Considering the constantly changing environment of technology – how do Irish teachers deal with the goalposts moving constantly, combined with an already busy curriculum?

A Case Study Approach

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Declaration

“I hereby declare that this is entirely my own work and that it has not been submitted for the award of any degree at any other university.”

_____________________________________________

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Abstract

This case study evaluates the challenges encountered by Irish Primary School Teachers when trying to up skill with the latest technological advancements whilst ensuring that they are covering the NCCA primary school curriculum.

An on-line questionnaire survey of 51 practising teachers was carried out. Along with this, semi-structured interviews were held with 3 teachers as well as a focus group where five teachers participated.

The study begins with an examination of the technological facts influencing technology adoption in Irish Primary schools. It explores the barriers that teachers are experiencing when trying to adopt new methods of teaching using technological advancements.

The findings show that Irish teachers concur that curriculum overload is a valid issue in Irish schools today. They also agree that teachers need to embrace the technology revolution and incorporate ICT into their teaching and learning.

This study suggests that despite national strategies for effective investment in ICT in schools and the encouragement from the NCCA namely the ICT Framework, further investment needs to be made to up skill teachers as well as supply and support technological equipment. It is also likely that changes to the curriculum will need to be carried out in order for teachers to feel some alleviation of workload which, as a result, should allow teachers the time to experiment with new technologies to enhance their teaching and learning skills.
Acknowledgement

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Table of Contents

Chapter 1 - Introduction ............................................................. 1
  1.1 Introduction ........................................................................ 1
  1.2 Statement of Topic ............................................................... 2
  1.3 Research Development ....................................................... 3
    1.3.1 Research Questions ....................................................... 3
    1.3.2 Research Context ......................................................... 3
  1.4 Research Relevance ............................................................. 4
  1.5 Significance ........................................................................ 4
  1.6 Background to the Study ..................................................... 4
  1.7 Research Methodology ...................................................... 5
  1.8 Scope and Limitations ....................................................... 5
  1.9 Structure .......................................................................... 6

Chapter Two – Literature Review ............................................... 7
  2.0 Introduction ....................................................................... 7
  2.1 Current Uses of Technology in Today’s Classrooms .............. 9
  2.2 How to use Technology in the classroom ............................ 11
  2.3 Learning Theories ............................................................. 12
  2.4 Digital Immigrants Vs Digital Natives ................................. 15
  2.5 Motivation ....................................................................... 16
    2.5.1 Teacher Motivation ...................................................... 16
    2.5.2 Pupil Motivation .......................................................... 17
  2.6 ICT and its benefits in Irish Schools .................................... 18
  2.7 Changing Environment of Technology ............................... 19
  2.8 The impact of ICT on Teacher-Pupil Interaction .................. 20
  2.9 Potential Risks with ICT ................................................... 21
    2.9.1 Cyberbullying ............................................................. 21
    2.9.2 Security ..................................................................... 22
    2.9.3 Inappropriate Information .......................................... 22
    2.9.4 Malware ..................................................................... 23
    2.9.5 Internet Addiction ...................................................... 24
2.10 Problems encountered by teachers ......................................................... 24
2.11 Coping skills of teachers ....................................................................... 26
2.12 Curriculum Overload/Busy curriculum .................................................. 27
2.13 Teacher training in ICT ........................................................................ 29
2.14 Conclusion .......................................................... .............................. 30

Chapter 3 - Methodology ................................................................. 31
3.1 Introduction ......................................................................................... 31
3.2 Background to the Research ................................................................. 31
3.3 Purpose of the Research ...................................................................... 32
3.4 Research Subjects ................................................................................ 33
3.5 Research Questions ............................................................................... 33
3.6 Research Methodology ......................................................................... 34
  3.6.1 Action Research ................................................................................ 35
  3.6.2 Case Study ....................................................................................... 36
  3.6.3 Methodology Chosen ....................................................................... 36
  3.6.4 Triangulation ................................................................................... 37
3.7 Data Collection Tools ............................................................................ 38
3.8 Data Analysis Considerations ................................................................. 39
  3.8.1 Introduction ..................................................................................... 39
  3.8.2 Ethical Considerations .................................................................... 39
  3.8.3 Participants of the Study ................................................................. 40
  3.8.4 Validity of Data and Triangulation .................................................. 41
3.9 Data Analysis .......................................................................................... 43
3.10 Conclusion ............................................................................................ 43
Chapter 4 – Findings............................................................................................................... 44
  4.1 Introduction .................................................................................................................. 44
  4.2 Profile of Respondents ............................................................................................... 44
    4.2.1 Questionnaire Respondents .................................................................................. 44
    4.2.2 Interview Respondents ......................................................................................... 46
    4.2.3 Focus Group Respondents ................................................................................... 47
  4.3 Findings by Research Question .................................................................................... 47
    4.3.1 What is the teacher’s attitude to the primary school curriculum with regards to the amount of strand and strand units to be covered? ......................................................... 47
    4.3.2 How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so? .................................................................................. 50
    4.3.3 How much time do teachers spend, both formally and informally, training themselves in technology? ......................................................................................................................... 53
    4.3.4 How do teachers feel about the amount of time they have to devote to up skilling their technological skills? ......................................................................................................................... 55
  4.4 Conclusion .................................................................................................................... 57

Chapter 5 – Discussions of Findings .................................................................................... 58
  5.1 Introduction .................................................................................................................. 58
  5.2 Overview of the Research ......................................................................................... 58
  5.3 Key Findings ............................................................................................................... 59
  5.4 Presentation of Findings for Discussion ....................................................................... 60
  5.5 Discussions of Research Findings .............................................................................. 61
    5.5.1 What is the teacher’s attitude to the primary school curriculum with regard to the amount of strand and strand units to be covered? ................................................................. 61
    5.5.2 How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so? .................................................................................. 62
      5.5.2.1 Motivation ........................................................................................................ 63
      5.5.2.2 Negative Impact of Technology ..................................................................... 65
    5.5.3 How much time do teachers spend, both formally and informally, training themselves in technology? ......................................................................................................................... 66
    5.5.4 How do teachers feel about the amount of time they have to devote to up skilling their technological skills? ......................................................................................................................... 68
  5.6 Implications of Findings ............................................................................................ 70
  5.7 Conclusion .................................................................................................................... 71
Chapter 6 – Conclusion............................................................................................................................... 72
6.1 Introduction........................................................................................................................................... 72
6.2 Outcome of the Investigation............................................................................................................. 73
   6.2.1 What is the teacher’s attitude to the primary school curriculum with regard to the amount of strand and strand units to be covered? ................................................................. 73
   6.2.2. How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so? .......................................................... 74
   6.2.3 How much time do teachers spend, both formally and informally, training themselves in technology? ..................................................................................................................... 74
   6.2.4 How do teachers feel about the amount of time they have to devote to up skilling their technological skills? ............................................................................................................ 75
6.3 Recommendations............................................................................................................................. 75
6.4 Opportunities for Further Research ............................................................................................... 76
6.5 Conclusion........................................................................................................................................... 77
Bibliography ............................................................................................................................................. 78
# List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DES</td>
<td>Department of Education and Skills</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>NCCA</td>
<td>National Council for Curriculum and Assessment</td>
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<td>NCET</td>
<td>National Council for Educational Technology</td>
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<tr>
<td>NCTE</td>
<td>National Council for Technology in Education</td>
</tr>
</tbody>
</table>
List of Figures

Figure 1 – Age profile of respondents
Figure 2 – School size of respondents
Figure 3 – Allocating time to each subject area in the curriculum
Figure 4 – Sharing ICT skills
Figure 5 – CPD training
Figure 6 - Amount of time spent self-training in ICT per month
Figure 7 – Obstacles/Challenges facing teachers in schools with regards to ICT
Chapter 1 - Introduction

1.1 Introduction

In 2009 the Department of Communications, Energy and Natural Resources published a report entitled ‘Technology Actions to Support the Smart Economy’ in which it strongly advised that early and continued experience of Information and Communications Technology (ICT) throughout education will ensure that the population becomes digitally literate from an early age. Teachers in the Irish Primary school system must embrace this advice and implement the use of ICT in classrooms across the country.

Another relevant document published in 2010 by the National Council for Curriculum and Assessment was entitled ‘Curriculum Overload in Primary Schools – An overview of national and international experiences’. This document recognised that teachers within the system feel that the curriculum is in fact ‘overloaded’ and in order to reduce this overload some recommendations should be taken from other countries (i.e. Scotland, Singapore, Korea and New Zealand).

Taking both the necessity to use ICT in teaching and learning combined with the issue of curriculum overload, many teachers are finding it difficult to find the time to up skill and stay up to date with technology. This document sets out to find out how teachers are managing to deal with the issue of curriculum overload. The question is posed as to how teachers are managing to up skill in ICT and stay up to date with the latest technological advancements available for us in the education sector along with attempting to cover all the topics as recommended by the curriculum.
1.2 Statement of Topic

This paper is a case study of the opinions and attitudes of Irish primary school teachers with regard to curriculum overload and how they are coping to stay up to date with the ever increasing number of technological advancements which they are encouraged to use in the classroom.
1.3 Research Development

1.3.1 Research Questions

In order to address the broad research aim outlined the following questions were posed:

1. What is the teacher’s attitude to the primary school curriculum with regards to the amount of strand and strand units to be covered?
2. How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?
3. How much time do teachers spend, both formally and informally, training themselves in technology?
4. Do teachers feel that they have enough time to devote to up skilling their technological skills?

1.3.2 Research Context

The research was done using a case study approach. The justification for this is outlined in Chapter Three. All participants in the study were fully qualified Irish primary school teachers who are currently employed in a full-time basis within the Irish Department of Education and Science Primary school system. The tools used to carry out the research were an on-line questionnaire, a set of interviews and a focus group discussion. 51 participants took part in the on-line questionnaire, three teachers were interviewed and 5 participants took part in the focus group discussions.
1.4 Research Relevance

The National Centre for Technology in Education was established in 1998 to provide ICT training and support the use of ICT in the primary and post primary sectors in Ireland. The NCTE promotes and supports the integration of ICT in learning and teaching. In 2012 the NCTE has come under the auspices of the Professional Development Service for Teachers. In 2007 the Department of Education and Skills allocated €252 million to integrate ICT in Irish schools. However, as mentioned, in 2010 the NCCA published a document recognising the existence of curriculum overload in the primary school system. The relevance of this study is to determine what literature exists on curriculum overload in Ireland and whether teachers in the system are engaging in the technology revolution and incorporating it into their classrooms.

1.5 Significance

ICT is in use in all walks of life in today’s society and the demand for the use of ICT in classrooms means that teachers need to ensure that they use these technologies to enhance their teaching skills to improve student learning. This study will determine if teachers are, in fact, using ICT in their classrooms, and will also examine how they are finding time to upskill themselves to ensure they are using technology to the best of their abilities, despite the well documented problem of curriculum overload.

1.6 Background to the Study

Curriculum overload is a widely recognised issue within education systems throughout the world. With the recent research that has been carried out on it coupled with the requirement of teachers to ensure that they use ICT in their classrooms it was therefore decided to focus on the process of how teachers are managing to fuse both requirements whilst ensuring the children in their classrooms are being taught to the highest standards possible.
1.7 Research Methodology

A case study approach was employed as an investigative research method. This case study gave the researcher the opportunity to elicit responses and feedback from teachers. Triangulation refers to the process of obtaining data using various research instruments and data collection techniques (Cohen and Manion 2000). Triangulation was employed in this study by using interviews, a focus group and an on-line questionnaire. The data was examined and presented in the research findings chapter. Details of the research methodology, used in this study, are presented in chapter three.

1.8 Scope and Limitations

This research takes a ‘case-study’ approach to find answers to the research questions. Its findings pertain to the responses from a group of teachers. Generalisations can be made from these responses. This study, however, has a number of limitations. The number of teachers who participated is not statistically significant and may not be sufficient to deduce the attitudes of all teachers towards ICT use in the classroom and curriculum overload.

Another issue is that of each school having a different ethos toward ICT. Some schools have valuable ICT resources whilst other cash-strapped schools are unable to provide the resources to teachers (e.g. hardware, software, finance to pay for training etc.). Each of these issues needs to be considered in their own right.
1.9 Structure

This document contains six chapters.

Chapter One: Introduction, outlines the background to the research whilst stating the research questions. It also discusses the context of the research along with its relevance. It summarises the research structure.

Chapter Two: Literature Review, discusses existing literature on the research questions. It examines the latest research on curriculum overload, in both a national and international setting whilst examining the use of ICT in classrooms. It also outlines the research published on the advantages and disadvantages of the use of ICT in a school environment.

Chapter Three: Research Methodology, documents the research environment and the participants in the study. It outlines the research questions, methodologies and data collection tools used. It also contains the rationale for the research methodology chosen and discusses the justification for same. It also documents the ethical considerations involved in the study.

Chapter Four: Research Findings, outlines all the findings from the study by aligning them with the research questions. Graphical representations from the online questionnaire are presented.

Chapter Five: Discussion of Findings, examines the findings from the research and compares and contracts these findings with the literature review discussed in Chapter Two.

Chapter Six: Conclusion, reviews the research questions, by presenting the results of the study. It also presents recommendations that have become evident as a result of the research.
Chapter Two – Literature Review

2.0 Introduction

In February 2010 the Department of Education in Ireland published a document called ‘Curriculum Overload in Primary Schools – An overview of national and international experiences’. In this document they state that curriculum overload is “an imbalance or incongruity between our capacity to enact or activate a curriculum which itself is perceived as overload” (p.7).

They suggest that because the relationship between children and teachers is critical to children’s learning then curriculum overload not just affects teachers but also affects the children who are subject to it.

When it comes to technology in Irish classrooms, there are many studies which have proven how its use is very beneficial in primary schools today, for example research by Martindale et al (2005) and Desai et al (2008). Considering previous research and the conclusions and recommendations of same, teachers are obligated to use this technology to enhance their teaching methodologies. The “Investing Effectively in ICT in Schools” report of 2008 (ICT Strategy Group 2008) stressed the importance for ICT investment in schools.

The Edudemic (2012) website has an article entitled ‘How Technology is Changing Education as We Know It’ which states that

“Advances in technology have always transformed the way people are educated. From the abacus that made teaching math easier millennia ago, to the word processor that changed the way research papers are written and presented, humanity’s technological progress has impacted education.”

(Edudemic 2012)

According to the Department of Education (2009)’s article ‘Smart Schools = Smart Economy - Report of the ICT in Schools Joint Advisory Group to the Minister for Education and Science’ Ireland’s national recovery will be rooted in further developing the “outstanding education system”. It also says that “teachers
play a central role in developing the potential of our children.” (Department of Education 2009, p.5)

This document (Department of Education 2009) explores how Irish Primary school teachers are currently managing to up skill their technological proficiency to ensure they are aware of the most valuable hi-tech advancements whilst ensuring that all the strand and strand units of each of the eleven subjects contained in the Irish Primary School Curriculum are taught to the highest standards.

It also reports that in order for our children to be digitally competent, it would not be possible unless there is a holistic integration of ICT directly within the curriculum and within assessment procedures. It states that by taking full advantage of the benefits of ICT in teaching and learning it will encourage and enable students to become self-assured and self-directed. The report says that these are abilities which students will need throughout their lives. It also states that this requires digitally-literate teachers.

This document points out that the information to date regarding curriculum overload comes from the teacher’s perspective rather than that of the children. Teachers were questioned and their opinions recorded and documented. There were no children used in this research.
2.1 Current Uses of Technology in Today’s Classrooms

In Irish classrooms today technology is used in many different ways. From the use of a digital camera, to the use of the interactive whiteboard, teachers use technology for the simplest of daily tasks. Some teachers are very proficient with technology. They create blogging sites, create flash media projects to teach a certain topics, there are many examples. In 2010 the Department of Education and Skills provided a grant to each school in the country in order for them to purchase IT equipment. This grant was used by schools to ensure that each teacher has a computer on their desk and they their schools were equipped with at least 100mbps broadband. The grant was given to schools in order to open the classroom to the entire world. It was envisaged that it would bring lessons to life and to help children to enjoy a valuable 21st century education.

Many of the teachers in Irish classrooms have embraced the technology revolution that has occurred and have undertaken self-training to improve their teaching skills. Many schools use school and class blogs to display their teaching and skills. What is a blog anyway? A web blog is a “hierarch of text, images, media objects and data, arranged chronologically, that can be viewed in an HTML browser” according to the Berkman Center for Internet & Society at Harvard Law School (Berkman 2013). Blogging can be used in a variety of different ways. The NCTE (2008), in their advice sheet on blogging (advice sheet 35) says that blogs encourage students to read and write about different topics. It also allows them to comment on what they have read. It says that students who use blogs continually search, filter and post ideas and information. By doing this it encourages higher order thinking skills. Blogs are generally not filtered i.e. they are open to the world in the same way as websites. This allows for the readers to write comments and for the writers to get feedback. Students can then use this feedback to improve on their work. (One example of a blog hosting site that is used by teachers worldwide is kidblog.org. This allows teachers to create blog accounts for their students but posts are not available to the public until the administrator i.e. the teacher has approved it.) As the NCCA (1999) website on the Irish
Primary School curriculum says, in their article ‘Approaches to writing’, children should be “encouraged to write for a real audience and a real purpose” (NCCA 1999). Blogging provides this audience. It can also be used to provide information to parents. Parents can view the blog and read the daily activities of their children. Children in other schools can also use these blogs to learn about other classes in the same school and also in different schools. By creating these blogs the children are working on their literacy skills.

YouTube has become another invaluable resource in the Irish classroom. (However, for obvious reasons it is blocked by scoilnet.ie. To work around this many teachers use their internet connections at home to download videos from this resource and bring these downloads to school to show the children) Not only is it invaluable to children but teachers and mentors can view other skilled professionals working in the classroom environment and can learn from these observations. According to Edudemic.com using (Edudemic 2013) YouTube allows for unique and unusual discussions. It also helps struggling students to catch up. They can watch the videos in their own time at home. Also it caters for the visual learner – i.e. the student who learns by watching a video rather than reading text.

Certain schools have embraced the technology world in abundance. One such school is St. Aidan’s Primary School in Enniscorthy County Wexford. The school have provided each student with an iPad for their schoolwork. According to St. Aidan’s Principal, Peter Creedon (Creedon 2013) they have seen very impressive results with the iPod and iPad. He believes that if children are in charge of their own learning that they learn more thoroughly and they remember what they have learned which is the whole purpose of education.

As discussed the uses of technology in Irish classroom are varied. This document purports to discover how Irish Primary school teachers are finding time to up skill in ICT as well as ensuring that they are covering the prescribed curriculum. As there are so many technological devices and uses for each device, teachers have an arduous task. When this is combined with a busy curriculum, this is not a simple undertaking.
2.2 How to use Technology in the classroom

In most Irish classrooms there is some sort of technology in use, for example an electronic white board, a visualiser, a digital camera etc. However, it is not just important for teachers to use the technology for the sake of it but they must decide what the best type of technology to use is and also what the best methods of using it are. On the Parents Association of Community & Comprehensive School’s website, in an article entitled ‘Support Key to brave new world of tech in classrooms’ (Parents Association of Community & Comprehensive School 2012) Clive Byrne, director of the National Association of Principals and Deputy Principals (NAPD) said that he has heard of several school inspectors who have been “very disappointed” with the use of available technology such as interactive whiteboards in the classroom. He states that teachers have the technology in their rooms but often it isn’t used as much as it should be. He suggests that this could be down to the reluctance of teachers to use it just in case it won’t work when inspectors are visiting or they are just simply not comfortable with technology. In the same article (Parents Association of Community & Comprehensive School 2012) Dr Miriam Judge, a multimedia lecturer in DCU who has conducted a great deal of research in the area of ICT in education, says teachers can’t be blamed for having some apprehension about involving PCs, tablets and/or other devices during their classes because if something goes wrong with one of these devices during a class, the teacher is left spending “half their time” trying to figure out a technical issue. Judge has conducted a great deal of research in the area of ICT in education.

Research has shown us that by integrating technology into education and learning it can improve student achievement and attitudes towards school (Kulik 2003). Much of this research has examined the use of technology in schools and has revealed that there is a lack of integration and an often lack of meaningful use of technology (Zhao & Frank 2003).

The personalities, learning styles and learning needs of students must take into account by teachers when planning their lessons.
2.3 Learning Theories

Educators in today’s world need to consider not only the content of their teaching but how the learning takes place. This is a shift from the traditional teaching methods where the teacher spoke and the students listened. Learning theorists view learning from many different perspectives. Because of this educators need to consider the different perspectives of learning and base educational instruction on these perspectives.

Behaviourists believe that a person changes their behaviour as a result of learning. They believe that people are shaped entirely by their surroundings (Skinner 1976). Burrhus Frederic Skinner (Skinner 1976) wrote that behaviourism is not the science of human behaviour but rather it is the philosophy of that science. He and his behaviourist colleagues believed that if someone receives positive reinforcement this person will learn to perform the behaviour on their own. This is similar to what happens in classrooms around the country today. (For example if children perform well they may get a night off homework). Many training colleges promote the notion of ‘catch them being good’ as a method of encouraging good behaviour. Many websites used in Irish classrooms provide the positive reinforcement that Skinner believes aids and encourages learning. One example of this is [www.coolmath4kids.com](http://www.coolmath4kids.com). This website displays a smiley face if the user gets the correct answer. Other websites do not allow continuation of the task until the correct answer has been submitted. For example on [www.starfall.com](http://www.starfall.com) children are not allowed to drag a word to an incorrect picture. This means that children are unable to make a mistake thus reinforcing the positive results as they never fail.

Another theory well worth consideration is that of cognitivism. Schuman (1996) says cognitivism is based on the thought process behind the behaviour. He says that changes in behaviour are observed, but only as an indicator to what is going on in the learner’s head. Schuman believes that people learn by creating a relationship between prior knowledge and the new knowledge being acquired. This linkage creation is fundamental to learning. In classrooms, teachers attempt
to elicit prior knowledge and build on this foundation. Beyer (1991) says that students learn and remember new information best when it is linked into relevant prior knowledge. Bruner (1973) said that by linking classroom activities and instruction to students’ prior knowledge it builds on their familiarity with a topic and enables students to connect the curriculum content to their own experiences. Some cognitive tools available to teachers include the following Google video, Brain Pop and Teacher Tube. These types of resources, according to Pitler et al (2007), can help students to “activate prior knowledge and develop a mental model to help them understand new information”.

The constructivist view of learning suggests that teachers should be facilitators to student’s learning and that students construct their own understandings and meanings when carrying out challenging tasks by putting the emphasis of the activity of the student rather than that of the teacher. Because of this it concurs that children are active participants in their own learning.

Constructivism isn’t a new concept. Maria Montessori based her model for education on it as did John Dewey and Joseph Bruner. More recently Lev Vygotsky the Russian psychologist published many articles on it (Collins 1991). Constructivism does not focus on knowledge reproduction but focuses on knowledge construction.

A very important consideration is that from Strommen and Lincoln (1992) when they say that “it is not what equipment is used, but how the equipment is used which makes it relevant to a constructivist classroom”. One of the major advantages of ICT use in schools is that the student is in control of their own learning. They can set their own pace and direct their own learning. “Technology offers flexibility and adaptability reflective of pedagogies across various learning models based in constructivism” according to Kristina Ford and Leslie Lott (Ford & Lott 1999) in their paper ‘The Impact of Technology on Constructivist Pedagogies’. They suggest that a problem arises when students are far more technologically savvy than the institutions that support them. This problem is one where teachers are trying to resolve personal constructivist pedagogies with a tool they are uncomfortable it. Yet, they accept, that this tool is one which “opens the
door to new and innovative applications of constructivist teaching and learning methods”. Desai et al (2008, p.329) tell us that computers supply us with vast amounts of information on a daily basis and that this has “allowed teachers and student new ways to explore education compared to ordinary instructional tools”.

The other main theory is that of the use of play. Play is a vital element to a child’s development. Piaget (2000) discusses the importance of play in his writings. He says that the only way something new can come about is through play. Of course, as Dewey (1944) suggests, it is not simply enough to introduce play as a method of education but the way the play is used is the most important element. In 2004 the NCCA’s consultative document identified play as one of the key contexts for children’s learning and development. Educators need to be mindful of this and ensure that play is used as a tool for teaching and learning. Wood (2004, p. 21) advocated that through play children demonstrate improved verbal communication, high levels of social and interaction skills, creative use of play materials, imaginative and divergent thinking skills and problem-solving capacities. Educators need to ensure that they include play as part of their use of technology to ensure that the full learning potential of their students is achieved.
2.4 Digital Immigrants Vs Digital Natives

Today’s children are digital natives (Prensky 2001). Prensky tells us that today’s students are the first generation to grow up in this digital era. They have spent their entire lives using many different types of technology. The mobile phone is something that cannot be done without by most Irish students. Because of this reliance on technology the digital natives of today not only think differently but they process information in a fundamentally different way than their predecessors.

A digital immigrant, on the other hand, is someone who was born before the widespread adoption of digital technology or was born after it but wasn’t exposed to it at an early age (Prensky 2001). Prensky (2001) says that digital immigrants have “adopted many aspects of the technology” but he tells us that these immigrants are just like people who learn a new language later in life; they still retain an ‘accent’ because they “still have one foot in the past”. Prensky (2001) tells us that an example of a digital immigrant is one who prints off their emails to read them or who makes a phone call asking if their email was received. He suggests that digital immigrants should laugh at themselves and their ‘accent’. He continues to suggest that this is actually a very serious issue and is the biggest problem facing educators today. He states that digital immigrant instructors “who speak an outdated language (that of the pre-digital age)”, are finding it difficult to teach a “population that speaks an entirely new language”.

Prensky (2001) informs us that digital natives are used to receiving information really fast. They like to multi-task and parallel-process. He tells us that they “thrive on instant gratification and frequent rewards”. He says they prefer to play games rather than do “serious” work.

Prensky (2001) also tells us that smart adult immigrants accept that need to learn about the ‘new world’ whilst the not-so-smart immigrants spend most of their time “grousing about how good things were in the ‘old country’”. He goes on to say that we need to reconsider not just our content but also our methodology for teaching these digital natives.
One of his most powerful statements in his ‘Digital Natives, Digital Immigrants’ paper is the following “we need to invent Digital Native methodologies for all subjects, at all levels, using our students to guide us”.

2.5 Motivation

The term motivation derives from the Latin word movers, “to move”. Motivation is defined as the force that drives people to satisfy needs (Maslow 1943). Pritchard & Ashwood (2008) define motivation as the process used to allocate energy in order to maximise the satisfaction of needs. “Motivation involves the processes that energise, direct and sustain behaviour” (Santrock 2004, p. 414). Kosakowski (1998) states that if technology is to succeed it should be based on what learners need to achieve and should motivate them to attain a desired behaviour.

2.5.1 Teacher Motivation

Obilor (2005) says that primary school teachers need to be appropriately motivated because they are the people who lay the foundation in education for people who intend to be doctors, nurses, engineers, pharmacists, politicians and many other professions. Alam & Farid (2011) studied the factors affecting the motivational level of teachers at secondary school level. They discussed their findings in their paper entitled ‘Factors Affecting Teachers Motivation’. Their objectives were to identify the factors responsible for low and high motivation of teachers, to investigate the effects that examination stress has, and to determine anxiety in the classroom along with other factors. In their paper they say that ‘teachers play a very important role in the learning process of students who idealize teachers and try to copy them’. Therefore they say that the motivation of the teacher is very important as it directly affects the students.
Sylvia & Hutchinson (1985) say that teachers are motivated by the freedom they receive from the superiors to try new ideas, appropriate responsibility levels and intrinsic work elements.

This study aimed to ascertain the motivation levels of teachers to use ICT as a tool to improve their teaching. It also endeavoured to determine how teachers felt about curriculum overload and whether or not this overload affected their motivation levels towards the use of ICT in Irish classrooms.

2.5.2 Pupil Motivation

The NDT Education Resource Center website states that while

“educators can't make or teach students to be self-motivated, they can encourage and promote this highly desirable personal trait. Generally, students will show some self-motivation if they (1) know what is expected of them, (2) think the effort is worthwhile, and (3) feel they will benefit through effective performance.”

NDT Education Resource Center (2000)

Cohen et al (2004) believes that if learners are encouraged to work at their own pace by using ICT, learners will be more motivated and driven.
2.6 ICT and its benefits in Irish Schools

The Introduction to the Primary School Curriculum states:

Technological skills are increasingly important for advancement in education, work, and leisure. The curriculum integrates ICT into the teaching and learning process and provides children with opportunities to use modern technology to enhance their learning in all subjects

(Primary School Curriculum 1999, p.29)

A report commissioned by the Department of Education and Science entitled ‘Investing Effectively in Information and Communications Technology in Schools, 2008-2013’ discusses the benefits of ICT in schools. It says that “learning is changing”. It states that the pivotal force bringing these changes is the use of ICT. It declares that ICT provides a richer, more immediate, world-relevant educational resources and opportunities.

A study done in the UK entitled the ‘ImpaCT 2’ study (Harrison et al 2002) was a detailed assessment of the impact that the use of ICT has. The study was carried out between 1999 and 2002 in sixty English schools. This study found that there was a significant relationship between the use of technology by students and the student grades. This was especially relevant in English and Science. Another interesting finding was that the use of ICT across all the curriculum subjects, rather than just one subject, was a key factor as it not only increased the student’s skill level in ICT but it also improved the independent learning of the student.

According to the NCCA (NCCA 2004) document entitled ‘Information and Communications Technology (ICT) in the Primary School Curriculum: Guidelines for Teachers’ using ICT in teaching and learning can be approached in three different ways:

- Learning with ICT
- Learning about ICT
- Learning through ICT
This document states that some of the advantages that can be clearly proven are as follows:

- It addresses many of the learning styles
- Its use can impact on the teacher-pupil interaction
- It can significantly improve the engagement levels of the student
- Learners with special educational needs can use the equipment to aid them in their daily tasks. For example: the use of a laptop may help a student with poor motor sensory skills.
- Learners can be provided the opportunity to experience events that otherwise may be unavailable to them
- Instant feedback is a very beneficial advantage to many websites

2.7 Changing Environment of Technology

“Rapid technological change and global communication are facts of life in the 21st century” according to Jamieson-Proctor et al (2006).

Roblyer (2004) states that

One of the things that make teaching so challenging is that it goes on in an environment that mirrors - and sometimes magnifies - some of society's most profound and problematic issues. Adding computers to this mix makes the situation even more complex. Yet to integrate technology successfully into their teaching, educators must recognize and be prepared to work in this environment with all of its subtleties and complexities.

(Roblyer 2004, p.15)

When it comes to education, these technological changes are unavoidable and teachers who trained in years gone by are now trying to forecast and prepare themselves for what may happen in the future (Luke 2001).

Janet Buchan (2008) states that “at times the constant change in educational technological can be overwhelming”. She tells us that this technological
environment is becoming more complex and because of this it poses “significant challenges for everyone”. Buchan goes on to say that despite certain learning institutions investing in expensive learning management systems and other technologies, they reported limited uptake and no significant enhancement to teaching and learning (Benson & Palakas 2006). Technology on its own is not the answer. Buchan (2008) says that “success comes through how it is used and, importantly, how it is introduced and managed”. “It is what one can do with the tools that is important”.

2.8 The impact of ICT on Teacher-Pupil Interaction

Another major consideration of ICT’s benefits in an Irish school is the impact on teacher-pupil interaction. In 2004 Lancaster University carried out a research project entitled ‘Motivational effect of ICT on pupils’. The authors of the report, Don Passey and Colin Rogers, with Joan Machell and Gilly McHughkey (Passey et al 2004), reported their key findings as follows

- ICT use by pupils and teachers in the case study schools led to positive motivational outcomes, supporting a focus upon learning and the tackling of learning tasks.
- Positive motivational outcomes were most frequently found when ICT was used to support engagement, research, writing and editing, and presentation of work. Where ICT uses supported internal cognitive aspects of learning, for example in the case of secondary design and technology, there were indicators that the motivation arising from the use of ICT was linked to enhancements in some subject specific attainment.
- More positive motivation resulted when ICT use was focused on both teaching and learning, than when ICT was used to support teaching alone.
- Boys and girls were both motivated by uses of ICT. There was evidence that motivation from ICT use positively affected the work patterns of boys so that they worked in similar ways to the persistent pattern of girls.
- Motivation appeared to be independent of ethnic background, but socio-economic background impacted on occasions in terms of limited access or out of school support.
• There were indications that ICT impacted positively upon pupil behaviour inside school, and some impact on their behaviour outside school.

(Passey et al 2004)

2.9 Potential Risks with ICT

Whilst the advantages of the use of ICT in the classroom have been proven to immensely override the risks, educators still need to be aware of some of the potential dangers which ICT can pose. Ninety-nine percent of children aged 12-15 are reported to use the internet, as do 93% of 8-11 year olds (Loughborough 2011). Seventy five percent of 5-7 year olds reported using the technology (Loughborough 2011) according to the report carried out by Loughborough University entitled ‘The protection of children online: a brief scoping review to identify vulnerable groups’.

2.9.1 Cyberbullying

Livingstone et al. (2001) reported that one if five or six teenagers are affected by cyber bullying. Studies in the UK have reported that between 8 and 34% of young people have been cyber bullied (Cross et al. 2009; Livingstone et al., Smith et al., 2008). In Ireland, the Irish Times, in its article entitled ‘Irish cyberbullying highest in EU’ (IrishTimes 2013), reported on February 4th this year that incidents of cyber bullying among Irish teenagers are among the highest in Europe, according to a report commissioned as part of Safer Internet Day. Garda Commissioner Martin Callinan and Minister for Education and Science Ruairi Quinn jointly launched two initiatives – Watch your Space public awareness campaign and also a Garda primary schools programme entitled Connect with Respect – both dealing with bullying by children and teenagers online (IrishTimes 2013).,

One other point of interest is that Cross et al. (2009) also reported that girls were twice as likely to experience persistent cyber bulling than boys.
2.9.2 Security

Many people, in today’s society, are not aware of the potential risks that are posed by providing personal information to websites – when banking on line, when purchasing goods, on chat rooms etc. It is the duty of an educator to try to highlight these issues to their students when using technology in the classroom.

2.9.3 Inappropriate Information

Another potential risk is the availability of information which is not suitable for the age group of the user. With the explosion of the internet over the past twenty years, information of all types is available to the user, at the touch of a button. Children are especially vulnerable. Parents and guardians need to be made aware of the potential risks and information on the use of web filtering software should be made available to this cohort of people.
2.9.4 Malware

Viruses, Trojan horses, worms etc. also pose a substantial risk for users of technology. Malware infections can lead to identity theft or potentially denial of the service according to Patriyk Szewczyk and Murray Brand from Edity Conwan University (Szewczyk et al. 2008).

Schmidt & Arnett (2005, p. 68) suggest that at any given moment, approximately 90% of households worldwide have some form of malware on their computer. Szewczyk & Murray (2008) also state that while each anti-virus vendor is continually updating their signatures (often on a daily basis) and their software, consumers are still falling victim to malware attacks. This is due to the constant evolution and changes to the malware.

The problem of malware can be an issue for teachers. As many schools don’t have a budget for IT support, teachers are attempting to stay abreast of virus scanners and internet security protection software. When IT support is added to the workload of teachers, who are already trying to cover an overloaded curriculum, this can lead to teacher stress and burnout.
2.9.5 Internet Addiction

A new problem has arisen in today’s society. This problem is one of addiction to the internet and/or computer games. Reports carried out in the recent past have indicated that some on-line users were becoming addicted to the Internet in a similar way to those who are addicted to drugs, alcohol or gambling (Brady, 1996; Murphey, 1996). This addiction has resulted in academic failure, reduced work performance and even personal relationship breakdowns (Quittner 1997).

2.10 Problems encountered by teachers

The amount of use of technology not only varies from school to school but also varies from classroom to classroom. With teachers complaining of ‘curriculum overload’ many do not have the time or resources available to them to retrain themselves to make use of these tools.

Irish schools today have access to broadband; however, sometimes this broadband can be slow. Not all schools have computers for each child. Many schools don’t even have enough computers for children to access on a class by class basis.

Another consideration is the lack of IT equipment. Due to the recent cutbacks in the Irish economy many Irish schools don’t have adequate equipment in classrooms. According to the Department of Education’s article ICT in Schools Inspectorate Evaluation Studies Report 2008 (Department of Education 2008) the student-computer ratio in Irish schools is 9:1. This report also found that schools that made dedicated computer facilities available to teachers found that a more high-quality and creative teaching was found in the classroom. A recent survey has just been completed by the Department of Education (2013) but the results of the survey aren’t available aren’t available at the time of this research.

There are also limitations to what technology the schools can use. Because many school buildings are old with thick walls one problem has become apparent – the use of wireless broadband. Unfortunately, the wireless signals are unable to penetrate the older walls and thus deems, what should be an invaluable resource for schools, useless. Because of this issue there are many schools who cannot
consider using iPads or similar technology in their classrooms (as plugging them in would be in cumbersome and impractical).

Due to lack of funding many schools find it difficult to find replacement equipment should there be a fault. Schools don’t have spare interactive white boards due to their costs. If the projector were to break down teachers usually have to wait a number of weeks before a new one can be sourced and installed. Because of this, teachers need to be aware that ‘old-fashioned’ backups should be available should an issue with technology arise.

Schools don’t have IT staff available immediately to them. In many private sector companies there is an IT department that provides advice, support and other services to employees of the company. In the education sector there may be nobody with a ‘post of responsibility’ for IT and no member of staff with the know-how, never mind the time, to provide the necessary support to the teaching staff. This issue needs to be addressed because educators can become truly technologically sound.

Another consideration that educators much take on board is the issue of ICT on pupil’s attention levels. Many experts have raised their concerns about the lack of concentration skills that many of our children are exhibiting in today’s society. Can these symptoms be explained by the use of technology? At the touch of a button and in the matter of seconds internet users can gather information on an endless amount of topics without much effort. We need to consider whether the use of technology had added to the problem. According to Science Master (2011) “technology and the Internet have prompted a new phenomenon referred to as “CPA” - continuous partial attention.” This is where both children and adults do not concentrate their full attention on one single endeavour but rather devote less-concentrated attention on two or more tasks that are attempted simultaneously. Will this pose a problem for us, as a society, in the future?
2.11 Coping skills of teachers

Teaching is not only hard work; it can be full of stress. The daily interactions with students and co-workers and the incessant and fragmented demands of teaching often lead to overwhelming pressures and challenges, which may lead to stress. Where work stress is unrelenting, some negative physiological, psychological, and behavioural consequences may result. (DeRobbio & Iwanicki 1996, p. 1)

Pressure due to school reform efforts, inadequate administrative support, poor working conditions, lack of participation in school decision making, the burden of paperwork, and lack of resources have all been identified as factors that can cause stress among school staff (Hammond & Onikama 1997).

What exactly is stress? There are many definitions of stress; Selye (1974, p.27) says it’s “the nonspecific response of the body to any demand made upon it”. The term has been further defined by Gold and Roth (1993):

“a condition of disequilibrium within the intellectual, emotional and physical state of the individual; it is generated by one’s perceptions of a situation, which result in physical and emotional reactions. It can be either positive or negative, depending upon one’s interpretations”

(Gold and Roth 1993 ,p. 17).

So is there a difference between stress in other professions and that experienced by teachers? Teacher stress is defined as

“the experience by a teacher of unpleasant emotions, such as tension, frustration, anxiety, anger, and depression, resulting from aspects of work as a teacher”

(Kyriacou 1987, p.146)

This stress can lead to burnout. Teacher burnout is defined by Kyriacou (1987, p.146) as “the syndrome resulting from prolonged teacher stress, primarily characterized by physical, emotional and attitudinal exhaustion”.

26
Coping has been defined as the behavioural and cognitive efforts a person uses to manage the demands of a stressful situation (Chang & Strunk 1999). Folkman, Lazarus, Gruen, and DeLongis (1986) define coping as “the person’s cognitive and behavioural efforts to manage the internal and external demands in the person-environment transaction”. When a person experiences stress, people normally engage in certain strategies for coping with their emotions. The more someone adopts these coping strategies, the less stress they will experience. There are several ways of coping. Feeling in Control as a Way of Coping (Rubin, Paplau, & Salovey 1993), Optimism and Pessimism Coping Style (Rubin, Paplau, & Salovey 1993), Approach and Avoidant Coping (Chang & Strunk 1999), Appraisal and Coping (Rubin, Paplau, & Salovey 1993) are very useful books which provide information on how to work on coping mechanisms.

2.12 Curriculum Overload/Busy curriculum

Many Irish Primary School teachers complain about the problem of curriculum overload or a curriculum that is too busy. Because of this, the NCCA (National Council for Curriculum and Assessment) published a paper entitled ‘Curriculum Overload in Primary Schools – An Overview of National and International Experiences’ in 2010. This report tells us that the Irish Primary School Curriculum is made up of twenty three books (NCCA 2010). Since 1999 the NCCA has also produced a number of guidelines which are intended to provide support to schools on specific topics and aspects of the primary school curriculum which includes assessment. Many other organisations and agencies also issued resource and information packs to schools on topics such as Green school, fitness programmes and different sports (e.g. GAA) which teachers are encouraged to incorporate into their daily teaching. The NCCA (2010) admit that given all these developments, it is not surprising that some teachers feel overwhelmed both by the volume of documentation and the perceived pressure of external expectations. International research has reported widely into the contemporary teaching experience and reported the overcrowded curriculum.

The NCCA (2010) documents research done in many different countries. These include England, the Netherlands, Wales, Canada, Australia, New Zealand,
China, Japan, Vietnam and the Philippines. In 2009 a review of the education system in England was carried out. This document described the curriculum as “overcrowded and unmanageable” (Cambridge Primary Review 2009a, p.3). This review suggested that because teachers were attempting to attain high standards in reading, writing and mathematics other things suffered such as reflective thinking, problem-solving, investigations and explorations. It also suggested that time for other subjects such as Art, Music and drama was often eaten into in order to work on ‘the basic’ subjects of English and mathematics.

Teachers in Northern Ireland also reported to feeling overwhelmed by the demand to respond to too much change too quickly (Gallagher, 2009).

The negative consequences of curriculum overload in Asian countries were also documented in the UNESCO (2002) report. This document noted that most of the countries researched were said to have a curriculum that was overloaded. It conducted its research in China, where the curriculum was documented as being much too difficult for pupils to complete. It also reported the curriculum in the Philippines as being overcrowded which hinders or delays the development of critical competencies. Its research in Vietnam was reported the curriculum there as having a lot of content that was heavy on theory and that it lacked applicable knowledge. In Indonesia, the curriculum was documented as again, having too much detail that needs memorisation and not enough focus on understanding and analysis (UNESCO 2002).

It is not just the teachers in school that are experiencing time challenges. With the new legislation that has been published in recent years, the role of principal has new responsibilities. There has been a dramatic increase in circulars published by the Department of Education and Science in recent years – from one per month at the beginning of 2000 to one per week in 2006. These circulars impact on the role of the principal. The Irish Primary Principals Network, the IPPN, reported in 2007 that Irish school leaders are experiencing overload due to their roles changing and expanding with new responsibilities and expectations.
2.13 Teacher training in ICT

As part of teacher training today in Irish third level colleges, ICT is incorporated into the study programme. Teachers training in these colleges are receiving instruction on how to use technology effectively in the classroom. Teachers who have already graduated and are now teaching in primary schools are may be partaking in continuing professional development - CPD. According to the Department of Education’s document ‘ICT in Schools – Inspectorate Evaluation Studies’ (2008) 30% of primary schools and 57% of post-primary schools had provided at least one in-school or external ICT training course for their staff within the previous three years.

It also stated that 17% of the 234 primary school principals who took part in the study provided in-school training whilst 16% reported that external training was provided within the time frame. Another interesting point noted in the survey was the fact that primary schools were found to rarely offer both in-school and external staff training.

The survey also found that a higher rate of in-school training was organised by larger schools (36% of primary schools with more than 200 students, compared with only 5% with fewer than 100 students). It says that this is likely due to the fact that there is a higher concentration of staff members, therefore participants, in the larger schools. It suggests that it is, however, possible for small schools to amalgamate for specific training purposes. When it came to external training the survey concluded that there was no notable difference between the rate of provision between the type of school, the size or the school or whether the school was a primary or post-primary school.

A point to note as a result of this study is that fact that while teachers reported that they had attended professional development courses, many teachers stated that they had not received sufficient training on how to integrate these ICT skills in their teaching and recommended that this is something that needs to be addressed in the future.
2.14 Conclusion

This chapter has examined curriculum overload and outlined the use of technology in primary school classrooms. It also looked at some of the many learning theories that exist and discussed how these theories are linked to the use of technology. Based upon the literature previously cited regarding the benefits of technology in the classroom, the question does not appear to be whether or not teachers should use technological equipment in the classroom but rather how to use these tools to enhance their teaching and the student’s learning.
Chapter 3 - Methodology

3.1 Introduction

This chapter outlines the research methodologies used in this study. The background to the research is presented. The reasons for the research are outlined and discussion on the subjects on which the research is based is documented. This chapter further explores the different research methodologies along with justification for the research methodology chosen. The data collection tools used are examined and the research questions are outlined. Ethical considerations are discussed. The chapter concludes with a discussion on how data analysis was completed.

3.2 Background to the Research

The report from the joint advisory group to the Minister for Education and Science, in their document Smart Schools = Smart Economy (Department of Education 2009) discussed the fact that it was imperative that the government implement an investment plan over three years to provide essential technological equipment for ICT infrastructure in schools. This report states that there needs to be commitment from educational partners, encompassing individual teachers, school management, teacher unions and management bodies (Department of Education 2009). Other groups such as the Department of Education’s agencies, industry, students and parents much also be committed to ensuring its success. In order to achieve the recommendations in the report Irish Primary School teachers need to up skill to ensure they are competent and comfortable with the latest technological advancements for educational use.

As discussed, in 2010 the National Council for Curriculum and Assessment published a document entitled ‘Curriculum Overload in Primary Schools’ which recognised the fact that the Irish Primary School curriculum is overloaded (NCCA 2010).
This research was carried out to ascertain how the teachers in the Irish Primary School system are attempting to stay up to date with new technologies whilst still ensuring that they are achieving the goals as defined by this overloaded curriculum.

### 3.3 Purpose of the Research

The purpose of the research is to consider the following question; “Considering the constantly changing environment of technology – how do Irish teachers deal with the goalposts moving constantly combined with an already busy curriculum?”

This is done by breaking down the research into three sub-questions:

- Changing Environment of technology
- Coping skills of teachers
- Busy curriculum
3.4 Research Subjects

All participants in the research were fully qualified Primary school teachers who were employed in the Irish Primary School system. The number of years of experience of the teachers ranged from newly qualified teachers to those who were qualified for a long number of years. The geographical location of these teachers was also very varied, ranging from those in very remote locations to those in city centre locations.

The study presented a questionnaire to teachers, teaching principals and administrative principals. No administrative principals took part in the study (despite a number being invited) whilst 3 teaching principals took part. In total, 51 teachers responded to the questionnaire. The focus group included 5 teachers who were provided the opportunity to discuss their beliefs and opinions of the research questions. Their answers were recorded. An interview was held, interviewing three teachers on an individual basis. Their feedback was also recorded.

3.5 Research Questions

In order to decide which research method and which data collection tools to use in the study, the research questions must be stated. The following list contains the research questions used for the purpose of this study:

- What is the teacher’s attitude to the primary school curriculum with regard to the amount of strand and strand units to be covered?

- How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?

- How much time do teachers spend, both formally and informally, training themselves in technology?

- How do teachers feel about the amount of time that they have to devote to up skilling their technological skills?
3.6 Research Methodology

A literature review was undertaken which was used to enable the author to identify factors from other relevant studies which have arisen as either an aid or as a hindrance to ICT use in primary school classrooms, specifically Irish classrooms. This review explored the research questions posed and examined other studies done in this area. Based on this literature review, various research methodologies were explored to identify the most suitable methodology for this study. Each one of these will be explored for the purpose of this research and will be discussed. The reasons for the research methodology chosen will be outlined.
3.6.1 Action Research

Action research is a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of those practices and the situations in which the practices are carried out… The approach is only action research when it is collaborative, though it is important to realise that action research of the group is achieved through the critically examined action of individual group members.

(Kemmis and McTaggart 1988, p. 5-6)

Kurt Lewin is often stated as being the originator of action research, according to Aldeman (1993). It is a well established strategy of inquiry.

Hitchcock and Hughes (1995) state that the principal features of action research are “change (action) or collaboration” and that the main concern of the researcher is to “improve a situation through active intervention and in collaboration with the parties involved”. Feldman and Minstrell (2000) define action research as “teachers researching their own practice of teaching”. They go on to say that action research is an inquiry into “their teaching in their classroom”.

Although action research is a proven and valuable method of research Zuber-Skerritt (2004) argue that it is difficult for action research techniques, conducted on a small scale to lead to new insights within a new area.

As this research was being conducted on a small scale the opinion Zuber-Skeritt (2004) was taken into consideration when investigating which research methodology would be chosen.
3.6.2 Case Study

According to Robson (2002), a case study can be defined as:

A strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence.

(Robson 2002, p. 178)

An investigation which can be defined as a process that develops and tests hypotheses is known as a case study according to Carrier and Spafford (2004). Bell (2005) tells us that a case study can be defined as a thorough study of an individual, group, incident, or a community. Stangor (2010) tells us that case studies provide descriptive records of one or more individual’s experiences and behaviours. Yin (1994) states that a case study is useful when questions of ‘how’ and ‘why’ are being asked about, over which the researcher has little or no control over. Anderson (1993) concurs with this and states that case studies are concerned with identifying why and how things happen.

3.6.3 Methodology Chosen

This investigation aimed to ascertain the experiences and behaviours of teachers in terms of their use of ICT in the classroom, which included their training and up-skilling, and so the case study approach was chosen to carry out this research. According to Tellis (1997) case studies are mainly used in law and medical schools, however, their uses in education are continually increasing.

The aim of this study was to examine the reality of a certain situation in a particular setting. Based on this, the methodology chosen for the purpose of this research was to employ a case study approach using an on-line questionnaire, a focus group along with interviews as research tools.
3.6.4 Triangulation

Using the three types of tools chosen for this research (i.e. on-line questionnaire, focus group and interviews) ensured triangulation of data (Yin 1994) and therefore improved the accuracy of the results (Stake 1995). Jick (1979) states that the effectiveness of triangulation rests on the premise that weaknesses in each single method, will be counter-balanced by the strengths of another. According to De Vos et al (2002) triangulation combines both qualitative and quantitative styles of research data enabling the researcher to view the research data from several different angles. According to Cohen and Manion (2000) triangulation is the use of more than one method of data collection. By ensuring the triangulation of data the accuracy of the data improves (Stake 1995). Thus, with no reliance of data from an exclusive source, triangulation will help the researcher to reduce bias or distortion of the data collected (Cohen & Manion 1980).

Patton (2002) warns, however, that an assumption is often made that the goal of triangulation is to arrive at a consistent state by using various methods of research. In fact, these inconsistencies should not be seen as a weakening of the evidence, but should be seen as an opportunity to uncover deeper meaning from the data.
3.7 Data Collection Tools

In order to select the most suitable data collection tools which could offer the best potential answers to the research questions, Johnson and Onwuegbuzie (2004) advise considering these questions and also consider the answers that are sought. These questions are outlined previously. From examining the questions, the data collection methods used were as follows:

- **Interview** – Field Notes and voice recordings
- **Questionnaire** – on-line questionnaire using SurveyMonkey with the results exported into Microsoft Excel for further analysis
- **Focus Group** – Field Notes

The results from all three methods will be combined and imported into Microsoft Excel.

As Bell (2007) advises, each of the questions used in all three data collection methods will be piloted to a specific research group before being presented to the main research group. Teijlingen and Hundles (2001) state that one of the advantages of conducting a pilot study is that it may provide advance warning about where the research instrument is inappropriate, incorrect or too complicated.
3.8 Data Analysis Considerations

3.8.1 Introduction

This section provides information on ethics, validity and triangulation to consider data analysis.

3.8.2 Ethical Considerations

Cohen et al 2000, states that there are three items for consideration when researching – informed consent, confidentiality and risk of consequences. Each of these has been considered in their own right. Once the participants agreed to the research each one was informed of its purpose and methods. Each participant could withdraw from the study at any time. Confidentiality was guaranteed from the beginning of the research and throughout the whole process. Each participant was informed of the use of the data during the study and will be provided with a link to the completed research paper.
3.8.3 Participants of the Study

Participants in the study were provided with information on the purpose of the study. Each participant was a working teacher in the Irish Primary school system. Data gathered in the study was treated as confidential. The following are the categories in which participants were chosen:

- Teacher Age (20-30, 30-40, 40-50, 50+)
- Geographical Location i.e. urban, rural
- School size (i.e. based on teacher numbers – ranging from a 2-teacher school to a 20+ teacher school)
- Number of years qualified (1-5, 5-10, 10-15, 15-20, 20+)
- Teacher role i.e. Mainstream teachers/Learning support/Resource teachers
- Principals – teaching principals and administrative principals
No administrative principals took part in the study despite being invited. Three teaching principals took part and forty eight mainstream teachers. Three mainstream teachers were interviewed and five more mainstream teachers took part in the focus group discussions. The majority of teachers who took part in the on-line questionnaire were from schools of between 10 and 20 teachers (47%). One teacher participated from a 1-2 teacher school. Ten took part from schools with 3-5 teachers whilst 3 took part from 5-10 teacher schools. 13 took part from schools with more than 20 teachers.

The majority of respondents were qualified less than five years (57%). 27% were qualified over 20 years with the remainder being between 5 and 20 years. There was an even distribution between urban and rural schools.

3.8.4 Validity of Data and Triangulation

In order to ensure validity of data, research was done on practicing Irish Primary school teachers. The validity of the data is a major concern in research. Silverman (2000) states that the issue of validity is usually posed in terms of what is a credible claim to fact or truth.

The questionnaire was designed with the research questions in mind. Twenty questions were posed in order to ascertain relevant feedback from the respondents. To test the validity of the questions posed in the questionnaire, two Irish primary school teachers were used to consult on the questions posed and their feedback was incorporated into the questions. Once this feedback from the pilot study was completed the on-line questionnaire was created and designed. Along with ensuring that the questionnaire provided valuable information other considerations were taken into account. One such consideration was to ensure that the interest of the participant was sustained. Should the questionnaire not be designed in such a way, participants may lose interest in completing the form and may not bother to finish the process. The next consideration was to ensure that there wasn’t any ambiguity in the questions. The questions on the questionnaire were closed-ended questions. These closed-ended questions were used to ensure that the participant found the questionnaire easy to complete. By using this type
of question it also allowed for easier analysis of data. By ensuring the data was easy to analyse it increased validity and reliability of the interpretation of the results.

The questions used in the interview were based on those used in the on-line survey whilst incorporating open-ended questions. Although these open-ended questions were more difficult to analyse, they provided extra meaningful information. These types of questions provided the respondent with an opportunity to provide information in their own words. A voice recording of each interview was done and the results of same were documented.

With regards to the focus group, the questions posed were based on those which were used in both the interview and questionnaire. These questions were posed during the focus group and discussions followed. Notes were taken during the focus group and discussions recorded.

As stated the methods of research used for this piece of work were interviews, questionnaires and focus groups. This variety of methods allowed for triangulation of results.
3.9 Data Analysis

The data gathered was from three sources. The data from the on-line questionnaire allowed for easy analysis using SurveyMonkey. This tool also allowed for the data to be exported in CSV (comma separated values format) into Microsoft Excel for a more detailed analysis. More complex graphical representations were produced using Microsoft Excel. By using Excel, it allowed for the automatic creation of cross tabulation tables. It provided methods to carry out statistical analysis.

Each interview was recorded using Sound Recorder from Microsoft. The output of the sound recordings was analysed and summarised into a Microsoft Word document. It was noted that in many cases teachers had given similar responses to specific questions. The frequency of these answers were analysed and documented.

Notes from the focus group were taken during the process using Microsoft Word.

3.10 Conclusion

This chapter outlined the research approach and methodologies used in this study. The next section will present the data collected from questionnaires, interviews and from the focus group.
Chapter 4 – Findings

4.1 Introduction

This chapter presents the findings from the research carried out. For the purpose of this investigation the responses from teachers were surveyed and analysed. The data obtained from the three research methods were collated and analysed and the results of this are presented in this section.

The goal of this research was to address the following research questions:

- What is the teacher’s attitude to the primary school curriculum with regards to the amount of strand and strand units to be covered?
- How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?
- How much time do teachers spend, both formally and informally, training themselves in technology?
- How do teachers feel about the amount of time they have enough time to devote to up skilling their technological skills?

4.2 Profile of Respondents

4.2.1 Questionnaire Respondents

It was the intention of the researcher to obtain information from a wide variety of teachers in the Irish Primary school system. In total there were 51 respondents to the on-line questionnaire. 90% of these were female, 10% male. There was a large response from the 21 – 34 age category as can be seen from the graph below (figure 1).
The size of the school in which the respondents work should also be considered as it is wise to take into consideration the ethos of the school when it comes to the use of ICT in the classroom. Of the 51 respondents the majority of them, 24, worked in a school of between 10 and 20 teachers. 13 of the teachers worked in a 20+ teacher school whilst 10 worked in a 3 – 5 teacher school and 3 worked in a 5 -10 teacher school. The final teacher worked in a 1-2 teacher school.
Another interesting consideration is the length of time it has been since the respondents have graduated from teacher training college. The majority of respondents who partook in this research were qualified less than 5 years (29 respondents). 14 of them were qualified over 20 years, 6 between five and ten years and 2 between ten and twenty years.

There was a fairly even distribution of teachers from urban to rural schools (23:28).

**4.2.2 Interview Respondents**

Three teachers were interviewed individually. These teachers were all practicing primary school teachers in Irish schools. These teachers ranged in age from 30 – 50 years old. Two of them were teaching in schools with between 10 and 20 teachers, whilst the other teacher was a teacher teaching in a 1-2 teacher school.
4.2.3 Focus Group Respondents

Five teachers took part in the focus group. Again, each of these teachers was, at the time of the research, teaching in Irish primary school classrooms. Three of the teachers were aged between 35 – 44, one was between 45 – 54 whilst the other one was aged between 21 – 34. Three of these teachers were teaching in a 10-20 teacher school. The other two teachers were teaching in a 3-5 teacher school.

4.3 Findings by Research Question

The following are the findings as set out by the research questions.

4.3.1 What is the teacher’s attitude to the primary school curriculum with regards to the amount of strand and strand units to be covered?

The Irish Primary school curriculum consists of 11 subjects with the addition of religious education (which remains the responsibility of the different church authorities). Each of these subject areas are divided into strands by separating or grouping the subject by content. For example, history is divided up into 7 strands (depending on class level). A further subdivision then takes place which divides each strand into strand unit. Continuing with our example of history – one strand is that of ‘Early people and ancient societies’. This strand, for fifth and sixth classes, is then divided into fourteen strand units.

During the focus group when the respondents were asked what their attitude was towards the primary school curriculum with regards to the amount of strand and strand units to be covered. This led to lots of discussion surrounding integrating of subjects. Each of the five participants agreed that it was quite difficult to cover everything required but all agreed this could only be done by overlapping subjects.

One participant stated that she used thematic planning to ensure that she touches on each curricular area, strand and strand unit. For example, whilst teaching a certain topic e.g. Munster, she teaches the children a song about that topic to
ensure that the music subject is covered for that week. She would teach about the counties in Munster to cover the Geography subject and would teach a poem about Munster to touch on the English subject.

Another teacher reported that she block teaches i.e. she picks a certain day and chooses a specific subject. She then covers that subject for the whole day. The example given was a ‘Science Day’. She spends approx. 4 hours that day on science, doing experiments, recording their results etc. Despite this not being recommended by the Department of Education Inspectorate she reported that this is the only way that she could get the curriculum covered as it reduces the time needed to set up and clean up after certain topics.

Another participant said that there is no way that she can complete everything she should. She said that she spends the majority of her time on literacy and numeracy skills. She said that if children can’t read or write, or don’t have adequate mathematical skills then she questioned why they need to know other topics. She said without the basics of reading and writing, children would be unable to have the skills to learn about other subject areas e.g. history or geography.

During one specific interview one respondent said the following “it’s not covering the curriculum that’s the problem; it’s all the paperwork that needs to go with it”. When asked what she meant exactly she responded by saying “we have to make notes about notes and this impedes on the time we should be spending on researching the subject area we are planning to teach”. From further discussions the teacher expanded on this by saying that there needs to be a lot of curricular planning and this planning needs to be recorded in long terms plans as well as fortnightly schemes. She discussed that once the material has been taught then a monthly document needs to be produced and made available for inspection should a department inspector require. She explained that whilst the curriculum is very ‘busy’ is it manageable before all the paperwork required is completed.
Another respondent said

Yes, the curriculum is very overloaded. We all know that. I skim through certain topics just for the sake of it and to get it done. I focus on other things that I think the children will use in the future. Like Maths, I think that we really have to get all that covered and English too. I spend a lot of time on English and Maths. I don’t spend enough time on stuff like Drama and Music. They are my low priorities. It’s the only way I can work.

(Teacher B, 2013)

The respondents to the on-line questionnaire were asked ‘how easy do you find it to allocate time each week, to each individual subject in the curriculum?’ Their responses were similar to those who were interviewed and in the focus group. The majority of teachers reported this as ‘difficult’ (34%). 3% of respondents reported it as ‘impossible’ whilst nobody reported it as ‘very easy’. 22% of respondents said it was ‘manageable’.

Figure 3 – Allocating time to each subject area in the curriculum
The questionnaire asked respondents the following question ‘Do you feel at the end of a school year, that you have provided enough time to each curricular strand and strand unit?’ 82% of respondents reported an answer of ‘No’ whilst only 18% of respondents answered ‘yes’.

When asked if they felt the primary school curriculum is ‘overloaded’ 90% of respondents reported an answer of ‘yes’.

4.3.2 How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?

There are many ways that teachers stay up to date with the latest technological advancements.

When asked in the interviews and during the focus group the following were the majority of the respondent’s answers:

- CPD training
- On-line websites & magazines (e.g. SeomraRanga.com, scoilnet.ie)
- On-line Forums/Groups
- Education Centres
- InTouch magazine articles
- From other teachers

In the focus group, the one of the participants said that by reading InTouch it kept her up to date with the latest technological advancements she felt were needed. Two more participants agreed with this whilst the other two didn’t respond either way. Each of the three which used InTouch felt that they didn’t have time to research ICT resources and each concurred that it was up to the Department of Education to provide guidance on which tools should be used in the classroom and training. This led to discussions that teachers should be offered this training during school hours. They deduced that this training should be offered before teachers were obliged to use the technology in their classrooms. One teacher, during the focus group, discussed the fact that it was much easier for larger schools to accommodate training in ICT rather than those teachers in smaller schools. When asked why she thought this, she stated that in larger schools there
is more flexibility with moving classes around – i.e. the learning support teacher could take the class for a window of time in order for the classroom teacher to undertake specific training. She said that in smaller schools, this opportunity did not arise and so teachers often were unable to attend training in education centres etc. as there would be nobody to step into their shoes and take over their class whilst they were attending training.

One of the respondents taking part who refrained from discussions on using InTouch, was asked about what she did to up skill her ICT skills. She explained that with all the paperwork that was needed between planning, recording, reflecting and reporting that she does not have time to ‘play’ with technology. Because of this she feels that she is not confident enough to use it in the classroom. She said that she uses her interactive white board but that’s really all.

It was very apparent during the interviews that one specific teacher had a very keen interest in ICT. This teacher discussed many different methods of self-based training. She discussed having a blog and how she used twitter last year to up skill herself in blogging. From this she said she learned about a very many different types of resources which teachers could use successfully in the classroom. One such resource is the 100-word challenge (http://100wc.net/). She said that this resource proved invaluable to her throughout the school year and even children with poorer literary skills were motivated and engaged in the process. She discussed that she spent her summer last year training herself. She said that she shared this knowledge in her school.

Another teacher, during the interviews, said that the only way that she was able to up skill was from other teachers in her school. She stated that she gained all ICT knowledge from one teacher who was ‘very interested in computers’. She said she hadn’t done any training and she said that she found it easier to learn from someone else on a one-to-one basis.

The questionnaire asked participants ‘does your school share ICT ideas and skills with other teachers in your school? If so, how does this sharing take place?’ The graph below outlines the responses. 46% of respondents said that this is done informally throughout the school day. Only 5% of respondents said that this was done in a formal peer to peer mentoring method.
During the on-line questionnaire participants were asked whether training had been provided in-school within the past 2 years. Only 12% (6 participants) stated that in-school training had been provided whilst 88% (45 participants) stated that no in-school training had been provided in their school. During both the interviews and the focus group this question was also posed. The results were similar. During the focus group, one of the participants stated that all the in-school training that was provided was done by another teacher in the school and the time taken to provide the training was done after school (as part of the school’s ‘Croke Park hours’). She discussed the fact that the training provider had researched how to use Google Apps in her own time and had set this facility up in the school.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Yes</th>
<th>No</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informally during the school day</td>
<td>46</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Informally outside of the school day</td>
<td>26</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>More formally, for example by presenting to other teachers at a staff meeting</td>
<td>21</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Formal peer to peer mentoring (Planned in advance, mentor with specific plans)</td>
<td>5</td>
<td>17</td>
<td>29</td>
</tr>
</tbody>
</table>

Figure 4 – Sharing ICT skills
4.3.3 How much time do teachers spend, both formally and informally, training themselves in technology?

During the questionnaire teachers were asked the following question: ‘In the past two years, how much CPD, related to the use of ICT in teaching and learning, have you undertaken?’ The following chart shows that the majority of people (i.e. 14) have spent no time on ICT training as part of Continuing Professional Development (CPD) in the past two years. Twelve respondents stated that they spent between five and twenty hours on CPD training whilst six spent three hours or less and four spent between three and five hours.

![Figure 5 – CPD training](image)

When asked about how much time each individual teacher spent self-training in ICT per month 7 respondents said ‘No time at all’. The majority of teachers (19) chose ‘Less than 1 hour’. Only two respondents had spent more than 10 hours in the past month in ICT training. Sixteen people had spent between 1 and 5 hours.

During the interviews teachers were asked if they tried to keep up with the latest technological advancements and if so how did they do this. One respondent said that she was unable to find time to do her full-time job along with family commitments. One respondent said that she often put her ICT up-skilling before curricular content. She recognised that this probably wasn’t in the best interest of
her students but felt that she needed to up skill in order to keep the interests of the children. This teacher had over 20 years experience in teaching and felt that if she didn’t up-skill she would be left behind and would lose the respect of her students. When quizzed on how she was up-skilling she said that she was surfing the internet mainly and reading articles on line. On further questioning she said that her main source of information were educational websites and blogs.

Another teacher, during her interview, discussed that she ‘Googled’ what she wanted to know. She said that she didn’t use blogs yet but was hoping to spend the summer learning about them. She stated that a teacher in her school had given a presentation on them and she thought they would be a “great idea for the classroom”. She stated many advantages of blogging and said that she was looking forward to learning more about it and seeing how the children react to it.

During the focus group the respondents agreed that ICT use in the classroom was vital and they each agreed that constant training was needed in order to keep up to date with technology. When asked how they up skill themselves the majority of the participants said that they looked at educational sites such as seomraranga.ie and they read iTouch magazine. They also stated that it was very useful when teachers showed other teachers what they were doing. Most participants said that they weren’t in a position to attend training outside of school hours due to other commitments and one participant pointed out that they were not released by their school for training as replacement teachers were not provided by the Department of Education & Science. Another participant said that she felt that due to the recent financial cutbacks (specifically the removal of supervision payments) that she didn’t feel in any way motivated to give up her spare time to learn something new and felt that this should be done during ‘school-time’.

One respondent gave an example of how one teacher in her school was training other teachers in their school. In this case, the teacher was researching topics such as blogging, Google apps, Dropbox etc., and once she was familiar with the topic gave a presentation to staff during staff meetings. It was noted that the school where this was done was a large school, whereas, one teacher from a small three-teacher school stated that this was impossible in their school as there was so few of them.
Overall, all respondents in the interviews and in the focus group agreed that teachers need to incorporate technology in their teaching. The teachers who did partake in ICT training said that this was done on an informal basis. The main method was that the teacher worked on their own and used the internet to discover new technologies and how to use them. The next most commonly used method was where one teacher (in larger schools) demonstrated technology to other teachers in that same school. The third most commonly used method was the use of CPD courses during the summer.

4.3.4 How do teachers feel about the amount of time they have to devote to up skilling their technological skills?

As part of the on-line survey participants were asked the following question:

*With all the subjects, strands and strand units in the curriculum, do you feel you have enough time to spend on up-skilling in ICT?*

84% of the respondents answered the question with a ‘No’ and 16% answered with a ‘Yes’.

During the interview process this question was also posed. One respondent answered by stating

> How are we supposed to keep up to date with something that changes so often and is so complex along with all the other stuff we have to do. People forget that it’s not just the curriculum that needs to be covered but there’s lots of other stuff like Green Schools, preparation for sacraments, interruptions from other teachers, interruptions from children from other classes and so on. It’s never ending.

(Teacher A, 2013)

Another interviewee discussed the fact that she was teaching four classes each day. (She teaches in a two-teacher school). She spoke about how difficult it was to ensure that each child was appropriately challenged at the four levels. She
mentioned that she had a child in her class with language difficulties along with two children where English was not their first language. She discussed that ensuring that each of these children had specific needs and in order to meet these needs and ensure that the curriculum is being addressed appropriately each week in the classroom that up-skilling in ICT was not a priority for this teacher.

The third teacher interviewed said that ICT was like a hobby to her so she enjoyed learning new ICT skills during her free time.

During the focus group discussions, each participant agreed that it was very difficult to find time to up skill. One participant stated that she held a post of responsibility for a curricular subject and said that she any spare time that she had focusing on this subject. Another participant said that she wasn’t very good with ICT (in her own opinion) and had come to the conclusion that she should focus on the actual curricular areas rather than on ICT.

Another stated that she was a shared resource between two schools and discussed the fact that if certain ICT equipment was in one school, it may not be in another which meant sometimes it often wasn’t feasible to use certain equipment.

One teacher discussed the fact that she was responsible for the music in the school so when there was an occasion such as a communion or confirmation, Christmas etc. she was called on to work with the school choir and musicians. She discussed the fact that she spent a lot of time outside of school putting together song lists etc. for the many school performances so she felt she was ‘doing her bit’ for the school and didn’t feel it was her role to start researching ICT tools for use in the classroom. This was ‘somebody else’s job’.

The fifth teacher discussed her personal schedule. She said she was a mother of three young children. She said her schedule was very busy both inside and outside school. She then spoke about how she started corrections for school and planning for the next day at night when her children were in bed. She stated that there was no time to up skill during her day. She said she felt grieved that people thought that her school day was from 9.10 until 3pm whereas in fact she added another 2 hours each evening on corrections and planning. She said that her school day
didn’t allow for time to do corrections or preparation for the next day (such as photocopying) so this was done in the evening.

As the focus group discussions progressed one member of the group discussed how she sometimes felt overwhelmed during the school term trying to get all the “work done”. She said that she didn’t have time to try new things. However, during the summer months, she spoke about how she has done a CPD course on blogging in the classroom. She said that she hasn’t actually used it yet but she does plan to ‘whenever she gets time’. She said she wasn’t sure when this would be. When asked what could be done to improve this situation for her she said that it would be extremely helpful if someone else in her school ‘knew what to do’ and showed her.

4.4 Conclusion

This chapter presented the detailed findings from the research that was carried out using an on-line questionnaire, a focus group and interviews with practicing Irish primary school teachers. In Chapter Five, these findings will be analysed in light of the literature review outlined in Chapter Two.
Chapter 5 – Discussions of Findings

5.1 Introduction

In Chapter Four the findings of the research was presented. This chapter discusses these research findings in the context of the literature review discussed in Chapter Two. It attempts to answer the research questions posed by the author. This discussion presented by the research questions explores how the author’s study relates to existing knowledge in this area.

5.2 Overview of the Research

This investigation sets out to examine the mindset of Irish Primary school teachers with regard to the use of ICT in the classroom and the influence that curriculum overload may have on its use by teachers. An online questionnaire was posed to a wide audience to acquire their feedback. Along with this, interviews were held to ascertain information and feedback. A focus group was held to provide teachers with the opportunity to voice their opinion on the research questions. Four research questions were presented and questions for the on-line questionnaire, focus group and interviews were deduced from these research questions. Once the information was obtained from the participants, it was recorded, analysed and documented.

Following on from the literature review it was obvious that curriculum overload was a well documented issue in primary schools, not just in Ireland but in many different countries throughout the world.

As outlined in the literature review the importance of ICT in classrooms is clearly documented. In Ireland much research has been carried out into how ICT can benefit both students and teachers in classrooms. Irish teachers are very aware of the benefits of ICT. They concur that its use in Irish classrooms not only benefits the teachers using it but it is most valuable to enhance the learner’s experience. It provides many different methods to address the needs of the many and varying
types of learners as well as providing a method for teachers to differentiate between different learners and allow students to take charge of their own learning.

This chapter sets out to match the research done as part of this study with published documentation of studies carried out.

5.3 Key Findings

The following are the key findings of the research.

- Curriculum overload is a recognised issue not only in the Irish Primary school system but is recognised in many different countries throughout the world.

- All of the teachers who took part in the study recognised curriculum overload as a problem in Irish schools today.

- Many teachers stated that curriculum overload wasn’t the only cause of lack of time in Irish classrooms, but other school-related tasks are currently adding to the overload.

- All of the teachers who took part in the study recognised the importance of using ICT in the classroom.

- Many teachers have not engaged in formal ICT training in the past two years.

- Teachers who have engaged in ICT training have mainly done so on an informal basis outside of school hours.

- Teachers find it difficult to find time to take part in ICT related CPD training. The teachers who do carry out training as part of CPD training carry out this training mainly during the holidays i.e. over the summer months (as a summer courses).

- The majority of teachers who participated in the study believe that training in ICT should be done during school hours.
5.4 Presentation of Findings for Discussion

This chapter outlines the findings of the research in more detail and aims to determine if the findings are consistent with the research carried out as part of Chapter Two – Literature Review. The findings will be analysed under the following research questions:

- What is the teacher’s attitude to the primary school curriculum with regard to the amount of strand and strand units to be covered?

- How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?

- How much time do teachers spend, both formally and informally, training themselves in technology?

- How do teachers feel about the amount of time they have to devote to up skilling their technological skills?
5.5 Discussions of Research Findings

5.5.1 What is the teacher’s attitude to the primary school curriculum with regard to the amount of strand and strand units to be covered?

The National Council for Curriculum and Assessment, the NCCA, in 2010 published a document entitled Curriculum Overload in Primary Schools – An Overview of National and International Experiences. This document points out that with all the curricular content along with other educational activities (such as Green School activities, Active Flag activities, preparation for sacraments, school choir participation etc.) many teachers feel overwhelmed by both the volume of documentation and the perceived pressure of external expectations (NCCA 2010). The evidence from this study concurs with this document. The evidence provided as part of this study confirms that ‘curriculum overload’ is a valid issue in Irish primary schools today. The respondents to the on-line questionnaire were asked ‘how easy do you find it to allocate time each week, to each individual subject in the curriculum?’ The majority of teachers reported this as ‘difficult’ (34%). 3% of respondents reported it as ‘impossible’ whilst nobody reported it as ‘very easy’. 22% of respondents said it was ‘manageable’.

To substantiate this, participants in the on-line survey were asked if they felt that, at the end of the school year, they have provided enough time to each curricular strand and strand unit. 82% of respondents reported an answer of ‘No’ whilst only 18% of respondents answered ‘yes’.

When asked if they felt the primary school curriculum is ‘overloaded’ 90% of respondents reported an answer of ‘yes’.

The responses from the questionnaire were comparable to those who were interviewed and to those who took part in the focus group. During the interviews, each participant agreed that it was difficult to find time for each individual subject in the curriculum. During the focus group, when this question was posed, each participant agreed that it was very difficult to find time to cover all the topics recommended by the curriculum. This led to a long discussion on the many and varied types of activities that needed to be undertaken as part of school life.
When asked if the participants thought that the curriculum was overloaded each respondent answered ‘yes’ in the focus group and each participant in the interviews also answered ‘yes’.

During discussions, the teachers concurred that with the use of techniques such as thematic planning and subject integration that the issue of curriculum overloaded could be reduced slightly or eased a little but could not be removed.

5.5.2 How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?

The study carried out by the researcher concluded that only 12% of participants in the on-line survey had been given the opportunity to take part in in-school training. During the focus group and the interviews the results were similar. The document published by the Department of Education entitled ‘ICT in Schools – Inspectorate Evaluation Studies’ (2008) had comparable results. According to the results of their study 17% of participants in primary schools had in-school training. On continuing research the NCTE (National Centre for Technology in Education) reported in 2008 that 5927 primary school teachers took part in training in an Education Centre, 272 took part in a course run by the NCTE on-line, 332 took part in the INTO (Irish National Teachers Organisation) summer programme. In total 6729 primary school teachers took part in the NCTE’s CPD initiative (NCTE 2008).

According to the research carried out as part of this study, the main methods of training done by teachers was done by CPD training, by individual research using on-line websites and on-line magazines including inTouch from the INTO and web forums and web groups. Training was also done by taking advantage of courses provided by Education centres whilst many teachers reported that they learned much of their skills from other teachers (NCTE 2008).

Jamieson-Proctor et al (2006) discussed the fact that rapid technological change and communication globally are a major factor in 21st century life. During both the focus groups and the interviews participants discussed the fact that they need
to remain constantly aware of the latest technological advancements. They stated that this can prove very difficult not just due to the amount of work that needs to be covered as part of the curriculum but also due to the amount of work that needs to be carried out for other projects (such as Green Schools, Active Flag activities, school choirs, participation in sports events, preparation for sacraments etc.) They spoke about how, with the use of thematic planning, that it can ease the solution but doesn’t solve it. They spoke about how they use the activities from these projects as their curricular content e.g. Active Flag – links to physical education subject and Green schools – links to SPHE and SESE (science and geography). They discussed how they try to include as many subjects as possible to ensure that each one is being covered. One teacher discussed that when they make a poster for Green schools that this is their art for the week. She spoke about when they write a slogan for Green schools then this is counted as literacy etc. She said that unless she did this that there would be no way she could get everything covered as advocated by the curriculum.

5.5.2.1 Motivation

As the research was being carried out it was noted that there was varying amounts of teacher motivation towards the use of ICT in the classroom. During the focus group and the interview process the researcher noted that many teachers were highly motivated towards using technology in the classroom whilst others, agreed that it was necessary to incorporate ICT into their teaching, but did not make it a priority in their classrooms. The research conducted established that all teachers who took part in the study agreed that ICT was ‘the way forward’ in Irish classrooms. 94% of teachers said that they used a laptop/desktop in the classroom. During both the interview process and the focus group process, all teachers agreed that ICT needed to be incorporated in their teaching.

Kosakowski (1998) discussed that if technology was to succeed it should be based on what learners need to achieve and should motivate them to attain a desired behaviour. When it comes to teacher motivation, Alam & Farid (2011) stated that motivation of teachers is very important as it directly affects the students they
During the focus group discussions and interviews teachers were asked about what motivates them to use ICT in their classrooms. During the focus group one teacher responded by saying that by using ICT, the children were more interested in the lesson. She discussed that she often set children a task and allowed them to carry out research on a topic using a laptop and the internet. One example she provided was when researching a topic such as a specific country she would divide up the class into groups. She would ask one group to research its mountains and rivers, another to research its capital city and major attractions, another group to research the animals of the country etc. Each group would then present their findings to the class using the interactive white board. She discussed that not only did this motivate the students as they felt they were in charge of their learning (Cohen et al, 2004) but it also motivated her as she felt her students were learning how to learn as opposed to her “preaching” and them “listening or rather pretending to listen”.

5.5.2.2 Negative Impact of Technology

It is interesting to note what motivates people to use technology. However, during the focus group discussions some teachers expressed concern about the use of technology. One teacher stated that she feared that children were becoming too dependent on using technology and the older skills such as handwriting and spellings were beginning to decline. Another teacher added to this and stated that whilst she recognised this as a problem she also stated that she was worried about technology breaking down. She spoke about an experience she had where an inspector had come in to carry out a Department of Education and Skills incidental visit and her laptop wouldn’t boot. This meant that she didn’t have a white board, sound etc. She said it caused her much anxiety and she ‘lost faith’ in technology after that. Another teacher added that she was concerned that many children are given ‘free reign’ on computers at home. She recognised that there are many guidelines and filters for the use of technology in school but at home children are allowed on “any sites they want”. She expressed her concern about cyber bulling and the recent stories in the media with regards to suicide as a result of cyber bulling. The concerns expressed by this teacher can be clearing validated. Livingstone et al. (2001) reported that one if five or six teenagers are affected by cyber bullying. Studies in the UK have reported that between 8 and 34% of young people have been cyber bullied (Cross et al., 2009; Livingstone et al., Smith et al., 2008).
5.5.3 How much time do teachers spend, both formally and informally, training themselves in technology?

As discussed the Department of Education’s document entitled ‘ICT in Schools – Inspectorate Evaluation Studies’ (2008) discussed how much time teachers were spending on in-school training as well as external training. During the on-line questionnaire teachers were asked how much time they were spending both formally and informally training themselves in technology. The following was the question they were asked:

In the past two years, how much CPD, related to the use of ICT in teaching and learning, have you undertaken?

The results from the questionnaire concluded that the majority of people (14 people, 29%) had spent no time on ICT training as part of Continuing Professional Development (CPD) in the past two years. During the focus group discussions and during the interviews the results were similar. About 1/3 of the participants stated that they had spent no time at all on ICT training.

On further analysis, during the questionnaire participants were asked how much time they had spent on self-training in ICT in the past month. 38% (19) participants stated that they spent less than an hour a month on self-training. 32% (16) participants spent between 1 and 5 hours. 14% (7) participants said they spent no time at all whilst only 2% (2) participants recorded their results as spending between 10 and 20 hours. 12% had said they spent between 5 and 10 hours (6 participants) and only 2% (1 participant) stated that they had spent over 20 hours in the past month self-training in ICT.
During the interviews one teacher reported that she had spent a lot of time up-skilling in ICT. This teacher had a very keen interest in using blogging, twitter and many other technological resources in the classroom. She reported that she spent over 20 hours (and stated that this was a conservative amount) in the past month. She also discussed that she was involved in setting up a new Coder-Dojo in her local area. Whilst this is not directly part of her role as a teacher, she felt that by encouraging children to get involved in coding that it would improve numeracy skills. She also stated that she was hoping to be a mentor as part of this project and many of the children attending the Coder-Dojo would in fact be children in the school she was teaching in.

During the focus groups discussions many of the teachers in the focus group said that they didn’t spend much time at all in the past month up-skilling in ICT. One teacher reported that she tried to do any self-training outside of school term time (i.e. mid-term breaks, holidays, summer holidays etc.). She pointed out that she felt that she was just too busy during term time with planning, corrections, recording, assessments etc. to find time to up-skill. Two of the other teachers in the group concurred with her opinion.
5.5.4 How do teachers feel about the amount of time they have to devote to up-skilling their technological skills?

Teachers were asked during the interview process how they felt about the amount of time they have to devote to up-skilling their technological skills. Throughout all the interviews, the responses were similar. Each teacher reported that they found it very difficult to find the time to upskill. One teacher, however, did say that whilst she found it difficult she put up-skilling in ICT before other topics which were vying for her attention and so she stated that she ‘makes time for technology’. She continued by saying that she felt ICT was the ‘way of the future’ and so she felt that other things needed to ‘take a backseat’ in order to ensure that ICT is at the fore of her teaching skills. She went on to say that children today expect to be using technology. They want to use and so she needed to stay up to date.

During the focus group each teacher purported that it was very difficult to find time to up skill in ICT. Each one reported that curricular planning needed to take precedence before training of any sort. Each one concurred that ICT training was vital and each teacher stated that they were planning on taking part in training of some sort over the academic year, however, other issues often come into play which impede on teacher’s time.

As the research was being carried out it was very relevant to ask of the participants what they thought were the challenges and or obstacles that they face in their school when it comes to ICT training. During the interview process each of the teachers responded with time being their biggest obstacle. One teacher discussed that it was very difficult for her to spend extra time out of school hours due to family commitments. She discussed that training should be done during school time and that the correct supports should be made available to teachers to allow teachers to do this.

During the focus group the results were the same. Each participant in the group stated time as the main obstacle when it comes to up-skilling in ICT.

As part of the questionnaire the participants were provided with a list of suggestions as to the obstacles and/or challenges they face in their school. They
had the opportunity to choose from ‘Strongly disagree’, ‘Disagree’, ‘Agree’ and ‘Strongly Agree’. 29 people chose the ‘Agree’ option and 10 chose the ‘Strongly Agree’ option for the answer ‘Pressure to cover the prescribed curriculum’ - which was the majority of people. The solution which was chosen with the highest ‘Agree’ and ‘Strongly Agree’ options was the ‘Insufficient time for planning and preparation’ which had 22 people select the ‘Agree’ option and 11 selected the ‘Strongly Agree’ option. Access to ICT equipment didn’t prove to be an issue during the on-line questionnaire. 33 people disagreed (‘Disagree’) with the issue being ‘Insufficient access to ICT for teachers’. 32 people disagreed with the issue being their ‘own lack of knowledge on how to best use ICT’ and 6 people strongly disagreeing. The table below provides the options posed to the participants along with the answers they selected.

Please choose the most appropriate answer to each of the following question regarding the obstacles and/or challenges you may face in your school.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My own low level on ICT skills</td>
<td>10</td>
<td>34</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>My own low level of confidence using ICT</td>
<td>11</td>
<td>28</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>My own low level of knowledge of how to best use ICT for teaching and learning</td>
<td>6</td>
<td>32</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Insufficient CPD ICT-related opportunities</td>
<td>5</td>
<td>20</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Insufficient access to suitable ICT-related training</td>
<td>3</td>
<td>21</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Insufficient access to ICT for teachers</td>
<td>2</td>
<td>33</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Insufficient access to ICT for students</td>
<td>1</td>
<td>19</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>Insufficient quality of broadband in school</td>
<td>2</td>
<td>26</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Insufficient level of technical support in school</td>
<td>3</td>
<td>20</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Insufficient time for planning and preparation to use ICT in the classroom</td>
<td>0</td>
<td>16</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>Blocked access to websites (e.g. YouTube) in the classroom</td>
<td>5</td>
<td>22</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Lack of ICT equipment at home</td>
<td>9</td>
<td>32</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Lack of broadband at home</td>
<td>12</td>
<td>29</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Pressure to cover the prescribed curriculum</td>
<td>2</td>
<td>9</td>
<td>29</td>
<td>10</td>
</tr>
</tbody>
</table>

Figure 7 – Obstacles/Challenges facing teachers in schools with regards to ICT
5.6 Implications of Findings

The questions posed as part of this research was to ascertain what the opinions of Irish primary school teachers are when it comes to curriculum overload and considering this overload how teachers are up-skilling in ICT. From the research carried out it was obvious that Irish primary teachers are very aware of the curriculum overload problem with many teachers saying that they experience this overload themselves. All teachers who took part in the research agreed that this was a substantial problem in Irish classrooms. From the literature that was reviewed, however, it can be noted that this problem isn’t solely confined to Ireland but is an issue in many different countries. Many of these countries have published documents outlining the issue and have also made recommendations on how to alleviate the situation. The Department of Education and Science in Ireland are aware of the issue also. They too have published a document outlining what they perceive to be the issue of curriculum overload. They do not, however, provide guidelines on how to alleviate the issue.

All the teachers who took part in the research agreed that it was imperative that ICT be incorporated into their classrooms. As with the issue of curriculum overload, this opinion is not just the opinion of Irish teachers but can be substantiated in many different countries. Most of the teachers in the study agreed that they needed to spend more time up-skilling in ICT to ensure they are able to implement the curriculum appropriately in today’s society. The teachers who took part in this research all concurred that in order to ensure that ICT was used in the future, the teacher’s time needed to be freed up for training purposes. Many teachers agreed that the Department of Education and Science need to provide replacement teachers in order to facilitate the training of in-situ educators in Irish classrooms.
5.7 Conclusion

This chapter has discussed the findings of this study in light of the literature review in Chapter Two. Chapter Six is the concluding chapter in this thesis and summarises the outcomes of this investigation by making recommendations for further research.
Chapter 6 – Conclusion

6.1 Introduction

This study concluded from its findings that teachers regarded ICT as a valuable resource within the learning environment. They believe that it is something that should be incorporated into their teaching. The Department of Education and Skills’ commitment to the use of ICT can be clearly seen by its provision of €252 million to Irish primary and post primary schools in 2007. ICT is a pivotal component in education today.

When it came to curriculum overload all of the teachers who took part in this research believed that curriculum overload was indeed a valid and relevant issue in Irish Primary schools today. Combining the issue of curriculum overload with the need for teachers to up-skill and continue to up-skill is a valid problem.

The constructivist approach when it comes to the use of ICT facilitates a child-centred approach to learning and consolidated the theory that children learn more from what they do rather than from what a teacher tells them.
6.2 Outcome of the Investigation

The objectives and findings of this investigation are contained in the sections below.

6.2.1 What is the teacher’s attitude to the primary school curriculum with regard to the amount of strand and strand units to be covered?

Irish Primary school teachers are feeling overwhelmed with regard to the amount of strand and strand units to be covered. Teachers are using techniques such as thematic planning and integration to ensure topics are being taught. The Department of Education and Skills recognise that this is an issue in Irish primary schools and have published a document outlining the problem entitled ‘Curriculum Overload in Primary Schools’ (2010). This document outlines some of the ways other countries are addressing the issue. It does not, however, provide recommendations for the Irish curriculum. It states that the review of the structure of the curriculum and its content could encounter adverse reaction from those keen to defend the curricular subjects and disciplines.
6.2.2. How do teachers stay up to date with the latest technological advancements in their classrooms and what motivates them to do so?

Irish teachers recognise the importance of staying current when it comes to ICT in the classroom. Some teachers are highly motivated to ensure that they are keeping abreast with as much of the technological changes as possible. A small minority of teachers have the opportunity to engage in in-school training. However, the majority of teachers up-skill informally and this is done mainly outside of the school day. The main reason for the lack of ICT training is due to the lack of free time. Teachers simply don’t have enough time to engage in ICT training. Some teachers also expressed concern when it came to stability of equipment and lack of support for the equipment they do have. They stated that they often end up spending a lot of time trying to solve IT problems. Another major concern they had was the issue of cyber bullying. Teachers discussed that this is an issue that has come to the fore in recent times and educators believe that this issue needs to be addressed.

6.2.3 How much time do teachers spend, both formally and informally, training themselves in technology?

Most of the training in ICT done in the Irish primary school system is done on an informal basis and outside of school hours. Whilst some teachers participate in (formal) summer courses (usually of 20 hours in length) many teachers up-skill by learning from other teachers (informally). This type of learning generally takes place in larger schools. However, it was noted that in smaller schools ICT training is generally when one teacher learns a new skill and shows this skill to another teacher outside of school hours and informally. The actual amount of time teachers are spending training themselves in ICT varies significantly from teacher to teacher.
6.2.4 How do teachers feel about the amount of time they have to 
devote to up skilling their technological skills?

Irish primary school teachers are finding it more and more difficult to find the 
time to devote to up skilling especially when it comes to technology. Not only are 
they finding it difficult to cope with the curricular content but they find it difficult 
to ensure that all other activities are carried out such as Green Schools, Active 
Flag, school concerts and performances, school choirs, preparation for sacraments 
etc.

6.3 Recommendations

To promote the further use of ICT in Irish Primary Schools;

- All primary school teachers should be educated on the necessity for ICT 
  proficiency in today’s world. This knowledge and understanding can be 
  achieved by providing funding to schools and to teachers for equipment 
  and support of the equipment as well as ICT training.

- A review of the Irish Primary school curriculum should be undertaken. 
  One suggestion of the review could be the production of a document 
  outlining an order of importance of strand and strand units. It would be 
  obligatory for teachers to cover certain strands/strand units and would 
  allow them to choose certain other ones. This would allow them to 
  exclude certain topics as needed. This would reduce the amount of 
  curriculum overload experienced by teachers.
6.4 Opportunities for Further Research

Having carried out the research it is evident that there is potential for much more research to be carried out. This research could be expanded to secondary school teachers. It also could be expanded to include some of the following:

1. Teacher’s time – All the teachers in the study agreed that they are under significant time pressure in order to meet the curricular needs of the students. Further analysis of their time could be done to see how exactly they are spending their time (interruptions, roll calls, corrections, time spent teaching and how they are spending this teaching time i.e. are they using curricular integration/thematic planning etc.).

2. Teacher’s use of technology – a continuing more in-depth study could be carried out to find out exactly what technological components are being used in Irish classrooms (for example, which websites are being used, for what subjects is technology being used, is it used for planning e.g. perhaps the NCCA curriculum planning tool – which is available on the NCCA website - is being used etc.)

3. Student’s use of technology – currently in Irish Primary schools technology is not a subject in the curriculum. (It is referred to within other subjects such as SPHE – safety online etc). It would be interesting to elicit both the opinions of students and teachers whether they believe technology should be a subject in the Irish primary school curriculum and if so what topics should be covered as part of this subject.

4. Coping strategies – more research could be done on how teachers are actually coping with the current workload. Mental Health Ireland state that mental health problems are increasing and it is now more important than ever for people to be introduced to the concept of a positive mental health. With this in mind, the strategies that teachers are using today to ensure their positive mental wellbeing could be researched.
6.5 Conclusion

Our society consists of both digital natives and digital immigrants. Whichever category the educator and learner fall into the necessity for ICT use in the Irish Primary school classroom is essential. This study found that the importance of ICT use is evident and teachers are being encouraged to use it as much as possible. The Department of Education and Skills provided funding but this funding is no longer available and the technology exists in schools will become obsolete very quickly. More funding is needed to be made available in order to ensure the participation of teachers in up-skilling. The Department of Education must realise and accept that education without adequate ICT provision will fail the needs of the learner and they must take an active role in ensuring that children in today’s society are being provided with a holistic approach to education. Teachers need to be encouraged to undertake training in ICT. This can be done by not only providing finance for training but also cover for teachers whilst they are attending training. Support for ICT needs to be provided. Schools are trying to finance the support of IT equipment. What tends to happen in many schools is that the teachers, themselves, are trying to sort out any issues themselves to reduce the cost to the school.
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