roles within the educational community.

Another factor seriously impacting ICT implementation within this context is the perceived lack of leadership in school. There is clear evidence that show that the leadership style of the headteacher and how the school is managed directly affect the satisfaction and motivation of teachers of the school. In this case, the headteacher’s constant absence from Galicia leaves him little or no time to interact with teachers and to evaluate their needs and expectations. The fact that the predominant role that has been portrayed in the RIEMS regarding both EFL classes and ICT implementation has not been translated to the context of this technical school discourages teachers and creates a sense of frustration about the support that they are expecting to receive. There is wide recognition of the lack of motivation of teachers
due to the lack of support, and administrative burdens that distract them from their
teaching activities.

In this regard, the reform proposals that have been launched seem guilty of a certain
lack of realism. They appear to be overly optimistic and advocate a radical shift in the
teaching approaches that are far from the everyday practice of the participant
teachers. In the classrooms, despite the proposal suggested by the government, the
way that teachers use ICT is strongly linked to their beliefs about what it means to
teach and to learn. The teachers have adopted technological solutions that facilitate
their work in the classroom and which allow a more efficient presentation of the
lesson. Teachers’ uses of ICT depend largely on the nature and characteristics of the
 technological resources at their disposal. Their use of technology involves an effort to
improve what they are already doing, so it is reasonable to expect that ICT will help
improve existing practices at school, which are mainly traditional. As Somekh (2008)
explains, those without the time – or often sufficient access to the new tool – to
engage in exploratory play, invariably begin by trying to fit the new tool into existing
social practices (p. 452).

Thus, the current use of ICT in Galicia is far from the pursued educational ideal, since
it is not leading to an effective transformation in the teaching-learning process. On
the contrary, the teacher's role in the classroom is still central to the process of
teaching and learning, and the student’s role is predominantly passive, which means
that the characteristics of the traditional class are preserved even if other resources are
used; the data suggests that the use of technology by students in the classroom is
usually limited to finding information or to practice teacher generated exercises.
Conceptions of traditional classes do not allow the processing of new practices.

These findings further support the idea that most teachers do not substantially
transform their teaching practice by integrating technology into the classroom, what
they do instead is to accommodate technology into their current practice (Pelgrum,
2001). That is, teachers with a traditional view of teaching and learning tend to use
ICT to reinforce their strategies for presentation and transmission of content, while
those with a more "constructivist" vision tend to use them to promote exploration or
inquiry activities, independent study and collaborative work in students.
9.5 Contributions

This section explores the main contributions of the study. The implications of the findings for teacher cognition and ICT implementation are also addressed, as well as a discussion about the limitations of the study and suggestions for future research.

9.5.1 Theoretical contributions

In order to understand how teacher cognitions develop in the Mexican context, the study was framed in Borg’s (2006) proposed framework of the conceptualisation of teaching. According to this notion, teachers’ taught processes are influenced by several aspects that should be taken into consideration when investigating language teacher cognition:

- prior learning experiences
- teacher education
- contextual aspects
- classroom practices

As I gained a deeper understanding on how these aspects interacted in the participants’ every day teaching, I realised that Borg’s framework does not address the teachers’ sociocultural setting as a factor that influences teachers’ cognitions. The contextual factors that Borg refers to in this framework are internal to the school environment.

This external social setting, which is not part of the beliefs system that Borg (2006) details, is an aspect that surfaced in this thesis and that shed light on constrains that teachers face in trying to implement ICT in their classrooms. My analysis showed how important that sociocultural setting was. I can propose that context could be unpacked and that teachers’ cognitions are not only impacted by the educational context, the immediate context and the teachers’ background world. There is indeed a societal culture of learning context, but there is also that day to day living that means
that teachers in a context like Mexico think in very particular ways which are clearly going to be different from teachers in other sociocultural settings.

There are several interacting aspects of this social dimension in the Mexican educational context that have made the adoption of ICT a challenge. This Mexican perspective includes elements from the school, the national policies and elements from a society where it is quite difficult to be a professional. The particular working conditions of teachers in Mexico, where most teachers and headteachers have more than one paid work, either as a teacher or sharing teaching with other work activity, produce a negative impact on the conceptions that teachers bring to their practice. Those who combine teaching with other paid work have less time to prepare and plan teaching properly, share and exchange practices and strategies with other teachers, and train outside school hours among other aspects that are crucial to good and relevant teaching and learning processes and to implementing ICT in the classroom.

Teachers’ dissimilar backgrounds add to the challenges of implementing ICT in Mexico. There is not a uniform way of becoming a teacher because of the way that Mexico works as an educational system. Two groups of teachers with different identities that share the same activity, normalistas and universitarios, find it difficult to agree on several aspects regarding their responsibilities in school, affecting in turn several aspects of teaching as well as the integration of ICT in their practice.

There is an unstable political situation, the teachers talk about not being able to bring in their CD players to school, they would not carry their laptops, teachers experience sudden closures of morning and afternoon school, several bank holidays, the fact that teachers have morning and afternoon schedules. This whole system, which makes life complex, is not unpacked at the moment in Borg’s diagram. These factors are particular to this Mexican context. A researcher looking at investigating teachers in another context might be able to talk about their societal pressures in similar ways to myself but the societal elements are going to be different and specific to that context.

Therefore, my contribution is in the contextual box, itunpacks the different aspects of the social setting that impact on teachers’ cognitions to implement ICT in their practice. The arrows presented in Borg’s framework are quite unidirectional and the relationship between the different elements is actually quite complex.
Combining both thematic analysis and Borg’s teacher cognition framework helped me to interpret the data collected in this study and allowed me to expand on the understanding of the social context. This approach complemented the answers to the research questions by allowing the elements of the teacher cognition framework to be integral to the process of doing thematic analysis, which allowed for themes to emerge directly from the data using inductive coding. As explained before, it is difficult to understand how the different factors that impact on teacher cognition might integrate. The relationship between them is quite complex, they are inextricably linked, and not isolated and this framework provided a set of guiding labels and allowed me to find elements that already existed in the diagram, for example, training, resources from the classroom and from the school, time which is seen as part of the school environment, opportunities for professional development which link to professional coursework. I also found support and teacher collaboration, which are part of how the institution works.

By using thematic analysis I was able to explain the context in more detail, I could find elements that did not belong to the framework and that contribute to the understanding of how teachers’ cognitions might be impacted by the sociocultural setting, which at the moment is not considered in Borg’s framework. The national policies, for example, the top level, is not considered in Borg’s framework, it is not professional learning, it is not part of schooling, it is not part of the classroom. Society, teachers running around due to multiple jobs, the unstable political situation, belong to a social context which, in the Mexican setting, proves to be very strong. That societal layer is a very thick layer to penetrate and the teacher is affected by these varied sociocultural setting.

9.5.2 Methodological contributions

The thesis highlights the relevance of conducting research within the educational context in Mexico where research is limited. Although the Ministry of Education conducts a fair amount of research this is mainly done for its own internal purposes (Santibañez, Vernez and Razquin, 2005). More research is needed on the pedagogical models in which these innovations are based which identify the characteristics of the models that work and in what circumstances.
One of the main reasons for insufficient high-quality education research and evaluation in Mexico is the difficulty to access schools as a researcher due to the reluctance of both teachers and teacher unions to accept the presence of outsiders in the classrooms. Having links within the school let me carry out research in a context which would have otherwise not been accessible and gave me access to people and information that allowed me to have a better understanding of the proposed educational changes in the Mexican context.

At the same time, being part of the same subject teaching culture created a sense of trust that encouraged the participants’ collaboration when collecting data. Thus, I could gather information from multiple sources, that is, interviews, stimulated recall and observation of teachers’ practices, which is something that outsiders and other staff within the institution are not able to achieve. Despite their several commitments both inside and outside the school, the teachers made an effort to be available for the research almost every day of the week, several times during the day, which allowed for the continuity of data collection and for more detailed and thus more trustworthy data.

Engaging in insider-led research gave me the opportunity to make a significant contribution in my area of practice. At the same time, I felt the responsibility to safeguard the context of the research and establish appropriate boundaries not only to satisfy ethical concerns but also because of two factors: the difficulty of accessing schools to conduct research and the fact that giving a positive experience to the participants might encourage openness to future researchers in the school.

9.5.3 Contributions to ICT research in Mexico

The international scenario forced the introduction of technology in Mexico without enough preparation among the programmes that were implemented. There is a clear need to orient this kind of programme and to guarantee their continuity, because the changes of government do not always assure this situation. Introducing technologies in educational contexts like Mexico need to be accomplished with the support of well-grounded empirical studies and as a part of well-planned education. The lack of literature from a Mexican perspective related to the introduction of technology makes these conditions difficult to meet.
The case study approach provided detailed accounts of teachers’ cognition and their teaching practices in the context of educational reform. This thesis aims to assist teachers’ development through the understanding of their own teaching practice and cognition and to contribute to knowledge which could help policy makers recognise the process that teachers undergo when they try to fit changes into their existing subject practices, pedagogical paradigms, as well as specific school contexts.

In this sense, the study contributes to empirical research regarding ICT implementation in the Mexican context, where very little is known about the processes that can inform the successful use of ICT in EFL. Studies like that of Toledo (2004) on ICT implementation in EFL classrooms focused on the different factors that influence the use of technology in the Mexican context. My own research (2011) centred on the factors and attitudes that impact teacher’s decisions to introduce ICT in EFL in secondary schools in Mexico. Some other authors have focused on integration of ICT in universities (Becerra, 2003; Becerra and Padilla, 2011; Corvi, 2009; Hernandez and Hernandez, 2011; Toudert and Buzai, 2004) or primary schools (Buenfild, 2000; Enciclomedia, 2009; Morales, 2001; Morales et al., 2000). These studies focused on factors at school level in general and not on specific teaching subjects. Few of them considered the role that the teacher plays in these implementations. Such approaches suggest that, in general, there needs to be a greater understanding of ICT implementation not only considering the different factors that might affect implementation, but also allowing a deeper understanding of teachers’ thought processes.

A significant, and perhaps long term incentive to motivate teachers to use technology in class, could be the belief that the adoption of a new educational or technological solution would result in benefits. This could be achieved by investing sufficiently in empirical research to offer teachers an overview of what implementation involves thus helping them make an informed decision. Awareness from empirical research could reasonably allow teachers to compare the use of technology in class to the traditional approach that prevails nowadays in Mexican education. Most countries that seek to implement technology in schools acknowledge the necessity of research in this field and despite the years of trial and error, there is an awareness that much more research is needed regarding new pedagogical models and the conditions in
which teachers and students are more willing to adopt technology, either for teaching or learning.

Consequently, in order to facilitate ICT integration, it is paramount to encourage research in Mexico which helps to understand not only the possibilities offered by technology but also what its implementation ultimately implies. It should be clarified thoroughly under what conditions, strategies or pedagogical models the use of technology brings benefits to education, as well as the models of teaching and learning which optimize the potential of technology in the classroom. In this perspective, it is equally important that the government makes an effort to disseminate practices that work. The political support should be consistent and sustained over time in order to convince teachers that there are actual benefits in the proposed changes and that it is not only a trend that will change again with the next government.

9.6 Implications

This section highlights a series of implications for ICT implementation in Mexico and makes some suggestions that policy makers and educational authorities can take into consideration in relation to using technology in education.

9.6.1 Implications for institutional ICT integration

Frank, Zhao and Borman (2004) state that the criteria for the successful transformation of an educational organization through technology is based on four elements: a clear strategy, the provision of appropriate resources, leadership and, finally, the willingness of all the involved actors. The first criteria required is a well-documented strategy that identifies the needs to be covered. The ability to clearly identify what improvements are sought through technological solutions is important.

The second element is the provision of appropriate financial, material and human resources. In other words, the school must have the necessary resources not only to make the required investments, but to keep these investments and, more importantly, to provide the required support services. The third element is the willingness of the educational community, especially of the teachers, to make a success of the technological transformation. And the fourth and final element is leadership. The
greater the involvement of school leadership in adopting a strategy of technological change, the more efficient the development of the strategy will be. The greater the ability to sustain the effort required, the more likely the success of the whole institution in the adoption will be.

Thus, in order to truly achieve a qualitative improvement in the use of technology in Mexican high school education, the consideration of these aspects is indispensable. First, a precise identification of the characteristics and performance of the pedagogical models that the government aspires to implement needs to be made, that is, there needs to be a clear definition of the objectives to be achieved and how the proposed changes can be empirically evaluated. As Diaz Barriga (2006) states, in order to teach under the competencies approach, and to train teachers in competencies with the goal of transforming classroom practices, it is not enough to develop standards of competencies and to insert them into the curriculum. To teach competencies it is necessary to create didactic situations that allow students (or pre-service or in service teachers) to face tasks that they are expected to resolve. This means that it is not enough to have some ideas about acquiring the competencies needed for the twenty-first century and introducing ICT into the picture, but it is necessary to translate the proposals into useful frameworks and to formulate them so that they can be carried out and externally evaluated.

Also, creating a national policy on ICT in education and public educational computer program reveals the extent to which there is commitment and support from the policy makers and educational authorities regarding the use of ICT in education. ICT is more likely to be embedded when there is a strong ICT culture in the school (Lim et al., 2003; Somekh, 2008; Underwood et al., 2008; Underwood et al., 2010). A policy plan is then needed to explain to teachers what is pursued by incorporating technology in their institution. This would provide an idea regarding strategies associated with infrastructure, teaching skills and digital resources. Although this might prove difficult in the Mexican educational context, it should also be considered that research has also found that longer blocks of time allow for a more successful integration of ICT in classes (Becker and Anderson, 2001).

There should be a provision of equipment and appropriate technology infrastructure to implement ICT in education. Promoting and improving the process of technology
adoption can be addressed with different actions, for example, implementing better management strategies to increase funding for the purchase of equipment to schools. Facilitating programs to get the most essential digital resources available online with learning resources both for teachers and students could also help teachers with implementation.

It is important to provide teachers with both opportunities and expertise in the use of ICT in the classroom, in order to facilitate real changes in practice. Both investment and resources are needed to develop new methods of teaching and learning with the support of ICT, to learn how to teach with ICT and to acquire technological skills.

The use of incentives could motivate teachers to use technology in general, and to develop their professional activity, in particular. This is of special importance for teachers like Jaz who, after a few years, develop a sense of professional frustration that leads them to seek refuge in familiar and safe routines which make them feel held in a bureaucratic regulation without stimulus. Appropriate incentives for schools and teachers could take into account the dedication and professional commitment as well as good practices. These could take the form of both monetary and non-monetary incentives, which are both equally important for any professional individual, especially in the working conditions of most teachers in Mexico.

As well as providing teachers with resources and training and encouraging communication between them so that they can share their experiences, the support of the headteacher to enable ICT use in school, will allow a significant advance in the integration of ICT. Leadership is essential to promote change and to initiate and maintain school improvement. The headteacher must be fully aware of his mission in school and be able to promote and coordinate the use of ICT in the school. His role is to involve all the members of the staff in the process of implementation and give the same opportunities for development regardless of teaching subjects. Without his guidance, teachers will continue to be unaware of the options to develop professionally in this area.

It is paramount to provide headteachers with better training. Since the appointment of headteachers in Mexico is usually based on different factors that include length of service, the courses they have taken (none of them related to leadership), or
nomination through different unions, it is paramount to develop the qualities, skills and integrity necessary for their role, in order to select them in a professional manner based on merits (OECD, 2010). They should also be given opportunities to be more autonomous and creative. Elmore (2004) emphasizes that “policies should encourage new kinds of people to lead schools and new forms of school organization to break the lock of traditional bureaucratic culture” (p. 235).

The concept of leadership is not to be limited to the school headteacher as has traditionally been thought (Glickman, 2003). Although there is a tendency to refer to management only as a leader, it is necessary that this concept expands to include teachers and all school members as agents of change involved in everyday work. Leadership at all levels must be the primary engine for improvement activities and capable of influencing others, collaborating and aiming for the quality of education through group efforts (Fullan, 2005) and to engage teachers to work together towards the desired goals. It is important then to practice a cooperative work that can build a transformation.

Members of school need to be provided with opportunities to demonstrate their leadership capacity (OECD, 2010). Identifying teachers with leadership potential, and providing them also with training would allow headteachers to delegate some of the responsibilities to them. This is an important factor in Mexico were teachers feel that are not taken into account in the implementation of reforms in education. They feel that the system only places demands on teachers who are required to demonstrate “increasingly complex abilities, skills and commitments without providing them with the necessary training, motivation, or salary (Vaillant, 2005, p. 44).

Previous experiences have shown that the leadership of enthusiastic teachers in the use of ICT who have introduced it in the classroom on their own initiative is one aspect that has to be considered for promoting the use of ICT, as well as the support of motivated teams of teachers who can become promoters to facilitate the process of the use of ICT. This new approach to leadership requires a deep transformation at all levels, leaving behind the image of the headteacher as the sole person responsible for educational change.
Finally, it is paramount that those responsible for education policies convey clear messages that stress why they consider important the introduction of ICT in educational practices and that are able to provide examples of the achievements that are being reached with such practices.

Teachers need information about how, as well as why, to use technology in meaningful ways. Lack of knowledge regarding either element can significantly decrease the potential impact that these powerful resources might have on student learning (Ertmer et al., 2003, p. 96).

9.6.2 Implications for teachers’ practice

In order to introduce technology that could change teachers’ current teaching approach, they must be able to relate such innovation with their practice. This implies an attitude that is far from the mere purpose of covering the program. Thus, although it is important to increase the equipment and connectivity in schools, it is also imperative to provide teachers with the necessary training to design strategies and learning environments that align with their cognitions and that can be implemented in their teaching practice.

More effort needs to be made to improve the quality of initial training. A recurring problem in the training provided by many universities is that programmes are developed without reference to the school system and educational policies. In light of the current reform and the role of ICT in education, it is important to offer opportunities for pre-service teachers to use these technologies as a learning resource in the classroom in pre-service teacher programmes.

Another element that affects the quality of teacher training is the lack of opportunities to practice in real contexts throughout the training process because, in most cases, teacher training is addressed separately from specific teaching practices. Thus, a gap is generated between this type of training and the challenges that the teacher faces in their daily interaction with students in the classroom. Offering the right training to pre-service teachers could enable future teachers to handle and understand how to solve real problems faced in the school context. Ertmer et al. (2003) state that, in order to translate skills into practice, teachers need specific ideas about how to use
these skills to achieve meaningful learning outcomes under normal classroom conditions (p. 96). In this perspective, teacher training in real situations, according to the particularities of context and educational project are important.

As has previously been identified, teachers’ opportunities for training during this reform have been quite limited and widely regarded as ineffective. The fact that in-service courses and workshops are uniform for all teachers, independent of seniority, educational background or type of school (rural or urban, general or distance), all teachers in the same subject take the same courses, has been one of the main criticisms of the national in-service teacher training system. As a result, the knowledge obtained in these courses is too abstract which makes it difficult for teachers to land it to their teaching situation. Research shows that training courses and formal academic improvement programs can impact on teachers’ practice if they are presented and discussed by teachers who have themselves experienced what they are presenting, otherwise, teachers are left with theoretical knowledge, which does not relate to the needs for their practice. Therefore, training based on the needs of teachers is necessary to identify the tools that best fit the teaching methodology of every teacher.

Giving teachers time to explore the potential of ICT may be a cost effective way of enabling them to develop the use of ICT in subject teaching, especially if it also affords teachers the opportunity to work collaboratively with other teachers of the same subject. Allowing teachers to pursue particular aspects of ICT in some depth may be more productive than putting them through ‘general’ training courses (Haydn and Barton, 2008, p. 446).

Encouraging collegial work aimed at promoting the use of ICT and the exchange of ideas and opinions among teachers is one of the strategies that promotes the use of ICT in education. Teachers’ attitudes towards collaborating and sharing ideas with each other are no less important since there is a strong connection between their willingness to share and collaborate with colleagues and their capacity to develop and improve ICT-integrated pedagogy. (Yang, 2012).

Also, it should be considered that some innovations are more accepted in education than others (Underwood and Dillon, 2011). Teachers are more likely to use
technology for simple tasks that require little change in behaviour or expense of time and energy (Zhao and Frank, 2003). This explains why, for example, the projector is much better accepted and appreciated by the teachers than more advanced technology. Similarly, teachers are more willing to accept whiteboards in their classrooms because they are linked to their existing pedagogical philosophy (Lewin et al., 2009; Underwood et al., 2010). The interactive whiteboard is probably the technology that might be introduced more easily in Mexican high school classrooms, as it was already demonstrated with the implementation of the programme Enciclomedia in primary schools. This might be due to the fact that whiteboards respect and reinforce the central role of the teacher and do not require a substantial change in their teaching methods, while allowing them to access a greater variety of digital resources. The interactive whiteboard, that until the end of this study remained underused, represents a tool not very far from those already known by the teachers and one that does not require a change of the teaching practices that are focused on the transmission of content, an educational paradigm that is very familiar for the teachers, more like the blackboard that they are used to use in class.

Finally, teachers could also benefit from the creation of an appropriate system of technological and pedagogical advice, which could offer at least pilot experiences that can be used as practical references and teacher networks can be promoted to share experiences in this regard as well as the operation of a mechanism that monitors teachers’ progress.

9.7 Limitations

There are some limitations to this study that should be taken into account when considering the outlined findings. First of all, the data was coded and the themes were identified in the data by one person and the analysis then discussed with my supervisor. This process allowed for consistency in the method but failed to provide multiple perspectives from a variety of people with differing expertise. When using this method for another study, the coding of data could involve several individuals with themes being developed using discussions with other researchers.

Although consideration was taken in choosing the appropriate sample for the research, the size and the diversity of the high schools in Mexico do not allow to
make generalizations to overall technology use in the Mexican EFL teaching population. The sample was relatively small and selected from one high school in Mexico. The diversity of the participants’ professional backgrounds might not be transferable to other school populations. However, although the results might not be transferable to all the teaching contexts, they might be applicable to other schools that have similar contexts to *Galicia High School*.

Also, although every consideration was taken to keep the lapse of time between the observation of the lesson and the recall sessions to a minimum, this proved difficult sometimes due to different commitments, both professional and personal, previously made by the teachers. As a result, on some occasions the teachers had difficulty remembering their teaching behaviour during specific times of their lessons. Extracts of their lesson observations and their post-observation interviews were used to help them if this situations were encountered, however, this is something to keep in mind in future research.

Despite these limitations, it can still be stated that the information is objective and representative for the purposes of this investigation, since it was gathered using different qualitative methods among the participants.

### 9.8 Recommendations for future research

There are many challenges of doing research in a context like Mexico because of the unwillingness of both unions and teachers to have outsiders observing their classes. People wanting to carry out research in the Mexican context would find it demanding, on the time level, the trust, the whole scenario. Planning for the whole school year was too ambitious given the context I now know. Understanding the context, designing a study like this over that period of time would not be a good idea, so I learned also to make the most of my time in there.

As an insider researcher, having links with the school put me in a unique position, because it gave me access to a field that otherwise would have been problematic to get access to as an outsider researcher. However, the teachers’ life is so complex, that getting them to be involved in the study despite the familiarity and the years spent working together, is an issue for anybody doing research in a context like that. The
issue of participation when people are so busy is something to consider before undertaking research like this.

I was lucky to have 3 participants for my study, even if initially I thought that teachers dropping out of the study might affect the outcome of the research. In retrospect, I can now see that having three participants was a fortuitous thing because in that Mexican context these teachers are coming from such different backgrounds. There would be those that have been trained in different educational establishments, coming from being in the fishery, from industry, they might not be representative but these participants give me a good sense of what it means for them to be working with those types of backgrounds. The specific examples would be different for each teacher but there is a pattern in their context which they all share, it is experienced in these ways and I can see that their teaching experience and background have something to do with that cognition and that is what I have shown in my data analysis. Thus, despite my concerns, I learned that even having fewer participants than I expected, being able to carry out research in a school in Mexico resulted in unique challenges but also in opportunities for research, since environments and issues can vary across contexts despite the centralized policy and implementation strategy.

I can conclude that, a teacher who is assumed to be a researcher may be the key to answering various social and academic situations in Mexico. Teachers can start a change from the classroom contributing not only as a trainer but assuming the role of researcher, thus generating educational knowledge validated in practice.

9.9 Final remarks

The literature presents ICT as a great factor that offers equal opportunities. This potential includes economic development, in the belief that the progress of countries is based on increasing the collective knowledge of its citizens. Also, opportunities to access high quality materials from remote sites; learning regardless of the physical location of the subject; accessing interactive learning and flexible learning proposals, among others. But besides standardizing, ICT is also presented as increasing educational levels due to changes generated in the strategies implemented by teachers in promoting experiences of more creative and diverse learning, and the possibility of
promoting an independent and lifelong learning according to the needs of the subjects (Benavides and Pedro, 2007). However, analysis of the impact achieved by ICT highlights a huge gap between expectations and reality, which in many cases has led countries to a final phase of disenchantment.

In Mexico, the introduction of ICT is seen as the answer to the demands of a growing young population. Nevertheless, lack of planning, sustainability and knowledge about the characteristics and needs that education mediated by technology requires has led to false expectations with consequent poor results. Besides, the lack of continuity in policies, further complicated by the instability in the positions of the Ministers of Education proves to be one of the fundamental obstacles when carrying out educational changes in Mexico. This, coupled with the fact that curriculum design, teacher training, learning assessment and educational standards have remained focused on learning content and generally independent of the use of ICT, which continues to be seen as an added value to the curriculum, despite the rhetoric of modernization and transformation of educational practices in the country. In practice, the traditional academic curriculum still prevails and prevents use of technological skills across the curriculum.

Besides having the equipment and the necessary infrastructure in schools, it is important to establish a plan that considers different factors that can encourage the use of technology in classrooms, for example, teacher training, availability of content and applications, networking support and, finally, the emphasis on research and development. The school system must adopt new methodologies, develop new content, new organizational models in order to meet the new challenges of the learning society. Faced with a traditional curriculum in which the traditional transmission of knowledge remains dominant, which is not very flexible and where knowledge continues organized in teaching subjects, the implementation of ICT faces an uphill struggle.

A reform that seeks the active participation of the students as responsible for their own knowledge should provide teachers with guides, materials and resources on how to carry out a restructuring of this nature taking into account the proportion teacher-student. Adapting the teaching-learning process to the needs and interests of students is an impossible task when every teacher has to teach groups of 50 or more students.
Most importantly, while policymakers have readily adopted the calls from technology groups and educational decision makers to move toward a better connected, technology-friendly classroom, a similar effort to consider the beliefs of teachers towards these emerging technologies has to be undertaken. Teachers’ professional concerns about how they would like their work to improve should be taken into account in these reforms. Policy makers could realise that teachers sometimes prefer to take their time and put more emphasis in their students’ learning instead of covering content for examinations. Sometimes they would like to accommodate other educational goals that are generally not in the textbooks, but that they consider as important for students both for their daily life and for the society in which they live and they will work in. Sometimes, they would like to have time to experiment with different methodologies that could enrich their practice.

Also, there should be an awareness that the changes generated by introducing ICT into educational systems are not immediate or easy to identify. It is a complex process that only pays off in the medium or long term. Policy makers need to address these factors before expecting teachers to adopt innovations in their classrooms and realise that the incorporation of ICT in the teaching-learning process is not the exclusive task of the teacher and they are not to blame for the unsuccessful implementation of ICT. On the contrary, it is the organisational structures of schooling and the social dimension of particular school settings which often make it impossible for ICT tools to be explored and appropriated pedagogically. They constrain teachers’ and students’ agency, because they are in effect cultural tools that mediate pedagogies of blackboard and chalk. They reinforce teachers’ traditional roles and beliefs (Somekh, 2008, p. 451). In this perspective, teachers are not “free agents” and their use of ICT for teaching and learning depends on the inter-locking cultural, social and organisational contexts in which they live and work (Somekh, 2008, p. 450). Therefore, implementation must be an integral activity where schools devise strategies that provide training programs for teachers in new methodologies for using ICT in teaching, support measures for educational innovation and resources.

Wenger (1998) explains that for technology to be effectively used, it should be highly visible as a learning tool but highly invisible as a mediating technology. Thus, until ICT is not made invisible to the eyes of both teachers and students, it will not be really incorporated in the classroom. When it comes natural to teachers to use it in
specific times they need it, as it already happens with the blackboard, without questioning its presence but assuming that it will be there, it will be then successfully integrated.
REFERENCES


Cowie, B., Jones, A. and Harlow, A. (2011) The distribution of leadership as an influence on the implementation of a national policy initiative: the example of


Hu, L. (2007) *Teachers’ beliefs and attitudes towards information and communication technology (ICT) and related pedagogy for English for Business Purposes (EBP) education in Chinese higher education* (Doctoral thesis). Department of Education and Professional Studies, School of Social Science and Public Policy, King’s College London.


APPENDICES

Appendix 1 Data collected

<table>
<thead>
<tr>
<th></th>
<th>Headteacher</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVIEWS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>52 min</td>
<td>42 min</td>
</tr>
<tr>
<td></td>
<td>Ely</td>
<td>Fer</td>
</tr>
<tr>
<td>Experience in EFL</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>58 min</td>
<td>63 min</td>
</tr>
<tr>
<td>Pre-observation</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>48 min</td>
<td>52 min</td>
</tr>
<tr>
<td>Post-observation</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td>36</td>
</tr>
<tr>
<td>ICT use</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>61 min</td>
<td>74 min</td>
</tr>
<tr>
<td>Member checking</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>23 min</td>
<td>31 min</td>
</tr>
<tr>
<td>STIMULATED RECALL</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>182 min</td>
<td>217 min</td>
</tr>
<tr>
<td>CLASSROOM OBSERVATIONS</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>(50 minute session)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2 Participant Information Sheet

You are being invited to take part in a research study as part of my PhD research about “Teacher cognition and ICT implementation in the EFL classes in Mexico”. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?

Researcher: Leticia M. Vega Animas

School of Education, University of Manchester

Title of the Research

“Teacher cognition and ICT implementation in the EFL classes in Mexico”.

What is the aim of the research?

The aim of the present study is to explore how EFL teachers engage with ICT in their practice. Specifically, it will draw on research into teacher cognition to understand what teachers think, know, believe and do related to ICT adoption.

Why have I been chosen?

This research aims to explore how EFL teachers engage with ICT use in high school education. Although some research has been carried out in this area worldwide, there is little regarding the implications of what teachers think, know and believe, and the relationship of these constructs to what teachers do in the classroom regarding the use of technology in the Mexican context, and particularly under an educational reform. As a teacher in a secondary school experiencing such developments it is important to document your points of view thus allowing me to construct an understanding of your context and practice as a teacher. Five EFL teachers will be asked to participate in interviews, as well as classroom observations. However, the collaboration of the Headteacher and the Coordinator of the English department in two separate interviews will complement this study.

What would I be asked to do if I took part?

The headteacher and the coordinator of the English department will be interviewed once. The EFL teachers will be asked to participate in a series of interviews, as well as classroom observations. These interviews will be recorded and the observations will be videotaped with your consent. The latter will only be used as a stimulus for your further reflection in our post observation interviews.

What happens to the data collected?
The information that I collect from your interviews and observations will only be used to write my doctoral thesis and will not be shared with anybody else in order to protect your privacy. I also keep the data in a secure, encrypted laptop and then dispose of it at the end of the study.

**How is confidentiality maintained?**

The data will remain confidential and anonymous which means that there won’t be information that can identify you or the place where you work. Your name will be changed for a pseudonym and the name of the school where you work will be omitted or changed. The data generated through interview transcripts and observations will only be used for the purpose of the research, and no records will be kept unless otherwise authorised.

**What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason, without prejudice or penalty for you.

**Will I be paid for participating in the research?**

There will not be any payments to participants who decide to take part in this study.

**What is the duration of the research?**

If you decide to take part in the study, the interviews and observations will take place from September 2012 to March 2013 at a time and date that would be previously arranged and convenient for you. There will be 4 interviews which will last no more than an hour, 2 lesson observations followed up by post-observation interviews in order to debrief the sessions.

**Where will the research be conducted?**

The research will be carried out entirely in your institution.

**Will the outcomes of the research be published?**

The data collected will only serve for the purpose of writing up my doctoral thesis unless otherwise authorised.

**Criminal Records Check (if applicable)**

I hereby claim I have no criminal record. If necessary, I can provide a proof letter of clean criminal record from my local police authority.
Contact for further information

If you have further questions or need clarification at any stage of this study please do not hesitate to contact me

Leticia M. Vega Animas
Postgraduate student
The University of Manchester
leticia.vegaanimas@postgrad.manchester.ac.uk

What if something goes wrong?

You will be welcome to contact me via the email address provided above. If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Co-ordinator by either writing to 'The Research Practice and Governance Co-ordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL', by emailing: Research-Governance@manchester.ac.uk, or by telephoning 0161 275 7583 or 275 8093
Appendix 3 Teachers’ consent form

“Teacher cognition and ICT implementation in the EFL classes in Mexico”

CONSENT FORM

If you are happy to participate please complete and sign the consent form below*

1. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.

3. I understand that the interviews will be audio-recorded and the observations videotaped.

4. I agree to the use of anonymous quotes.

5. I agree that any data collected will be used for the writing up of doctorate thesis.

6. I agree that any data collected may be published in anonymous form in academic books or journals.

I agree to take part in the above project.
Appendix 4 Parents Information Sheet

“Teacher cognition and ICT implementation in the EFL classes in Mexico”

Parents Information Sheet

I am conducting a research study in your child’s school as part of my PhD research about “Teacher cognition and ICT implementation in the EFL classes in Mexico”. Five of the EFL teachers will be asked to participate in a series of interviews, as well as lesson observations, in order to explore how they engage with ICT use in high school education. I will be in your child’s class between September 2012 and March 2013 observing some lessons, which will be videotaped in order to help teachers reflect on their practices in post observation interviews. Your child will not be part of the research, however, since the video camera will be set at the back of the classroom and a wide angle view of the setting will be required in order to capture the activities, it is likely that interactions with students appear on camera. I am writing to ask if you give your consent for your child to be present during these observations. The videotapes will remain confidential and they will only be used for the purpose of this research. The videos will not be shared with anybody else in order to protect your child’s privacy and they will not be kept after analysing the data.

I have attached a letter of consent indicating whether or not your child can be present during these videotaped observations. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read carefully the attached participant information sheet which has been provided to the headteacher, the coordinator of the English department and EFL teachers, and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you decide to sign the letter of consent. Thank you for reading this.

If you have further questions or need clarification at any stage of this study please do not hesitate to contact me

Leticia M. Vega Animas
Postgraduate student
The University of Manchester
leticia.vegaanimas@postgrad.manchester.ac.uk
Appendix 5 Parents’ Consent Form

Teacher cognition and ICT implementation in the EFL classes in Mexico

PARENTS’ CONSENT FORM

1. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

2. I understand that my child is not participant of the study

3. I understand that the observations will be videotaped

If you are happy for your child to be present during the videotaped observations please complete and sign the consent form below

I agree for my child to be present in the videotaped observations

________________________  ____________  ____________
Name of person taking consent  Date  Signature
Appendix 6  Headteacher’s Interview

Thank you for agreeing to participate in the interview. I must remind you that the information that you will provide will remain anonymous and confidential and no records will be kept under your name. With your permission, I will proceed to record this interview.

Can you tell me about your school?

- How many students and teachers are there?
- How many classes are there?
- How are the classes organized?
- What are the facilities available?
- Does the school have a mission statement? What is it?

I would like to ask some questions about your experience as headteacher

- How long have you been a headteacher?
- How is a typical day for you in this school, what do you usually do?
- Tell me about your experience prior to being a headteacher
- How did you choose this career?
- Tell me about the preparation you had for this role
- Tell me about your areas of responsibility in the school
- How do you see your role of leadership in the school?

I would like to ask you about current policies in the school

- Can you tell me about the government’s initiative to introduce technology across the curriculum?
- What do you see as the greatest challenges and advantages of this initiative in your school?
- Tell me about key elements to integrate a whole school technology vision and policy
- How do you ensure that this initiative is embedded in the school?
- How has the staff been involved?
What is the role of the teacher in this implementation?

How would you expect to see teachers using technology in their lessons?

Specifically in the EFL area, how do you expect teachers to use technology?

Are there any rewards or sanctions for ICT use in the school?

What are the resources available for the teachers? Or that have been available for the teachers?

Have they received training courses?

How have the teachers been supported in this initiative?

Are teachers observed in their classes?

Thank you for your time. Is there anything else that you would like to add?
Appendix 7 English coordinator’s Interview

Thank you for agreeing to participate in the interview. I must remind you that the information that you will provide will remain anonymous and confidential and no records will be kept under your name. With your permission, I will proceed to record this interview.

I would like to ask some questions about your experience in the English department

How long have you been in charge of the English department?
Tell me about your experience prior to being the English coordinator
How were you appointed to be in charge of this department?
Tell me about the preparation you had for this role
Tell me about responsibilities in this department
Desempeña algún otro rol en la escuela
How is a typical day for you in this school, what do you usually do?

I would like to ask you some questions about the EFL teachers

How many EFL teachers are there in the school?
What is the preferred professional background of EFL teachers in the school?
Tell me about the process teachers need to go through to prepare their lessons
Can you give me some examples of practice you have seen that you believe to be effective in teaching English?

I would like to ask you about current policies in the school

Can you tell me about the government’s initiative to introduce technology in the EFL classes?
Tell me about the greatest challenges and advantages of this initiative in the EFL area
How have the authorities ensured that this initiative is embedded in the EFL classes?
Are there any rewards or sanctions for ICT use in the school?
Can you tell me how the EFL teachers have been involved?

What is the role of the teacher in this implementation?

How are the EFL teachers expected to use technology in their lessons?

Tell me about the impact that technology can have on learning English

Thank you for your time. Is there anything else that you would like to add?
Appendix 8 First Teachers’ Interview

Thank you for agreeing to participate in the interview. I must remind you that the information that you will provide will remain anonymous and confidential and no records will be kept under your name. With your permission, I will proceed to record this interview.

I would like to ask some questions about your experience as an EFL teacher

- What are your qualifications?
  - Where did you study?
- What motivated you to learn English?
- Tell me about your first experience as an EFL student please
  - Tell me about your classes
  - Can you tell me about the approach that your teachers used?
  - Which classes did you like the most?
  - Do you think they helped you learn English?
- Tell me about your teachers
  - Any favourite teachers? Any teacher you didn’t like?
  - Why?
- What language skills did you practice the most in class
  - Activities to practice these skills
- What kind of resources did your teachers use in class?
  - ICT use in class?
  - Describe a class where teachers used ICT
  - How was ICT implemented to practice language skills?

Now I’m going to ask you some questions about your teaching experience

1. How long have you worked as a teacher?
2. What is your teaching background?
3. Do you only work in this school?
4. How many classes do you have per week?
   - How long are the classes? Any comments about this?
5. Tell me about your groups please
   - How many students per class?
• Describe your students please?
6. How is a normal working day for you?
7. Do you remember your first day as a teacher?
  • Where did you first work as a teacher?
  • Was it like you imagine your first class to be?
8. What kind of problems did you face when you first started teaching?
  • How did you handle those problems?
  • What new challenges have you had to face?
9. Describe one of your classes nowadays
  • What do you consider to plan your lessons?
  • Do you have a specific format for your lessons?
  • Are your classes in English?
  • Why?
10. What are your main objectives when you teach English?
  • What skills do you want your students to develop?
  • Do you practice all the skills?
  • Why?
11. What activities do you consider help improve language proficiency?
  • Which ones do you use in class
12. What kind of resources do you use in class?
  • Which ones do you consider more effective?
  • Does your school provide some resources for your classes?
13. How do you grade your students?
  • Do you choose how to grade them?
  • Has this changed since you started working here?
  • Tell me about examinations
14. Tell me about any courses you have taken
  • Why did you take them?

Thank you for your time. Is there anything else that you would like to add?
Appendix 9 Teachers’ Second Interview

I would like to ask you some questions about the current educational reform

1. Please tell me about the RIEMS
   - What is the suggested Educational approach?
   - Thoughts about this model in Mexico?
2. How does this reform impact the EFL classes?
3. What are the advantages and disadvantages for the EFL classes?
4. How has the government introduced this reform in the schools?
   - How has it been introduced within your school?
5. How has this been introduced in the EFL classes
   - Training?
6. How have the teachers been involved?
   - What is your role in this reform?
7. Are you expected to introduce ICT in your classes
   - What are your thoughts about this?

Now I would like to ask you specifically about ICT

1. What kind of technology is it available for you in school?
   - Computer centre?
   - English laboratories?
   - ICT in classrooms?
   - Is it available for your classes
   - Is it enough and accessible for everybody?
   - Technical support?
2. Do you have any experience using technology?
   - Specifically for ELT classes?
3. What is the school’s stance regarding ICT use in class?
   - Are you expected to use ICT in class?
   - How often?
   - Are there any policies regarding ICT use?
   - Are there any incentives or sanctions regarding ICT use?
4. Have you been offered ICT training?
• How often do you use technology in class?
• In what kind of activities do you use it more?
• What is the role of ICT in your classes?
• Does it adapt to your objectives?

5. Are teachers evaluated or observed in school?
   • How?
   • How often?

6. How is a class using ICT?
   • When do you prefer to use it? Why?
   • Do the students like it? Why? Why not?
   • What kind of ICT related activities do you favour?
   • How often do you use ICT?

7. Please tell me about a class where you used ICT that you liked the most.

8. Any particular class that you remember when things did not go according to plan?
   • Do you think this influenced ICT use in subsequent classes?
   • In what way?

9. What kind of technology have you found to be more effective for your class objectives?

10. What skills do you practice more in class?
    • Why?

11. Is there anything that you consider would make you use more technology in class?

Thank you for your time. Is there anything else that you would like to add?
### Appendix 10 Observation guide

<table>
<thead>
<tr>
<th>Time</th>
<th>What was the teacher doing?</th>
<th>What were the students doing?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teacher: | Class size: | Start time: | Date: | Level: | End time: |
Appendix 11  Stimulated Recall Extract

Leticia: Let’s talk about this class in here. There was a lot of activity that day.

Jaz: I know! You know, there was a moment when I said I’m not going to leave that much homework, especially with them because I have one hour class every day and we have more time, so we do the activities here, and they say let’s do a translation and I say no, no, no, we do the activity in class because at least you see whether they are working or not, and it’s not like you did your homework because your friend lend you his notebook, sometimes you are like, so, what happened? Why don’t you work? You have to try to make them work individually.

Leticia: Is this something that happens frequently? How does that make you feel?

Jaz: Well, look…at the end of the day, I came to the conclusion that, because sometimes I try to think about my classes, and I try to organise them in teams, but personally, I feel tired, because I am the one who’s always leading them, I mean, you cannot let them work by themselves like they are supposed to in theory, that only works when everybody cooperates, but they are teenagers and they need a lot, a lot of supervision. I mean, if we are doing activities where they have to use their creativity…but you have to be there, you have to keep on checking, you have to push them to work, you have to do it, and in the end you say, that’s really exhausting and you see your strategies and they are the same. If they work in teams, usually it’s two [students] the ones who work, you have to check the other three and it’s exhausting and it wears you down. And sometimes I say, there are teachers who just arrive with one CD player, and that’s it, that’s my class, and I can’t, because even if you bring a video or a movie –somebody got offended the other day because I say, if you don’t feel like working show them a movie- because if you bring a movie with no other plan than to watch it that for me is like not wanting to work and no, well, sometimes I’d like to get a little rest and I say I’m going to bring a movie, but what’s my excuse? Ah, yes, the audio is in English…but the subtitles are in Spanish. And that doesn’t work for me. So my strategies, sometimes I feel like, they are not working. I don’t know if it’s me, if it’s them, if it’s everything, the context, the school, the resources, your motivation, there are many factors. Sometimes you say, ah I enjoyed that class, why? Because they participated, but then you go to another group and it doesn’t work
and you have to find the way and with so many different personalities, I don’t have 10 personalities, I have 30, 40, 50, and it’s complicated, it’s complicated…

[silence]

Leticia: What do you find more complicated?

Jaz: Oh, I don’t know…sometimes the theory, what they tell you about the competencies, trying to bring everything together, skills with attitude…it’s complex, I mean, as an English teacher, at least in here, sometimes I feel like I’m not doing the job that an English teacher is supposed to do, because, at the end of the day, when you take an English course you know that the student has to talk and write in English, and sometimes I look around and I feel like, how many can they say something in English? Two, maybe three and the only thing they can say is hi teacher, bye teacher and that’s it. I mean, you don’t need three years in high school to say that. You learn this, during the school year, in a lesson, that’s it. So yes, it’s frustrating, maybe it’s me, I take it personally but…well, it’s complicated. I used to say maybe it’s because of their age but I look around and I see that it’s the same everywhere, and that makes me wonder, should I be an English teacher? Honestly? Because it’s motivating to find a student on the street and says because of you I know English and you say, well [laugh] but sadly they’re a few and I say somewhere we are failing, and I include myself, maybe my training, my planning, my strategies, everything…sometimes I see that they are really uninterested, it’s like a generational apathy and maybe, I don’t know, there are thousand things that they learn outside the school and I haven’t grasped how…I can’t understand how to use those resources in here.

Leticia: Do you think that technology could motivate them?

Jaz: Well…they are really attached to technology, you can see their reactions. But then then say, no teacher, not in English, and that’s it…when in my mind I was saying, I’m going to motivate them with something they know…and no, and that’s it, and they start, no teacher, not in English, without subtitles teacher? Wow! [laugh] and it’s exhausting. And they make me think it’s me, maybe I have to do this, maybe I have to do that, I have to focus in my planning. Sometimes I think, maybe it’s because I’ve been busy. It’s been some days that I arrive here almost running, so maybe I’m not in the mood. I remember my first experiences, students tried to do their homework, to please the teacher, they had a different mentality, but in six years
in here…I have tried and tried and tried and sometimes I feel like instead of going ahead I’m going backwards…but let’s see…anyway…
Appendix 12 Analysis extract

The interviews were not transcribed immediately since it was not required. However, the recordings were played and annotations were made since data was collected in a cyclical process and I had to look for themes to continue questioning my participants and then contrast the notes taken during the interview. In order to start the analysis of the data, it was important to familiarize with the information provided. Since it had not been transcribed I listened to the recording as many times as possible and took new notes, in order to search for new meanings and compare them with the notes that I had taken before. After this, I listened to the recordings in more detail and transcribed the interview.

After a few days I read a new copy of the interview, I analysed the data and I took notes again. Then the notes in both copies were compared and I found patterns that I hadn’t seen the first time.

The codes that I first noticed and examples of these were:

- Lack of resources. (mentions of shortage of technological resources)
  “we don’t have CD players, they don’t provide us with that resource.”

- Availability of resources (equipment teachers have at school)
  “What we do have are the, projectors, laptops to use with the students and to present the classes. Also right now we have an interactive whiteboard”

- Value of technology in the classroom (the advantages of using technology from the teacher’s perspective)
  “I do believe that it would be quite useful and would motivate more the students to use these technologies for the English class”

- Value of technology in the school (the importance of technology in the school setting)
  “lately it’s being considered very important” (in the school)

- Pressure (evidence that teachers feel forced to use technology)
“...they only give you, I don’t know (...) like 3 sessions and then they want you to teach the class with your students while still not, to tell you the truth, not even the same instructor knows how to handle this type of technology”

- Support (technical support provided)
  “they could be there advising you and supporting the teacher at the time you are using this technology (...) I mean, first somebody could support, could be in the class, along with the teacher and then later have the teachers alone for their regular classes”

- Lack of confidence (mentions of not feeling technologically capable)
  “I don’t feel confident using the equipment because I feel I will not know how to use it and I will look bad in front of my students”

- Fear of technology (mentions of being let down by the technology)
  “I'm afraid that if I prepare a class and the time comes and I can’t teach it, the students would be like, well, how come she wants to teach something that she doesn’t even know how to use something she can’t even manage”

- Syllabus expectations (mentions of time constrains due to demands on subject)
  “...the times are short between half terms”

- Waste of time (seeing technology as a disadvantage)
  “...sometimes I, you avoid to use the interactive whiteboard because it is a waste of time sometimes actually”

- Need for training (mentions of practice required to use the technology)
  “to tell you the truth we cannot use well yet, the teachers, I feel we need more practice”

- Large groups (mentions to number of students in the classes)
  “There are many students, many groups and well, it’s not enough”
After coding the data for the first time, the transcript was examined again in order to identify new information that had not been seen the first time and to sort the different codes into potential themes. During this analysis I decided to make some changes to the initial list of codes. I noticed that either some of them needed to break down into different codes, since the initial coding considered sometimes various meanings in one, or they needed to be grouped into one code. For example, for availability of resources I only considered the equipment that teachers had in the school. However, some of the sentences referred to the actual use of technology and how accessible it was for teachers. The value of technology referred to the classroom, that is, the importance given from the teacher’s perspective.

This resulted in some coding being renamed for what I considered a better representation of the meaning. Other codes were shortened into the essential meaning. After this, I reviewed the literature to find the proper terms that could be given to the topics thus beginning the encoding process. At this stage, I realised that there was a new topic that I hadn’t noticed which referred to the lack of policies. Although at first I considered to code it under resistance to change, when reading about this it did not contemplate this aspect as part of it, so I decided to leave it as a theme on its own.

Some examples of the resulting themes were:

1. Lack of resources (shortage of equipment to work with)
2. Availability (evidence of the existing equipment that can be used in classes)
3. Accessibility (mentions of whether the technology is at the reach of the teachers)
4. Planning (mentions of being unsure about using technology in advance)
5. No perception of benefits (mentions of disadvantages of using technology)
6. Technical problems (technology malfunctions)
7. Curricular expectations (mentions of time constraint due to demands on subject)
8. Lack of policies (mentions that teachers are not sure about guidelines to use technology)
9. Training (mentions of practice required)

Once the themes were clear, examples of the data for each of them were organized under the proper heading. For example:
Accessibility (mentions of whether the technology is at the reach of the teachers)

“...the problem is that there is only one available, and it’s in the room, the audiovisual room”

“...when you want to take them, it’s busy, unavailable, there’s no one to open the room”

“...there is only one computer room where you could go to work on computers, for example, the use of vocabulary, there are many games, and dynamics to work there, the problem is it’s almost always busy”

“There is little willingness to share the room, to the different teachers and different subjects, it’s more used by, for example, by ICT, that is, Technology education, Reading and Writing and things like that”