An Investigation Into the Use of I.C.T. In Teaching and Learning In Special Schools in Munster.

Cathy Cooper.

M.A. in Digital Media Development for Education

University of Limerick

Supervisor: Catriona Lane.

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Declaration:

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

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Cathy Cooper.

Student ID 0381764
Abstract.

We live in an ever increasingly technologically dependent world. It is essential therefore that our young people are educated to appreciate the uses and the potential of I.C.T. in enhancing all our lives.

This investigation looks at the use of I.C.T. in special schools in Munster, examining teacher’s attitudes towards I.C.T. and how they already implement I.C.T. in their classrooms today. It also sets out to find what, if any, barriers are now in place which prevent or hinder that use.

Thirty-three special schools were identified in Munster and all teachers in these schools were sent a postal questionnaire. Two teachers were observed using I.C.T. in their classes and two interviews were conducted with teachers in special schools. The resulting data were then gathered together and examined.

The investigation identified a number of barriers to the successful implementation of I.C.T. in teaching and learning which exist in our special schools, namely: inadequate teacher training in the area of I.C.T.; inadequate resources appropriate to learners with S.E.N.; access to professional support in the area of assistive technology; access to professional support in the form of National I.T. & Special Needs Advisory Service and the Regional I.C.T. Advisory Service; inadequate technical support; inadequate funding for special schools.

This study suggest that special schools should be looked at in a different light to mainstream schools when it comes to resourcing as the needs of a special school are more diverse and specialised, therefore needing a more individualised approach to resourcing. It would also suggest that special schools should be afforded specialised training within their own schools so the best possible outcome can be achieved for learners with S.E.N.
I would like to thank my supervisor, Catriona Lane for her exceptional help, advice and encouragement. She was always on hand to offer guidance and support.

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List of Abbreviations.

A..T. Assistive Technologist.
A.A.C. Augmentative and Alternative Communication.
B.E.C.T.A., British Educational Communications and Technology Agency
C.P.D. Continuing Professional Development.
D.E.S. Department of Education and Skills.
I.C.T. Information Communication Technology.
I.E.P. Individual Educational Plan.
I.N.T.O. Irish National Teachers Organisation.
I.Q. Intelligence Quotient.
Mild G.L.D. Mild General Learning Disability.
Mod G.L.D. Moderate General Learning Disability.
N.C.C.A. National Council for Curriculum and Assessment.
N.C.S.E. National Council for Special Education.
N.C.T.E. National Centre for Technology in Education.
N.D.A. National Disability Authority.
N.E.P.S. National Educational Psychological Service.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>O.T.</td>
<td>Occupational Therapist.</td>
</tr>
<tr>
<td>S.E.N.</td>
<td>Special Educational Needs.</td>
</tr>
<tr>
<td>S.E.N.O.</td>
<td>Special Educational Needs Organisers.</td>
</tr>
<tr>
<td>S.N.A.</td>
<td>Special Needs Assistant.</td>
</tr>
<tr>
<td>Severe/Profound G.L.D.</td>
<td>Severe and Profound General Learning Disability.</td>
</tr>
<tr>
<td>T.U.I.</td>
<td>Teachers Union of Ireland.</td>
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Chapter 1. Introduction.

1.1 Introduction and Background.

We live in a technologically advanced age, where the use of Information Communication Technology (I.C.T.) is becoming essential to everyday living. Therefore, we need to ensure that all our young people, including those with Special Educational Needs (S.E.N.) are well equipped to live in this world and become active participating citizens of our society. This means that our teachers must therefore be comfortable with and competent in delivering a curriculum through the medium of I.C.T. and be facilitated to deliver such a curriculum.

1.1.1. I.C.T. in Education.

The revised Irish Primary School Curriculum (1999) acknowledges the role of I.C.T. in the modern world. However, the emphasis is not on acquiring computer skills but rather on the integration of I.C.T. as a tool for learning across all subject areas.

Funding has been an essential component to I.C.T. development in Irish schools. Since 1997 when the ‘I.C.T. In Schools Programme’ began, other programmes and reports such as the ‘Blueprint for the Future of I.C.T. in Education’ and ‘Smart Schools = Smart Economy’ grant aided schools in order that their resources in terms of I.C.T. was updated. Advisory support was also set up and teachers encouraged to up-skill in the area of I.C.T.
1.1.2. I.C.T. and S.E.N.

Learners with S.E.N. are part of our society and therefore should be enabled to become active participating citizens of our society as their peers without S.E.N. This cohort of learners may need extra supports in order to access the curriculum appropriately. Teaching and learning through the medium of I.C.T. may help level the playing field for learners with S.E.N., boost their self-esteem and motivate them to continue learning.

1.2. Rationale for the Research.

1.2.1. Research Question.

The purpose of this investigation was to ascertain how teachers in special schools use I.C.T. in their teaching and learning and what, if any, barriers to that implementation exist. The research looked at the following areas:

- **Training for teachers** – has teacher training adequately provided for the implementation of I.C.T. into teaching and learning?

- **Adequate resources** - Is funding sufficient to provide the necessary I.C.T. equipment for teaching and learning for learners with S.E.N.?

- **Support** – how do teachers access assistive technology professional support?

- **Technical Support** – is the technical support available on-site or off-site? Is it adequate to provide day-to-day solutions to teachers in order to provide successful outcomes to both teachers and learners?

- **Barriers to the Effective Use of I.C.T.** - what, if any, barriers exist in the implementation of the teaching and learning with I.C.T. in special schools in Munster?
1.2.2. Research Context.

This investigation focused solely on special schools situated within the Munster area. It set out to examine whether teachers in these special schools were equipped to integrate I.C.T. in their teaching and learning and the reasons why they may not be so equipped.

1.3. Research Methodology.

This investigation took a mixed methods approach to data gathering. Both qualitative and quantitative data tools were used, these being:

- Postal questionnaire,
- Interviews,
- Observations.

The postal questionnaires provided an abundance of quantitative data although the response rate was somewhat disappointing at just over a third of respondents replying. The interviews were collected from helpful teachers who wanted to give their opinions on the current situation in special schools with regard to I.C.T. and the observations were an interesting experience to detail what actually goes on in the classroom.

1.4. Thesis Structure

Chapter 1 gives the introduction to the thesis. It presents the background information and provides the rationale behind the research.

Chapter 2 reviews the literature accessible both nationally and internationally in relation to S.E.N. and I.C.T. and teacher’s use of the same. It outlines the research available in six main sections. Section 1 introduces the chapter. Section 2 explores the
learning theories behind how people learn and how they relate to I.C.T. Section 3 is devoted to I.C.T. in the Irish curriculum and in relation to S.E.N. Section 4 examines the provision for learners with S.E.N. in the Irish education system, both historically and in the present climate. Section 5 is devoted to S.E.N. and I.C.T. and looks at areas such as enabling technology, motivation and self-esteem and also the area of Universal Design. Section 6 outlines the barriers to the use of I.C.T. in teaching and learning, discussing among other things, teacher training, funding, computer maintenance, advisory support etc.

Chapter 3 sets out to describe the methodology chosen to conduct this investigation which reached all special schools in Munster. It focused on the teacher’s use of I.C.T. in their teaching and learning rather than on the learner’s use. To this end, a postal questionnaire was sent out to all teachers in these schools and two observations in class were conducted. Two interviews were also carried out face to face with class teachers eliciting their views on the topic.

Chapter 4 details the findings from the data collection. This is structured under a number of headings, gathering all relevant data together in a thematic format. Chapter 5 then discusses these finding in greater depth under the same themes. It analyses the findings from chapter 4 and extracts relevant issues to address the research questions.

Chapter 6 then concludes the study with a synopsis of the findings and some further considerations of the topic.
Chapter 2. Literature Review.

2.1. Introduction.

This chapter looks at the theories behind how people learn, the behaviourist, cognitivist and the constructivist approaches to teaching, including multiple intelligences. It also looks at the way these may be used in teaching learners with Special Educational Needs. (S.E.N.) The reader will find how S.E.N. education has been developed in Ireland and how this cohort of learners is supported in their education. ICT is discussed in relation to its development in Irish schools and ICT for learners with S.E.N is also examined. The barriers to the implementation of the teaching and learning with ICT is also explored.

2.2. How People Learn.

2.2.1. Learning Theories.

A Learning Theory is a researched or observable phenomenon about how people learn. There are many theories about how people learn, the main theories being: Behaviourism, Cognitivism and Constructivism. More recently, Gardner has described the Multiple Intelligences theory to explain how people learn.

2.2.2. Behaviourism.

This approach is devoted to examining the observable behaviour of men and animals, that is, their overt activities or the outcomes of our behaviour. (Rachlin 1970) J.B. Watson was the originator of this learning theory and because he focused on observable behaviour, he called himself a “behaviourist”. Learning is brought about in response to a stimulus and the learned behaviour is reinforced until it becomes
automatic. If a thing is repeated often enough, it becomes part of the person’s behaviour. There are no outward signs that any processing is taking place, rather the emphasis on this type of learning is on the outcomes. “All behaviour can be explained without the need to consider internal mental states or consciousness”. (Learning Theories Knowledgebase 2009)

Many experiments have been done with animals to demonstrate the effects of learned behaviour or conditioning, e.g. Pavlov’s experiments with dogs who responded appropriately - salivated, to the stimulus of a bell, Thorndike observed how cats learned to escape from puzzle boxes showing that they repeated the behaviour when the result was positive and when the result was negative, gradually the behaviour weakened. Skinner also experimented with rats in which he observed a similar stimulus/response result. (Skinner 1978)

2.2.3. Cognitivism.

Cognitivists believe that people learn by adding new facts/experiences to their already stored knowledge. They continue to build up new ideas and meaning to add to something they already know and so learn. Collaborative learning and active participation plays an important part of the learning process. New information is added and processed along with existing knowledge and even though we cannot see what the learner is doing, we can observe the behaviour. Cognitivism is more involved in the internal processes of learning but like behaviourism before it, it relies on outcomes or test results to quantify how people learn. (Sternberg 2009)
The teacher’s role is seen as being one of facilitator, providing a scaffolded approach to learning and he/she will ensure that the information is consolidated before moving on to further explore that topic. (Abbott 2005) Problem Based Learning is seen as a cognitivist approach to teaching. The children work in groups and actively solve a specific problem which is set by the teacher, who guides the children towards a solution (Learning Theories Knowledgebase 2009)

2.2.4. Constructivism.

Jean Piaget is usually associated with this learning theory which he based on the idea of schema or “networked concepts for understanding and responding to physical experiences within his or her environment.” (Funderstanding 2008 [online]) Constructivists believe that learners form their own knowledge based on what they perceive of the world through their own experiences. In this learning theory, learners are said to construct their own learning, being actively involved in the learning process. This theory is usually involved with hands-on problem solving, encouraging the learner to make connections between prior knowledge and new learning. Learners participate in a learning activity working with others in a group or on their own, resulting in learning. (Woolfolk 2004)

Vygotsky theorised that the social environment which included people as well as tools and cultural objects assisted in the development of a learners abilities. He described the zone of proximal development as the way in which adults or more competent peers can scaffold the learner, gradually withdrawing support as the learner becomes more competent and confident in their knowledge acquisition. (Bransford 2004)
2.2.5. Multiple Intelligences Theory.

More recently, Gardner has developed a theory which he calls the Multiple Intelligence Theory. He asserts that there are several types of intelligences and that we all possess these but in different ratios. We are more likely to learn and retain knowledge if the learning is situated in such a way as to appeal to our different intelligences. Some or one of our intelligences are more developed than others and our natural way of learning is to that intelligence(s). Gardner originally proposed seven intelligences: (Campbell 1996)

- Verbal -Linguistic. This learner would naturally lean towards the ability to use and understand language.
- Logical-Mathematical. This learner has the capacity to understand and recognise numbers and abstract patterns, using logic and deductive thinking and reasoning.
- Body-Kinesthetic. This learner may be very active and needs to move in order to learn. He/she has the ability to control physical motion.
- Visual-Spatial. This learner has the ability to create internal images and pictures by visualizing objects and ideas.
- Musical-Rhythmic. This learner uses rhythm and music to learn.
- Interpersonal. This learner engages in person to person communication, can empathise with others in different situations and often helps out others.
- Intrapersonal. This learner has the ability to understand self-reflection and inner being. (Learning Theories Knowledgebase 2009)

Gardner has revised this list and included another two intelligences, Naturalist intelligence (common sense) and Existential intelligence, (deep thinking). (Concept to Classroom 2004) Historically, education in our schools has been
leaning more towards the Verbal-Linguistic intelligence and the Logical-Mathematical intelligence, as evidenced by the numerous text-books that our school children have to carry to school each day.

2.2.6. Learning Theories and S.E.N

For learners with S.E.N., learning often takes place at a different pace to that of their peers without S.E.N. Piaget described various stages that learners go through as Maturational Stages of Development which show ‘that cognitive growth occurs in a series of invariant and interdependent stages.’ (Lerner 2003, p.187) These are:

- Sensorimotor Stage: Birth to age 2. The child learns through their senses about their environment and their actions upon it.
- Pre-operational Stage: Ages 2-7. The child starts to learn language and they begin to understand something of the world around them.
- Concrete Operations Stage: Ages 7-11. The young learner becomes more logical in their thinking and also more outgoing. They can organise their thoughts and may not need the concrete materials they relied upon previously, although they may still link back to their previous manipulation experiences.
- Formal Operations stage: Age 11. It is from this age on that the learner will use abstractions, theories and relationships without having to refer to the concrete.

A learner who has S.E.N. will most likely not operate at the Maturation Stage at the same chronological age as a learner without S.E.N. and will need more time to reach and function at these stages. (Lerner 2003)
While many teaching methodologies have moved away from the behaviourist approach, there are reasons why it is an important part of S.E.N. teaching, for example, in researching methods for teaching pupils with S.E.N. how to read, Allor et al (2010) discovered that intense practise and direct teaching methods worked best for this cohort of learners. Many learners with S.E.N. need to be explicitly taught Independent Living Skills or Life skills. Life Skills are ‘those skills which enable a person to function as happily and independently as possible in his or her own environment.’ (Macnamara 1995, p1) These Life skills are possibly the most important area of the curriculum for young people with disabilities in order to help prepare them to live on their own or indeed with the support of a personal assistant.

Along with a Behaviorist approach, other learning theories can also be utilised. The teacher will know which learning style or intelligence to appeal to when teaching a new skill for the individual learner. He/she will also understand the need for scaffolding and will know implicitly when to gradually withdraw that support, allowing the learner to construct their own knowledge. (Lerner 2003)

Learners with S.E.N can also learn with a different approach, namely a constructivist one. It has been found that by using I.C.T. in a constructivist manner, learners are enabled to work together which has thrown up many benefits, including a social benefit. (Ryba, Selby and Nolan 1995)
2.2.8. Computer Based Learning Theories.

2.2.8.1. Behaviourist Computer Based Learning.

In the beginnings of computer based learning tools, most or all programmes were based on the behaviourist model. These were simply drill and practise programmes, used to reinforce learning. This may not be such a bad thing as we still need to have some facts at our finger tips. (Mayer 2002) Many of these were spellings or maths tables where the learner typed in answers and the programmes either rewarded them with a simple phrase or graphic or instructed them to try again, thus reinforcing the knowledge. (Jonassen 2000) However, Selinger would suggest that the behaviourist model is ‘untenable in the information age’ as the availability of knowledge is so vast that no one teacher could possibly impart. (Selinger 2001, p.88) She asserts that the teacher’s task is therefore to scaffold and guide learners towards credible knowledge acquisition.

2.2.8.2. Cognitive Load Theory.

Mayer asserts that people process information in a certain way. He explores three assumptions underlying a cognitive theory of multimedia learning, namely dual channel processing, limited capacity and active processing, all principles which should be present when designers produce multimedia presentations. He explains that people take in information through dual channels e.g. auditory and visual channels and that our working memory is limited. It is by processing the information being held in our working memory, organising it and integrating it with previous knowledge that we acquire new knowledge. (Mayer 2005) I.C.T. multimedia programmes can facilitate learning as they engage the learner’s auditory and visual channels simultaneously.
2.2.8.3. Constructivist Computer Based Learning

As time and computers advanced, programmes became less didactic and more exploratory with more constructivist approaches being taken. Constructivist programmes encourage interaction and exploration of the material, thus leading the learner to deeper understanding. Many of these programmes also encourage Vgotsky’s social model of constructivism. (Jonassen 2000) Alessi and Trollop (2001) would also say that the constructivist influence on multimedia interactive design has a benefit in that the learner explores information more freely using open-ended learning environments, hypermedia, simulation etc. and computer based learning tools such as multi-media word processing software packages, thus constructing their own knowledge.

2.3. I.C.T.

2.3.1. What is I.C.T.?

I.C.T. is the means by which we store, retrieve, manipulate and send or receive information in digital form. The term I.C.T. covers technologies such as computers, the internet, broadcasting media and telephones. The importance of I.C.T. in the modern world is more to do with how we communicate and how we access information than with the actual technology. (TechTerms.com 2011)

2.3.2. Learning Theories and I.C.T

Multimedia learning is now the dominant form of learning on the internet. Mayer defines multimedia learning as ‘both words (such as spoken text or printed text) and pictures (such as illustrations, photos, animation or video).’ (Mayer 2005, p.2) Knowledge that was once the domain of educational institutions where it was shaped
and then given to the learner (Behaviourism) has now become accessible at the touch of a button. However, this knowledge is not always accurate, desirable or indeed helpful in creating the learners new knowledge as often ‘the overlaps between knowledge and information, evidence and hearsay, are blurring.’ (Somekh 2007, p.30).

2.3.3. I.C.T. in the Irish Curriculum.

The Irish Primary School Curriculum acknowledges the increasingly important role that I.C.T. plays in the modern world and have included I.C.T. as a major tool to augment and extend each child’s learning.

“The curriculum integrates information and communication technologies into the teaching and learning process and provides children with opportunities to use modern technology to enhance their learning in all subjects”

(N.C.C.A. 1999, p.29)

It is interesting to note that I.C.T. is not seen as a discrete subject concerned with the acquisition of computer skills but rather as a tool to learning.

I.C.T. In Schools Programme was launched in 1997 with three core objectives, to develop a technology infrastructure, develop a skills infrastructure and develop a support infrastructure. It achieved this by providing grants to purchase multimedia computers and internet access to schools. It set out to up-skill teachers in the use of these and it also provided advisory and support services to schools in the form of the National Centre for Technology in Education (N.C.T.E.)
The Blueprint for the Future of I.C.T. in Education Programme (2001) provided capital funding to Primary and Post-Primary schools to develop schools I.C.T. infrastructure and access to Internet/broadband where applicable. Continuing Professional Development (C.P.D.) was also provided for under this programme as was the lowering of pupil/computer ratio. Grants were made available for current costs for the duration of this programme 2001 – 2003 for the updating of software, hardware and networking. Along with these grants, extra grant-aid was given for pupils with S.E.N., both in primary schools, special classes and special schools, with the N.C.T.E. providing support and guidance to teachers of this cohort of pupils.

Special schools also benefitted from the recent grants (2009 and 2010) which arose out of the ‘Smart Schools = Smart Economy’ report 2009, towards providing a teaching computer and fixed projector for every class in the country. (Lewis 2010) However, these grants were based on enrolment numbers. As special schools generally have smaller pupil/teacher ratios, the grant was not calculated according to the number of classrooms in these schools. (N.C.T.E. 2009)
2.3.4. I.C.T. and S.E.N.

I.C.T. in the special education sector has a number of uses. It can be used to assess, to communicate, to tutor, to explore, as a tool towards equality and in a managerial way.

‘It has been suggested that technology is a great equalizer, that for many people with disabilities technology can serve as a kind of cognitive prosthesis to overcome or compensate for differences among learners. This idea has important implications for learners with disabilities and special educational needs because it suggests that technology can help create the conditions for equal opportunity to learn and equal access to the curriculum for all.’

(Florian 2004, p. 10)

For example, it has been found that books represented digitally can be manipulated in many different ways to suit pupils with many different disabilities rather than paper books. A paper book is a static object whereas a digital version of the same content may be perhaps listened to for someone with visual and/or specific learning disabilities, text enlarged, sent to a Braille printer or indeed, for someone who is physically disabled, the page could be turned with an enabling device built in to the software. For pupils who experience some cognitive disabilities, text can be linked to context-based definitions or explanations thus enabling that pupil to understand more fully what is being read. (Behrmann 2001)
2.4. S.E.N. in the Irish School System.

2.4.1. Historical Overview

Learners who experience Special Educational Needs in Ireland are educated in a variety of different settings, depending on their needs and the available choice. Historically, special schools were set up to cater for those who were blind or deaf. It was not until much later during the 20th century when schools for learners with disabilities opened their doors. These were separate schools for visually impaired and hearing impaired (or as they were known then, the Schools for the Blind and Schools for the Deaf) in the main, although it wasn’t until the 1960’s when special schools for pupils with S.E.N. began to flourish. (Government of Ireland 1993)

Recommendations arising from the Report of the Commission of Inquiry on Mental Handicap (1965) enabled the setting up of special schools and special classes attached to mainstream schools for learners who experienced learning disabilities. It used the term “mental handicap”, and categorised this into the three categories which we now know as mild general learning disability, (mild G.L.D.) moderate general learning disability, (mod G.L.D.) and severe and profound general learning disability, (severe/profound G.L.D.). (N.C.C.A. 1999).

More recently, there has been a move towards integration and inclusion where learners with S.E.N. attend mainstream schools where this is appropriate to their needs.
2.4.2. Categories of S.E.N.

Learners with S.E.N. fall into a number of categories according to assessment carried out by a qualified psychologist. In Ireland, the National Educational Psychological Service (N.E.P.S.) is called upon to assess each pupil before they enrol in a school in order to provide a basis for that learner’s Individual Educational Plan (I.E.P.). The N.E.P.S. psychologist will use many different tests in their battery of tests, including a standardised Intelligence Quotient (I.Q.) as these learners may not perform to their potential on a standardised test.

2.4.2.1 Mild G.L.D.

Learners who have been assessed as having a mild G.L.D. will have scored an I.Q. from 50 to 70 on standardised I.Q. tests. They display in general, a slower rate of maturation, a slower and often reduced capacity to learn and their social skills are generally poor. Their language acquisition skills are often delayed with many never attaining the same level of language, both expressive and receptive, as their peers without S.E.N. and their speech may also be slow. Attention and concentration spans are usually short and retention and memory abilities are also impaired. Academically, reading and writing will generally prove difficult but learners will usually manage to acquire these skills. However, comprehension of reading and many mathematical concepts will always be problematic.

In addition, many learners with mild G.L.D. ‘may display poor adaptive behaviour, inappropriate or immature personal behaviour, low self-esteem, emotional disturbance, general clumsiness and lack of co-ordination of fine- and gross-motor skills’. (Government of Ireland 1993 p. 118)
2.4.2.2. Moderate G.L.D.

Learners who have been assessed as having a moderate G.L.D will have scored an I.Q. from 35-50 on standardised I.Q. tests. They will have experienced significant delay in reaching developmental milestones, serious deficits in language development and a severe degree of apathy rather than a curiosity in relation to his/her surroundings. Their language acquisition skills are often limited, many remaining non-verbal. They may also experience secondary disabilities such as visual, auditory or physical and/or emotional disabilities. (Government of Ireland 1993)

2.4.2.3. Severe/Profound G.L.D.

A learner with a severe general learning disability is described as having an I.Q. in the range 20 to 35 on standardised I.Q. tests, and a pupil with a profound general learning disability is described as having an I.Q. under 20. Learners with severe/profound G.L.D. in general display a very significant delay in reaching development milestones, very serious deficits in language development, a severe apathy to their environment, dependence on others for all their basic care needs and an inability to live independent lives. Many learners in this category will also experience other disabilities, mobility, visual, auditory, medical issues and emotional issues. (Government of Ireland 1993) Many learners will never acquire verbal language and many will display difficulties understanding language.

2.4.2.4 Multiple Disabilities.

Multiple Disabilities, by its name, denotes that a learner experiences more than one disability. It usually refers to learners who have a physical disability as their primary diagnosis and a second or indeed more disabilities present also. These could include a
sensory impairment, speech difficulty, learning disability, and/or behavioural difficulties. There are often medical issues also to be dealt with, epilepsy may be a feature and their care needs may need to be looked after by an adult or carer. (About.com 2009)

2.4.2.5. Sensory Impairments.

2.4.2.5.1 Hearing Impaired.

Hearing impaired denotes someone who has a hearing impairment. This impairment will fall into four different categories:

- Mildly Hard of Hearing – these learners mainly attend mainstream schools where they can progress in school without special educational arrangements.

- Moderately Hard of Hearing – these learners attend mainstream schools where they can progress with some specialist arrangements.

- Severely Hard of Hearing – these learners have some speech and will need some special provision with small classes and a teacher for the deaf as their class teacher.

- Profoundly Deaf – these learners generally attend the schools for the deaf where the teachers are skilled in teaching such a cohort of pupils.

While learners who experience hearing loss or who have no hearing may not be learning disabled. The very nature of hearing loss presents difficulties in communication with the world. Thus, learners who are hearing impaired, will need special education in order to overcome this deficit. (Government of Ireland 1993)
Difficulties or delays are often experienced in acquiring language or developing a communication system and expressive language skills may have serious deficits. (scoilnet.ie 2010)

2.4.2.5.2 Visually Impaired.
Visually Impaired denotes someone who is partially sighted or indeed blind. The degree of the impairment may be minimal or significant, allowing the learner to function in a mainstream school or in the case of blindness, in a special school where he/she will have the expertise at hand to access the curriculum appropriately. Because of the nature of visual impairment, ‘they have a less informed background against which to develop an understanding of number and mathematical concepts’ (Government of Ireland 1993 p.111) that their peers without visual impairments attain readily, e.g. mathematical concepts in relation to patterns, objects etc. They may also experience delays in acquiring skills in mobility and spatial awareness and also literacy acquisition may need specialist equipment or modifications to existing resources. (scoilnet.ie 2010)

2.4.2.6. Other Categories of S.E.N.
There are other categories of S.E.N. including learners who are frequently ill and need to spend time in hospitals and learners who are at high risk of committing offences who attend Youth Encounter schools. This student population is small but there are special schools which cater for their needs.
2.4.3. Provision for Pupils with S.E.N. in Irish Schools.

The Irish Constitution regards the parents as the primary educators of their children and intended that the state should provide free education for primary aged children. Since 1922, there have been a number of pieces of legislation enacted in Ireland, starting with the Education Act 1998, which is the first act to place primary and post-primary education on a legal footing. (Education Act 1998)

The Education Act, (1998) set out to provide for inclusivity and equality of access, with specific references and emphasis on ensuring appropriate provision for persons with special educational needs and that, in general, the rights of parents to send their children to a school of their choice are respected.

The Minister for Education and Skills is required to ensure that all the needs of learners with S.E.N. are identified and provided for (including physical access, technical aids and equipment, psychological services, early childhood and continuing education and transport) in order for that learner to access an appropriate education. Boards of Management are deemed responsible to use the resources provided by the State to make reasonable provision and accommodation for this cohort of learner. (Education Act 1998)

The Equal Status Act (2000) was the next consideration in the Irish Statute books, firmly clarifying discrimination and embedding equality to education for all in law, regardless of special educational needs and other discriminatory grounds.
The next big step along the way towards inclusion was The Education for Persons with Special Educational Needs Act, 2004, (E.P.S.E.N.) which states:

“A child with special educational needs shall be educated in an inclusive environment with children who do not have such needs unless the nature or degree of those needs of the child is such that to do so would be inconsistent with—

(a) the best interests of the child as determined in accordance with any assessment carried out under this Act, or

(b) the effective provision of education for children with whom the child is to be educated.”

(E.P.S.E.N. 2004, p.7)

Part of this act was to establish the National Council for Special Education (N.C.S.E.) which is the body charged with upholding the act, acting as advisor and co-ordinator of resources both for mainstream schools and special schools. The N.C.S.E. appoints Special Educational Needs Organisers (S.E.N.O.) to perform these duties who work with the parents and the schools involved for the education of the person with special educational needs.

2.4.4. Inclusion in Mainstream Schools.

Since E.P.S.E.N., learners who have S.E.N. have the right to be educated in an inclusive setting with their peers who do not have S.E.N. These learners will need some different supports such as physically adapting the school/class environment or the methodology used to teach them or both. They may need a completely different
approach to access the curriculum and indeed may need a differentiated curriculum depending on their specific needs and strengths. They are often allocated a Special Needs Assistant (S.N.A.) who is appointed to assist them in their care needs. (D.E.S. 2011) Their teacher will accommodate their disability accordingly and will call on outside professional assistance to learn about special programs and interventions that may need to be put in place. They will often qualify for resource teaching hours in or out of class in a teaching environment tailored to suit their specific needs. Irish teaching unions are very supportive of the process of inclusion, however, they have some concerns that need addressing, among them C.P.D. in the field, support and clear guidelines regarding the role of the resource teacher, adequate time for planning and consultation with other professionals and the general lack of resources. (I.N.T.O. 2003)

2.4.5. Special Schools.

Those learners with S.E.N. whose needs are better met in a Special School have the right to be educated in that school. They will be enrolled into a class whose numbers are small, includes S.N.A.s and a teacher who understands their disability and who has the expertise and experience of teaching pupils with S.E.N. Many of these schools can call on multi-disciplinary teams such as physiotherapist, speech and language therapist, occupational therapist etc. The specialist equipment necessary will be readily identified and programs of interventions put in place as soon as possible. These schools also use the Curriculum Guidelines for Teachers of Students with General Learning Disabilities in conjunction with the mainstream curriculum. This covers a wide range of disabilities, and is accessed online or on CD ROM, and has many resources to call upon. (N.C.C.A. 2007)
2.5. S.E.N. and I.C.T.

2.5.1 Enabling technology.

Devices which ‘enable’ learners to engage with their learning or assistive technologies are becoming more and more sophisticated. However, there are low tech and high tech solutions to suit most difficulties faced by learners with S.E.N. Simple devices (low tech) such as a pencil/pen grip may enable one learner to write legibly whereas another learner may need a more high tech solution such as speech to text software and access to a computer and printer. (Special Education Support Service 2011)

Other devices which learners with more complex needs may require include touch-screens, alternate input devices such as a trackerball, large mouse or switches.

Assistive technology can level the playing field for many learners with S.E.N., it has the capability to be a support to access information both cognitively and physically. However, while recommendations from professionals regarding these supports are available through assistive technology services, not all teachers are confident or skilled in their use. Alper and Raharinirina (2006) also found that there is a tendency for device abandonment due in part to lack of knowledge, lack of technical support and complicated design factors among others.

Augmentative and Alternative Communication (A.A.C.) devices, more commonly called communication aids, are designed for people who have difficulties communicating. They are now being designed with inbuilt computers that can connect wirelessly to the internet and some also may have environmental controls which enable the user to live more independently. (Dynavox 2010)
2.5.2. Self-Esteem And Motivation.

As the National Policy Advisory and Development Committee, discovered in their report “The Impact of Schools IT2000”, technology is a highly motivating tool for all pupils (National Policy Advisory and Development Committee 2001) and as Johnson and Hegarty (2003) found, especially for those with disabilities. It has been shown to be a positive step forward in the education of people with disabilities though more research needs to be carried out in the area of assistive technology and teacher training in this field. (Bouck and Flanagan 2009)

The self-esteem of learners with disabilities often needs some boosting to enable them to engage with their learning. Often, the learner disengages from their learning because they are afraid of failure and thus they don’t experience the success.

“Well...”

Because of the close link with achievement, many pupils with special educational needs have low self-esteem. For many, academic progress is likely to continue to be slow until their self-esteem is improved.”

(Hedley 2004, p. 72)

Using ICT and carefully designed software for these learners allows them to have instant feedback in a positive manner, the computer is showing them when they are correct or when they get the answers wrong. They can self-correct their mistakes and in doing so, learn valuable lessons that they may not have engaged in in paper based lessons. There is some evidence that S.E.N. learners’ self-esteem has improved and that they are more confident about their abilities. (Williams, Jamali and Nicholas 2006)
2.5.3. Universal Design.

Universal Design, where the design of products and environments are carefully thought-out so that everyone can use them without adaptations, originated in North Carolina State University. This is where the first Centre for Universal Design was established through funding from the US Department of Education. Ronald L. Mace was its innovator, coining the actual term, having used a wheelchair for most of his life and dreamed of a world where all people regardless of abilities could share the same environments equally. (Centre for Universal Design 2008)

The Disability Act (2005) defines Ireland’s interpretation of Universal Design as ‘the design and composition of an environment so that it may be accessed, understood and used’ to its maximum potential by all users without having to resort to modifications or adaptations. It provided for the establishment of a Centre of Excellence in Universal Design which is the National Disability Authority (N.D.A.) who, along with their work on developing, co-ordinating and advising the government on policy and legislation in relation to people with disabilities, also co-ordinates the development, upholds the standards and promotes awareness of Universal Design. Universal Design has meant that something as simple as the ‘curb cut’ which was initially designed for wheelchair users to negotiate curbs, also enables people pushing baby-buggies and pedestrians using walking sticks to travel in a safer manner than before. (N.D.A. 2011)
2.5.3.1. Universal Design For Learning.

Universal Design for Learning (U.D.L.) grew from the Universal Design movement in architecture. Legislation demanded that all buildings should be made accessible to all users, including those with mobility issues or disabilities. U.D.L. demands that all learning tools should be equally accessible to all learners. U.D.L. advocates a curriculum that can be differentiated and adjusted to suit the needs of all learners irrespective of their differences. (CAST 2010)


2.6.1. What are the Barriers to the Use of I.C.T?

A barrier may be described as something which impedes or obstructs. It may be something concrete or it may also mean something such as fear or uncertainty. As regards the implementation of I.C.T. in teaching and learning, the barriers to this may be teacher’s own attitudes, the training they receive before and after qualification and also the problems associated with the hardware and software needed to deliver a curriculum integrating I.C.T. (Tezci 2010) Brummelhuis (2009, pp.79-80) would also describe it as ‘age, teaching experience, computer experience of the teacher or governmental policy and the availability of external support for schools’. He also found that gender plays an important part in how new technology is embraced, with males more likely than females to adopt new technology.

2.6.2. Pre-service Training

The findings and recommendations of the Inspectorate Evaluation Studies Report states that there needs to be ‘an increased emphasis on the application of I.C.T. in teaching and learning in teacher education during pre-service, induction and in
continuing professional development.’ (D.E.S. 2008, p. 186) It also implores the third level colleges to provide skills training for student teachers in the effective use of I.C.T in teaching along with post-graduate courses which will develop I.C.T. skills for existing teachers.

The initial short training courses offered to teachers by the Schools IT2000 initiative were basic skills courses, classroom use of I.C.T. and one course was entitled ‘Integration of I.C.T. in the Primary Curriculum’. Mulkeen discovered that these courses were focused on building teacher’s confidence and skills and that overall, they were successful in their objectives. However, they did not appear to increase the levels with which I.C.T. was being used within subject areas. (Mulkeen 2003)

Another finding was that the principal’s attitudes towards I.C.T., especially email, was significant to the overall attitude to I.C.T. use in the school. A third and quite significant finding of this survey was that schools who participated in I.C.T. projects, although they reported increased use of I.C.T. within subject areas, may not have sustained it and also may only have participated because of their leading qualities as forward thinking schools.

2.6.3. Teacher’s Attitudes.

Teachers attitudes towards implementation of new technologies has been identified as a potential barrier. Web 2.0 is one such perceived difficulty, where newer, more dynamic and interactive technologies such as blogs, wikis and social networking sites have been developed. B.E.C.T.A. found that teachers were concerned that by introducing these Web 2.0 technologies, they will add further to an ever increasing
workload and timetable. (B.E.C.T.A. 2008) Tezci also described attitudes towards the use of I.C.T. as a barrier along with other findings of gender, age, levels of experience and I.C.T. competence. (Tezci 2010) However, he did find that generally, teachers’ attitude towards I.C.T. is positive.

Lei remarks that even though tomorrow’s teachers have grown up with technology - “Digital Natives”, the majority of this group are still not equipped to teach with technology as their use of the technology is mainly limited to the social aspect of the internet, MP3 players, mobile phones etc. While they spent time on Web 2.0 technologies, this was limited to social networking sites or gaming and they lacked the experience and expertise in using some of the Web 2.0 technologies with great potential for classroom application. (Lei 2009) However, he would also assert that they are very comfortable with using technology and they understand and embrace the importance of embedding technology into the classroom.

2.6.4. In-Service Professional Development.

There are many I.C.T. courses run during term time, usually from Education Centres or secondary schools equipped with computer rooms, in collaboration with the N.C.T.E. These courses are short in duration, from 2 to 15 hours and most are free to teachers. They range in subject from basic computer skills to creating a blog or website. (N.C.T.E. 2009) Summer face-to-face courses in I.C.T. are also offered where the duration is 20 hours. These courses cover a wide spectrum of interests, may be subject specific and may also be whole-school based, where individual needs of the staff may be met in a non-threatening manner.
2.6.5. Hardware and Software suitability.

Computer obsolescence is a factor in many schools, particularly in primary schools, where computers can be six years old or more. (D.E.S. 2008) This often leads to hardware/software incompatibility and a general frustration among teachers and learners. The recommendations are to dispose of computers which are obsolete and buy new up-to-date systems which further impacts negatively on schools’ budgets. Buying new computers, until recently, was at the discretion of the school and often depended on geographical location or local providers. A recommendation of the Smart Schools = Smart Economy Report was to streamline the purchasing of any I.C.T. hardware equipment for schools through a specific framework. The Procurement Framework allows the school to buy equipment from pre-selected vendors who offer quality hardware and service for education at competitive costs. (N.C.T.E. 2009) These hardware choices cover Desktop P.C., Laptop, Digital Projectors, Colour and Mono laser printers.

2.6.6. Funding.

Funding for the necessary computer infrastructure began in 1998 under the I.C.T. in Schools Programme. There followed a number of schemes where funding was made available to schools for the purposes of improving and upgrading both hardware and infrastructure such as Schools Internet Access Scheme and Computer Networking Grants in 2004.

During 2009 and again in 2010, further grants were made available to schools to upgrade their existing facilities. These last grants were specifically to ensure that each
classroom in the country will be equipped with a teaching computer, long range wireless keyboard & mouse, and a fixed digital projector (N.C.T.E. 2009)

As was pointed out in the Inspectorate Evaluation Studies report, ‘ICT in Schools’ (D.E.S. 2008) one of the biggest problems faced by schools is maintenance of the existing I.C.T. equipment. There is not a specified company offering value for money regarding computer maintenance and this expense falls on the already tight budgets of schools. According to Investing Effectively in Information and Communications Technology in Schools, 2008 – 2013, Objective 5 would provide for a central technical support service where remote access to schools computers would allow for routine and non-routine maintenance and a call-out service would assist those where the above service could not resolve on-going issues. Recommendation 4 states that ‘technical support should only be provided for computers that are six years old or less.’ (D.E.S. 2008 p 23-24)

2.6.8. Advisory Support.
As part of the IT2000 - A Policy Framework for the New Millennium, the N.C.T.E. was established as the government’s agency to develop and promote I.C.T. in education in Ireland. As part of the N.C.T.E.’s role was to provide advice and support to schools, a regional I.C.T. advisory service was designed to facilitate teachers in close proximity to their schools. These I.C.T. Advisory Services were run from the local Education Centres so teachers and schools could access them reasonably easily and the I.C.T. Advisor was readily available by phone. (N.C.T.E. 2009) However, by
2008, this invaluable service was unexpectedly withdrawn and has not been replaced to date. (T.U.I. News 2008)

2.7 Conclusion.

This chapter examined learning theories and how they relate to learners with S.E.N. It also looked at S.E.N. and how this may impact on a learner’s needs. S.E.N. was then explored in the Irish school system, looking at both inclusion and separate schooling. Enabling or assistive technology was considered hand in hand with Universal design and lastly, the barriers to implementation of teaching and learning using ICT were investigated. The following chapter will deal with the research methodology used for data collection in this study.
Chapter 3. Methodology.

3.1. Introduction.
This chapter sets out the aims and objectives of this investigation. It describes the setting within which the researcher chose to undertake this study and the sample group employed. It details the research methods and the data collection tools used to conduct the research. Ethics and integrity, validity and triangulation are all discussed and a timeline of the research is also included. Limitations of this research are also described under the headings, sample, interviewer effects and respondent reactions and reactive effect.

3.2. Aims and Objectives of this Investigation.
The purpose of this study was to determine how teachers in special schools in Munster implement teaching and learning with I.C.T. and what barriers if any, exist in that implementation. The literature review has shown some interesting aspects of that concept. Key Questions to be asked in this research were found to be:

- **Training for teachers** – has teacher training adequately provided for the implementation of I.C.T. into teaching and learning?
- **Adequate resources** - Is funding sufficient to provide the necessary I.C.T. equipment for teaching and learning for learners with S.E.N.?
- **Support** – how do teachers access assistive technology professional support?
- **Technical Support** – is the technical support available on-site or off-site? Is it adequate to provide day-to-day solutions to teachers in order to provide successful outcomes to both teachers and learners?
Barriers to the Effective Use of I.C.T.. - what, if any, barriers exist in the implementation of the teaching and learning with I.C.T. in special schools in Munster?

3.3. The Setting.
Special schools in Ireland cater for learners from four to eighteen years of age, in other words both primary and secondary level education. Special schools are categorised into the following:

Schools for learners with
a) Mild General Learning Disabilities,
b) Moderate General Learning Disabilities,
c) Severe and profound General Learning Disabilities,
d) Schools for the Deaf,
e) Schools for the Visually Impaired,
f) Schools for the Physically Disabled,
g) Autism Specific Schools,
h) Youth Encounter Project schools for disaffected youth,
i) Hospital Schools.
j) Children detention Schools.

3.4. Sample group.
There are one hundred and thirty-nine special schools in Ireland, all catering for the requirements of pupils who have a variety of special education needs. In Munster, there are thirty-three special schools. Many of these schools, although belonging to particular categories, also have a population of learners who have other special
educational needs. This could occur for a variety of reasons including geographical location and the learner’s primary disability. As Dr. Ware found, ‘schools are not only catering for pupils with a wide range of primary disabilities, they also have considerable numbers of pupils who have two or more disabilities’. (Ware et al, 2009 p.91). Many of the schools which were originally designated as one type of school also include classes or units for learners with Autistic Spectrum Disorder (A.S.D.). It is within these thirty-three special schools in Munster that this researcher chose to carry out this investigation. The sample group with whom the researcher will work are the class teachers in these special schools.

3.5. Research Methods Examined.

3.5.1 Quantitative or Qualitative?

Quantitative research is generally considered as being a positivist paradigm, asserting that events can be observed empirically and explained with logical analysis. This type of research is often considered more scientific as it deals with facts and will produce quantifiable results. (Bell 2010)

Qualitative researchers on the other hand, consider the ‘best way to understand any phenomenon is to view it in its context’. (Krauss 2005 p. 759). Bogdan and Biklen consider that qualitative researchers are concerned with finding data in its natural setting, this data is usually descriptive rather than statements of fact or numerical data. (Bogdan and Biklen 1992)
3.5.2. Mixed Methods.

Wellington, while describing both methods of research, asserts that when analyzed, ‘most methods in educational research will yield both qualitative and quantitative data’. (Wellington 2000 p.17) He believes that even though there are many labels describing the various approaches to research, in reality, research generally contains a mixture or overlap of both qualitative and quantitative styles.


To carry out this research, a mixed methods approach was undertaken which included both quantitative and qualitative methodologies.

In order to complete the research and elicit the information required, the author decided to use a self-administered postal questionnaire, interviews and semi-structured observations as data collection tools.

3.6.2. The Survey.

Cohen and Mannion describe surveys as ‘perhaps the most commonly used descriptive method in educational research’. (Cohen and Mannion 1994 p.83) Fink defines surveys as ‘a system for collecting information to describe compare, or explain knowledge, attitudes and behaviour’. (Fink 1995 p.1) Surveys are concerned with fact finding rather than opinion or qualitative data. (Bell 2010) and (Wellington, 2000). However, Wellington reminds us that using some open-ended questions in the questionnaire may lead to other, more qualitative data. *(ibid)*

There are a number of data gathering tools involved in a survey including structured or semi-structured interviews, self-administered or postal questionnaires, standardised
tests, and attitude scales. The researcher has decided to use a postal questionnaire and semi-structured interviews as data collection tools for the survey.

3.6.3. Postal Questionnaire.

Using a postal questionnaire will enable the researcher to reach a larger proportion of the population than for example, an interview. However, the sample size can give rise to other problems such as cost, i.e. the larger the sample size, the higher the cost and time involved in administering a postal survey. (Bryman 2008)

Another factor to take into consideration is that of the response rate. Although there was some concern about general decline in response to postal surveys, Smith has found that not to be the case. (Smith, cited in Bryman 2008)

When survey participants are interested in the subject matter, this will affect their response rate. It is also advisable to follow up with a phone call or letter after a short time but approaching the date you have specified for a response. (Bourque and Fielder 1995)

3.6.3.1. The Self-Administered Questionnaire.

Coombs suggests that questionnaires need careful planning, making sure that the questions posed will address the broad objectives of the research being undertaken. (Coombs 2001) As busy teachers are being asked to complete the questionnaire, the layout and length must be taken into consideration before distribution. Bourque and Fielder would suggest that self-administered questionnaires are generally shorter than those questionnaires administered another way as the objective is clear and not
complex The questions should be mainly closed-ended ones to avoid omissions and irrelevant data. (Bourque and Fielder 1995) Questions should be worded well and as simply as possible to avoid confusion but they should elicit answers which will provide the information needed. Therefore, a piloting phase should be undertaken to uncover any pitfalls or obstacles in the way of successful responses. (Coombs 2001)

Consideration must also be given to the timing of postal questionnaires as schools have certain times of the year where time is particularly limited due to seasonal and religious events.

3.6.3.2. Piloting the Questionnaire.

Due to the nature of the written word, problems of interpretation may arise. Piloting the questionnaire is therefore an essential part of the designing and development of same. It may mean that the document needs many redrafts, enlisting the aid of helpful colleagues and friends along the way. (Wellington 2000)

3.6.4. The Interview.

Interviews, by their very nature, are designed to draw out information that cannot be observed.

‘We can probe an interviewee’s thoughts, values, prejudices, perceptions, views feelings and perspectives. We can also elicit their version or their account of situations which they may have lived or taught through1.

(Wellington 2000, p. 71)
In educational research, most interviewers will have background knowledge of the subject and while this may slightly colour the interview, it should also give voice to the interviewees. An interview should be more than a two way conversation, it should explore the interviewee’s experiences, perspectives or views or ‘put flesh on the bones of questionnaire responses.’ (Bell 2010, p.161).

Good interviews are ones where the resulting data are descriptive rich, informative and where the interviewee has opened up about themselves revealing their own perspectives. (Bogdan and Biklen, 1992)

There are three different types of interviews, the structured interview, the semi-structured interview and the non-structured interview.

3.6.4.1 The Structured Interview

A structured interview is one where there is a set list of questions from which no deviation is made. Parsons likens this to a ‘face to face questionnaire’ which works well in situations such as market research. (Parsons, cited in Wellington 2000, p.74) The drawback of this type of interview in an educational setting is that the interviewee may not be able to tell their own story in his/her own words or as Bogdan and Biklen put it, ‘the interview falls out of the qualitative range’. (Bogdan and Biklen 1992 p. 97)

3.6.4.2. The Non-structured Interview.

The non-structured interview on the other hand usually denotes one where there is no set list of questions or rigid order. (Wellington 2000) However, as Coombs notes, if the interview evolves into an informal chat in the hands of an inexperienced
interviewer, the resulting data may not prove very useful. They are also usually very
time consuming and often difficult to analyse. (Coombs 2001)

3.6.4.3. The Semi-structured Interview

This type of interview probably enjoys the best of both worlds, as whilst there is a
framework of a schedule of questions to guide the interviewer, he/she has the
flexibility to elicit more information from the respondent in the form of comments or
expansion upon an answer. (Coombs 2001) The present study will use this form of
interview as there is more scope to tease out pertinent answers from the interviewees.

3.6.5. Observation.

Although observation is usually understood as using all our senses to collect
information about what is happening around us, it really means more than just the
collection of facts. It means the perception, interpretation, assessment and reaction to
that information. (Malderez 2003)

Observation as a research tool is normally broken down to two distinct types,
Participant observation and Non-participant Observation. Each of these are further
categorised into structured or unstructured observations.
3.6.5.1. Participant Observation

The participant observer usually takes part to some degree in the action and also records what is happening. (Coombs 2001)

‘Participant observation refers to a research approach in which the major activity is characterised by a prolonged period of contact with subjects in the place in which they usually spend their time.’

(Bogdan 1973, p. 303)

Coombs maintains that the very act of ‘being there’ means that behaviour may be affected in some way. (Coombs 2001) She goes on to highlight that participant observers may experience some difficulties during their observations, some of these being:

- the disturbance to the group being observed,
- how this may affect behaviour,
- how to record what is being observed,
- will the information be representative of the whole sample group and
- does the observer disclose what he/she wants to learn before beginning the study?

Griffee would agree with this as he states ‘in-class observation is intrusive and may skew what would otherwise happen.’ (Griffee 2005, p.42)

3.6.5.2. Non-participant Observation.

The non-participant observer takes no part in proceedings but records what is happening. He/she often sits at the back of the classroom and records what is happening in the environment, deliberately avoiding contact with the subjects being
observed. (Cohen and Manion 1994). This is the method chosen for this research as the researcher wanted to minimise disturbance to the classes and their teacher’s normal activities.

3.6.5.3. Structured Observation.

Another name for a structured observation is a systematic observation, so called as the observer needs to follow ‘explicitly formulated rules for the observation and recording of behaviour.’ (Bryman 2008, p.257). These rules make clear to the researcher what they need to look out for and how to record that behaviour. This usually takes the form of an observation schedule.

3.6.5.4. Unstructured Observation.

Bryman states that the purpose of this type of observation is to generate a narrative account of the behaviour being observed. (Bryman 2008) He continues by pointing out that the observer needs to record as much detail as possible in order to write this narrative. This type of observation does not involve an observation schedule and so will necessitate copious note taking. One of the drawbacks of this means that the observer can become overwhelmed with data and only have time to record bare notes which he/she then has to expound on at a later stage. It is very important that this is done as soon as possible after the observation as newer experiences may overlay the previous ones before they are properly recorded. (Cohen and Manion 1994)
3.6.5.5. Observation Schedules.

How to record observations needs careful planning and researchers need to be aware of their own objectiveness and bias, especially if observing in the researcher’s own organisation. (Bell 2010)

Memory and perception may also come into play when recording observations after the event as Denscombe reminds us that ‘we cannot possibly remember each and every detail of the events and situations we observe.’ (Denscombe 2007, p.209) He states that it is because people differ in their perceptions and impressions of situations that it is necessary to use observation schedules. The purpose of such a recording framework is to minimise any variations and focus the observer on the issues being studied.

Bryman defines observation schedules as devices ‘used in structured observation that specifies the categories of behaviour that are to be observed and how behaviour should be allocated to those categories.’ (Bryman 2008 p.696.) Observation schedules are useful tools when recording what is being observed. There should be a clear focus of attention on who is to be observed and what is to be observed.

3.6.5.6. Observations Undertaken.

Due to time and travel constraints, the researcher chose to observe in her own school how colleagues integrate I.C.T. in their classes. She hoped it would also minimise the disturbance effect as mentioned above as learners in this school are very familiar with teachers from other classes.

An observation schedule (see Appendix D1 and D2) was used to record what was happening in the non-participant observations in the two classes, one a junior class of
learners with moderate learning disabilities and one a senior class with learners who have mild and moderate general learning disabilities. As the teacher is the focus of attention, all observations recorded what he/she was doing in relation to teaching and learning using I.C.T. It was decided that the observation would be a structured one, recording in periods of time and using a schedule to focus on subject matter and methodology.

3.7. Ethics and Integrity.

‘Ethical research involves getting the informed consent of those you are going to interview, question, observe or take materials from.’

(Blaxter et al, cited in Bell 2010 p.47)

Informed consent refers to the voluntary consent of the research subjects to participate in the study. Some research employs the use of a code of practice or informed consent forms which the participants read and sign. This may be necessary in some cases to put the participant’s mind at ease regarding their anonymity and the confidentiality of the material collected. (Bell 2010) However, by the very act of returning a completed postal questionnaire, the informed consent is inferred.

Bell also advises that the researcher must obtain permission from the principal teacher of the target setting before undertaking any research in that school. (Bell, cited in Cohen and Manion 1994) A letter was sent to the principal of each school with the initial postal questionnaire. (Appendix A) A reminder telephone call was also placed to those schools where the response rate was very low or non-existent.

As the observations were conducted in the researcher’s own school, verbal permission was obtained from the principal before commencing. (Appendix C)
3.8. Validity.

Bryman defines validity as ‘A concern with the integrity of the conclusions that are generated from a piece of research’. (Bryman 2008, p.700) Validity is generally taken to mean that what has been researched is in fact well-founded in the research methods chosen and the results are justifiable from the data generated in that study.

‘Validity in quantitative research is the extent to which your measures do, in fact, measure the constructs of interest to the research’

(Balnaves, M. 2001,p.89)

Balnaves goes on to divide validity into three distinct types:

1. Construct Validity is determined by the design of the research data collection and that it is collecting and measuring information on the research question. Here the researcher has tried to match up the questions in both the questionnaire and interviews to the research question and what she wants to find out.

2. External Validity is determined by the sample being truly representative of the population from which it is drawn. In the drawing up of the list of special schools in Munster, the researcher was cognisant of the different categories and how they are replicated throughout the country. It is to be hoped that replies from every type of special school will be returned, although the researcher understands that this is beyond her control.

3. Internal Validity is how the design of the research allows the researcher to draw conclusions between variables. The researcher has constructed the questionnaires carefully and the interview should tease out other information
pertaining to the research question. The observations should also give colour to the investigation at hand and along with the interviews, complete the picture of how teachers use I.C.T. in special schools in Munster. (Balnaves 2001)

3.9. Triangulation.

Triangulation is often seen as the combination of different methodologies to study the same behaviour. (Balnaves and Caputi 2001)

Flick explains that there are four distinct forms of Triangulation:

1. Triangulation of Data where data may be drawn from different sources, people, times or places;
2. Investigator Triangulation where a number of different people are used to interview or observe so investigator bias can be avoided;
3. Triangulation of Theories where data collection is approached from different theoretical angles;
4. Methodological Triangulation where ‘between method’ or ‘within method’ methodologies are employed. This is the method most often used in research. (Flick 2006)

As the data collection methods used consisted of both quantitative and qualitative methods comprising a postal questionnaire, a semi-structured interview and participant observation, the phenomena was researched from three different perspectives. Thus it can be deemed that methodological triangulation was used to validate the research.
3.10. Limitations of The Research.

3.10.1. Sample.

The researcher recognises that while every effort was made to gather information from every category of special school in Munster, due to non response and time restrictions the results may not reflect a fully representational sample.

The timing of the survey may have influenced some non-response rates as the end of a school year is usually a teacher’s busiest time. As Bell observes,

‘All researchers are dependent on the goodwill and availability of respondents, and it will probably be difficult for an individual researcher working on a small-scale project to achieve a true random sample.’

(Bell 2010, p 149)

3.10.2. Interviewer Effects and Respondent Reactions.

While the researcher asked the same questions to both respondents and responded to the answers given to elicit more information, she was constantly aware of the possible influence social desirability may have had on the respondents. Gomm explains this social desirability as ‘what the respondent thinks the situation demands or if he or she is going to come across as sensible, competent, moral and otherwise O.K.’ (Gomm 2004 p.167)
3.10.3. Reactive Effect.

The very act of an observer being in a classroom where he/she would not normally be may cause some change in the behaviour of those teachers being observed. (Bryman 2008) The researcher observed in two classes in her own school and as the teachers and learners in each class were very familiar with her, it is to be hoped this effect was lessened.

3.11. Time-Line of Research.

This research began in early October and had a time span of twelve months. A proposal of the theme to be developed was submitted and tutor appointed in November. The literature review began immediately and a draft form sent to the supervisor during January. A number of corrections were needed and redrafts made. The methodology chapter followed and took up to May to complete, again in draft form and then began the actual research.

The postal questionnaire was drawn up in early May and extended to friends and colleagues for any suggestions and feedback regarding understanding of questions, wording and anything else they thought may have improved it for ease of answering, considering that it would be sent out to teachers like themselves. It was also sent to the course tutor who scrutinized it and suggested some minor adjustments. These adjustments were made and the questionnaire finalised towards the end of May. (Appendix E)
296 questionnaires were sent out to all 33 special schools in Munster. A cover letter addressed to the Principal of each school was sent detailing the scope of the investigation and enlisting his/her assistance in distributing the questionnaires to teaching staff. (Appendix A) A letter addressed to individual class teachers was also enclosed attached to the questionnaire and a self-addressed stamped envelope. (Appendix B) A closing date was included in this letter, giving the teachers approximately two weeks in which to reply.

As a code was included on the return envelopes to identify the school, encouragement telephone calls were made to those schools where the response rate was nil or very low. These follow-up phone calls were made during the week of May 30th.

Also during May/early June, the researcher conducted two observations in her own school. These consisted of whole days involved in the classes, using her Extra Personal Vacation days, (E.P.V. days) as a non-participant observer.

During June, the researcher arranged to conduct two interviews with teachers from two different schools. The face to face interviews were digitally recorded and transcribed. (Appendix F1 and F2)
3.12. Conclusion.

This chapter looked at the aims and objectives of this investigation. It described the research methodology to be used in this research which is a mixed methods approach of both qualitative and quantitative data collection methods. The findings which arose from postal questionnaires, interviews and observations will be set out in the following chapter.
Chapter 4. Findings.

4.1 Introduction.
This chapter will present the findings from the postal questionnaires, observations done in the researcher’s own school setting and also the findings from the interviews undertaken focusing on the following topics:

- Training for teachers.
- Adequate resources.
- Teacher’s use of I.C.T.
- Support.
- Technical Support.
- Barriers to the Effective Use of I.C.T.

4.2. Training for teachers.

4.2.1. I.C.T. Training During Initial Teacher Training.
Of the 38% of teachers who underwent training in I.C.T. during their initial teacher training, the majority of them, 54%, were in the age range 20 - 34yrs with 33% from the 35 - 49yrs age range and only 13% from the upper age range of 50 - 65yrs.
However, 28% of the teachers from the lower age range answered no to this question, 59% from the mid age range and 82% from the upper age range.
One teacher who had undertaken a module in I.C.T. during her initial teacher training felt that because of the advances in technology, that initial training has now proven inadequate. She has since gone on to do summer courses in I.C.T. for the specific area of disability she deals with on a regular basis.
4.2.2. Further Training.

Teachers were asked if they had undertaken any further study in the area of I.C.T. since graduating from teacher training college.

The majority of respondents declared that they have done so. (Figure 4.2)

Figure 4.1: ICT During Initial Training.

Figure 4.2: Further study in I.C.T.

They were then asked to list any I.C.T. courses they have undertaken since initial teacher training. These range from summer Continuous Professional Development.
(C.P.D) courses lasting 5 days or 20 hours to graduate diplomas. They also include a number of respondents having studied for the E.C.D.L.

This particular question is difficult to quantify as most of the respondents gave incomplete answers simply stating I.C.T. summer course, sometimes giving a year sometimes giving an award. These will be discussed in more detail in chapter 5.

4.2.3. S.E.N. Diploma.

36% of teachers who studied for a recognised S.E.N. Diploma also undertook a module in I.C.T. for S.E.N. However, the majority of teachers (64%) working in special schools do not hold a recognised S.E.N. Diploma.

4.2.4. Teacher Training to Use Assistive Technology.

The majority of teachers have not had training to assist the learner to use his/her assistive technology. It is to be noted that in the Schools for Physical Disability a slight majority of teachers have had training in this regard.

Similar results occur when teachers were asked if the S.N.A.s in their class have had training to assist the learner to use his/her assistive technology.
4.3. Adequate resources.

4.3.1. Learner Access to Computers.

Unsurprisingly, practically every respondent stated that their class had access to computers, only one teacher from a school for learners with Mild GLD reported that his/her class did not have access to computers.

The majority of teachers, 79%, stated that their class accessed computers in the classroom, 6% accessed computers in a lab and 15% of respondents seem to have both computers in the class and a lab.

![Figure 4.3: Where Classes Access Computers.](image)

However, this does not mean that there is a computer for every learner, only in 18% of respondent’s classes or labs was this facility available.

Indeed, only 26% of classes can provide simultaneous computer access for their learners.
One teacher also reported that in her class and throughout her school, there is not a specific teacher computer per class. Since her learners can all access computers and because there are not enough computers or laptops available to her, the learners sometimes need to use the computer on which she stores her own work. As the learners in this school are physically and learning disabled, it may happen that the learner could damage the computer or indeed as has happened in the past, put a password onto the computer and forget it thus rendering the computer useless until it can be fixed.

4.3.1.1. Computer Accessibility.

Not all learners with S.E.N. can access computers independently. Some will need extra supports or assistive technologies and will need to be assessed for this by an Occupational Therapist (O.T.) or Assistive Technologist. (A.T.) In almost all categories of special schools, the vast majority of learners had not been assessed for computer accessibility. Unsurprisingly, respondents from schools who cater for learners with a physical disability have the best response to this question, although not all their learners have been assessed.

The same results were found to the question of learners being assessed for assistive technology. Again, those learners who attend special schools for Physical Disability have better results in this regard with 64% of their learners having been assessed for assistive technology. While these learners have been assessed, only 17% of them were supplied with their necessary assistive technology.
4.3.2. Computer Obsolescence.

It was found that the oldest computer in special schools in Munster was reported to be 16 years. However, the youngest computer was only one month old. 20% of all computers were reported as being over six years of age.

4.3.3. I.W.B. in the Classroom.

The majority of classrooms (53%) are equipped with I.W.B.s. Schools for Mild G.L.D., schools for the Deaf, schools for Physical Disability and schools for Autism fared the best.

However, a minority of learners are not able to access the I.W.B. independently for a variety of reasons such as:

- height,
- inappropriate to learners needs
- non-reliability
- physical constraints of classroom.

4.3.4. Software/Online Resources.

In each category of school, the majority of respondents replied that they use specific S.E.N. software/online resources with the exception of Youth Encounter Schools only using mainstream software. All respondents from the Hospital schools use specific S.E.N software as do Schools for the Deaf and Schools for Severe/Profound G.L.D.

The majority of teachers stated that they also use mainstream software/online resources in the classroom which the teacher can then personalise for S.E.N. learners.
This personalizing takes time to set up for the individual learner. Respondents were asked to state approximately how much time he/she spends personalising the software/online resource. The answers to this were averaged out in minutes, with teachers spending up to three hours a week on this task.

![Time Spent Personalizing Software/Online Resource.](image)

**Figure 4.4: Time Spent Personalizing Software/Online Resource.**

A major issue many teachers have with the available software is its appropriateness - both age and language appropriateness.

One teacher reported that she has abandoned most software recently and now mainly uses online resources.
4.3.5. Software Satisfaction.

Teachers were asked if they find that the software in use in the class is satisfactory in meeting the needs of their learners. Of the 94 replies, 76% of teachers expressed satisfaction whereas 24% did not.

4.3.6. Software Meeting Irish S.E.N. Curriculum.

Most teachers felt that the software they use in class meets the curriculum goals in the Irish S.E.N. with the exception of Youth Encounter Project schools where the majority felt that it did not meet these goals.

One teacher also reported that they have to adapt most of the software as no one piece of software addresses all the objectives of the Irish curriculum for her class.

4.3.7. Switch Accessible software.

A number of respondents, mainly from schools for Mild and Moderate G.L.D., admitted to not knowing what this referred to. Only 1 respondent uses Switch Accessible software in schools for Mild G.L.D. whereas all respondents from schools for Severe/Profound G.L.D. use this in class. 47% of the schools for Mod G.L.D. use switch accessible software while Schools for the Deaf, Hospital schools and Youth Encounter schools do not use it.

70% of teachers answered they did not have access to switches and other equipment necessary to use the switch accessible software with the remaining 30% answering that they have access to switches etc.
4.4. Teacher’s use of I.C.T.

4.4.1 Use Of Other Technologies In Class.

Teachers were asked to list all those technologies they regularly use in class from a selection of:

- Desktop computer,
- Laptop computer,
- Printer, Scanner,
- T.V. and DVD,
- Visualiser,
- Interactive Whiteboard,
- Digital camera.

Teachers also stated the amount of each piece of hardware they have in their classrooms. Some classes are well equipped with Desktop computers and laptops whereas other classrooms are not so fortunate.
One teacher disclosed that their school (for Mod. G.L.D.) is networked for printing.
Two teachers reported they have video cameras in addition to still digital cameras.
Conversely, one teacher stated that he/she had to use his/her own camera for school work while another reported that his/her I.W.B. had not worked for the majority of the school year.

The printer and camera, along with the computer, were reported to be the most valuable tool for teaching in special schools.

<table>
<thead>
<tr>
<th>SCHOOL CATEGORY</th>
<th>Desktop Computer</th>
<th>Laptops</th>
<th>Printer</th>
<th>Scanner</th>
<th>T.V. &amp; DVD</th>
<th>Visualiser</th>
<th>I.W.B.</th>
<th>Digital Camera</th>
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<tr>
<td>Mild GLD</td>
<td>80</td>
<td>37</td>
<td>33</td>
<td>16</td>
<td>20</td>
<td>5</td>
<td>29</td>
<td>31</td>
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<tr>
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<td>35</td>
<td>16</td>
<td>18</td>
<td>2</td>
<td>13</td>
<td>35</td>
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<tr>
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<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<td>Schools for Deaf</td>
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<td>2</td>
<td>2</td>
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<td>5</td>
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<td>0</td>
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<td>5</td>
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<td>95</td>
<td>101</td>
<td>50</td>
<td>61</td>
<td>10</td>
<td>62</td>
<td>93</td>
</tr>
</tbody>
</table>
4.4.2. In-Class Use.

Teachers use I.C.T. in many different ways in their professional lives.

Lesson/class planning seems to be the main way in which they use I.C.T. (64%) with a small minority (3%) of teachers never using it for this purpose.

Planning websites available online also featured strongly in teacher’s I.C.T. use although some teachers felt while the mainstream curriculum is readily available and user friendly, the S.E.N. curriculum is not so well displayed.

In addition to planning, assessment and I.E.P. preparation are common usages among these teachers with some teachers (75%) using email for administrative purposes also. Some teachers also use websites to make printable resources for their class, adapting them as needed.

However, when it comes to using I.C.T. during class lessons, be it personalization for learners, making web-quests, accessing the internet during class teaching or using the computer in class, the majority of teachers only sometimes or never used I.C.T. Indeed, 8% of respondents declined to reply to a question on web quests and of these, one teacher admitted that he/she didn’t know what a web quest was.

Some progressive schools have found new technologies very useful for their cohort of learners, e.g. iPads as their learners are more visual learners.
During observations in two classes, the researcher found that both teachers used I.C.T. extensively throughout the school day, using it for administrative, curricular and skills purposes as reported below:

**Administrative:**

- Teacher planned out lessons using computer and internet links.
- Teacher accessed plans on her own memory stick to print out worksheets for the various lessons throughout the day.
- At the end of the day, the teacher used the computer to write the news into learner’s home/school journals.

**Curricular:**

- Digital technology was used throughout different curricular subjects, mainly English, Science and Music.
- Teacher demonstrated questions on Leaving Cert History papers.
- Use of digital voice recorders to work on English comprehension questions.
- Maths, English, Art and Geography lessons all facilitated using laptops and the internet in the senior class.

**Skills:**

- Teacher used assistive technology to facilitate learners to acquire switch skills on cause and effect programmes.
- Teacher set out reading comprehension passage which learners had to answer using word processing in the senior class.
4.4.3. Innovative Uses of I.C.T. in Class.

One teacher reported that her school has won a Digital Schools Award where I.C.T. is used extensively throughout the school in every facet of school life. The teachers here use the I.W.B. to create and share resources between the classes. Google Images is also used considerably as her cohort of learners are deaf and therefore are more visual learners.

Here also the school has trialled iPads and have found them to be a very useful tool to learning.

4.5. Support.

4.5.1. Access to Professional Advice.

In the special school setting, access to professional advice may come from a number of different sources. These include the Multi-disciplinary team which is made up of combination of O.T., A.T., Speech and Language Therapist (S.L.T.) and Nurse.

Only three teachers replied that their schools did not have access to a multi-disciplinary team, one was from a School for the Deaf and the remaining two were from schools for Mild G.L.D.

For the purposes of this study, O.T. and A.T. are the important members of the multi-disciplinary team as in order to qualify for assistive technology, an assessment must be signed by an O.T.

Table 4.2. shows that only 27% of respondents claim their schools have access to A.T. and 91% to O.T. and where they access such supports, either on-site or off-site.
Table 4.2: Multi-Disciplinary Team Location.

<table>
<thead>
<tr>
<th>MULTI-DISCIPLINARY TEAM LOCATION</th>
<th>Mild GLD</th>
<th>Mod GLD</th>
<th>Profound</th>
<th>Severe/Profound</th>
<th>Deaf</th>
<th>Physical Disability</th>
<th>A.S.D.</th>
<th>Youth Encounter</th>
<th>School</th>
<th>Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy</td>
<td>12</td>
<td>19</td>
<td>14</td>
<td>20</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>0</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Occupational therapy</td>
<td>18</td>
<td>17</td>
<td>14</td>
<td>20</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Assistive Technology</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Speech &amp; Language Therapy</td>
<td>20</td>
<td>18</td>
<td>20</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Nursing</td>
<td>14</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

4.5.1.1. Setting Up and Use of Switch Accessible Software.

While the majority of respondents overall replied that they had not had access to a professional regarding the setting up and use of switch accessible software, schools for Mod G.L.D. and schools for Physical Disability experience reasonable access to professional advice.

4.5.2. Access to S.N.A. Support in Class.

While the majority of respondents, 94%, replied that they do have S.N.A. support in the classroom, very few (6%) claimed not to have this support.
4.5.3. S.E.N.O.

S.E.N.O. support and assistance was seen as a hindrance to one interviewee who reported a specific incident where a learner was assessed and assistive technology was sought through the normal application process.

4.5.4. Advisory Support.

4.5.4.1. National I.T. and Special Needs Advisory Services.

The withdrawal of the National I.T. and Special Needs Advisory Services has made a difference to a minority, 47% of teachers whereas 53% felt that it hadn’t made any difference to them.

When asked if the National Advisor had visited their school prior to the service being disbanded, the majority of teachers (51%) answered no. 30% had received a visit on at least one occasion and 19% did not know if any visits had occurred to their school.

4.5.4.2. Regional I.C.T. Advisory Services.

The withdrawal of this service has made some difference to special schools in Munster but equally, for other schools, it has not. Schools for the Mild G.L.D., Schools for the Deaf, schools for the Physical Disabled and Youth Encounter Project schools all maintain that it has made a difference to them whereas schools for Mod G.L.D., Hospital schools and schools for A.S.D. claim that it has not had such a big impact on them.
However, when asked if they would like to see this service reinstated, the majority of teachers across all categories of schools answered yes. Only 6% did not feel the need to do this.


Teachers were asked that when computer maintenance is required, who carries out this work?

Most schools use a combination of all three options - In-House I.C.T. Post Holder, External Trained I.C.T. Professional or External Technical Support Service Company. Only the schools for Mild G.L.D. seem to use the in-house I.C.T. Post holder for their main computer maintenance. Most other schools use an external trained I.C.T. professional and Youth Encounter schools use all three options equally.

One school reported that they use a remote method of repair while some schools stated that when computer maintenance is required for more than simple difficulties which can be dealt with effectively in-house, their computer may be removed for a short period.

Interviewees remarked they would be interested in using a remote, centralised online secure service run by the D.E.S. and paid for by the D.E.S. as repairs are very expensive with no grant aid for this in schools.
4.6.2. Frequency of Computer Problems.

The majority of computers in special schools in Munster gave some difficulties throughout the previous school year. 51% of the respondents reported that their class computer has given three or more problems throughout this school year. 23% said they experienced two incidents of computer difficulties and 26% said they only experienced 1 incident.

![Frequency of Computer Problems](image)

**Figure 4.5: Frequency of Computer Problems.**

4.6.3. Post of Responsibility for I.C.T.

In order to deal effectively with matters relating to I.C.T. in school, some schools have a Post of Responsibility for I.C.T.

The majority of schools have this Post of Responsibility with the School for the Deaf and Youth Encounter Project schools being the exceptions. One respondent from a Hospital school replied yes while the second respondent from Hospital schools replied no.
While these schools have this P.O.R. for I.C.T., in the main these teachers are not trained I.C.T. Professionals. However, it would seem that they do carry out simple maintenance on a day to day nature.

4.7. Barriers.

4.7.1. Age and Gender.

As age can be seen as a barrier, teachers were asked into which broad age range they fit. 27% of the sample group is within the age range of 50 -65 years. 38% is within the age range of 35 – 49years and the remaining 35% is within the younger age range of 20 – 34 years.

Gender can also be perceived as a barrier, especially in the area of technology. Of the 103 respondents, 18% were male and the remaining 82% were female. When this was broken down further into their respective age groups, the results are that within the older age range of 50-65 years, only 16% were male and 33% were female. Within the middle age range of 35-49, 42% were male and 37% female and within the younger cohort of teachers 20-34 years, 42% were male and 30% female.
4.7.2. Teacher’s Attitudes Towards I.C.T.

4.7.2.1. Teacher Comfort Level.

Teacher’s comfort level with I.C.T. is an indicator around how they may use it in their professional lives. When this was examined, it was found that the majority of respondents, 43%, replied that they considered themselves to be comfortable with I.C.T. and 34% declared themselves to be very comfortable. 16% stated that their feelings towards I.C.T. were neutral while only 7% answered that they were uncomfortable. Encouragingly, no respondent felt that they were very uncomfortable.

As gender can play a part in whether I.C.T. will be used or not, these figures were further broken into male and female results. Men rated themselves as being very comfortable and comfortable with only one male teacher feeling uncomfortable with using I.C.T. This person was also within the age bracket of 50-65 years.

![Comfort Level - Male.](image_url)

**Figure 4.6: Comfort Level - Male.**
The majority of female teachers (43%) on the other hand, felt that they were comfortable with using I.C.T. with 30% feeling very comfortable and 20% at a neutral position. However, 7% of this group felt uncomfortable using I.C.T.

![Comfort Level - Female.](image)

**Figure 4.7: Comfort Level - Female.**
4.7.2.2. Teacher Skills Level.

A level of skill is also required to use I.C.T. effectively in the classroom. Teachers were asked to self evaluate their skill levels with regard to I.C.T. within a three point scale of beginner, intermediate and expert.

11% of the full sample declared themselves to be at the beginner level. 76% felt they were operating at the intermediate level and 13% use I.C.T. at expert level.

![Skills Levels.](image)

**Figure 4.8: Skills Levels.**

When looking at gender and I.C.T. skills levels, the response shows that 5% of the male teachers in the sample and 12% of females are at the beginner level across all age ranges. 74% males and 76% females declared themselves to be operating at the Intermediate skill level. When it comes to expert level, we can see that 21% male teachers rate themselves expert and 12% female teachers do likewise.
4.7.2.3. Learner’s Skills Levels.

One teacher remarked that she felt disabled learners need to learn computer skills as a life skill as so much of everyday life can be done online.

4.7.3. Learners Other Than Official Designation.

The majority of teachers (66%) replied that their school catered for learners other than those for whom their school was set up. Schools for learners with Severe/Profound G.L.D., Hospital Schools and Youth Encounter Schools were the respondents who answered no to this question only. All other categories of special schools provide for learners who have disabilities other than those of their schools’ official designation.

4.7.4. Average Class Size

The average class size ranges from 3.5 to 20 pupils with Hospital schools having the largest classes. As many schools cater for learners other than for whom their school was set up, teachers may have to teach individualised programmes for many different learners.

![Average Class Size](image)

**Figure: 4.9: Average Class Size.**
4.7.5. Funding.

4.7.5.1. Grant Aid.
Teachers felt that funding for I.C.T in special schools was inadequate as they were granted monies on the same basis as mainstream schools, i.e. on enrolment numbers. The teachers felt this was unfair as special schools have lower pupil/teacher ratios than their mainstream counterparts.

4.7.5.2. Maintenance Funding.
Teachers felt that this is an area that proves very costly on school budgets as computers need a high level of maintenance, especially if there is no expertise on staff.

Daily running costs for peripherals such as ink and paper are also a barrier to already cash strapped schools.

4.7.6. Restricted Websites.

Some teachers reported that while planning for class work in teachers own time, websites which are essential to the class lesson, are sourced and intended for use in the classroom. However, when trying to access them in class, the teacher is informed by the N.C.T.E. that they are unavailable in schools. This causes frustration and often abandonment of that class lesson.

Another teacher has applied on numerous occasions to the N.C.T.E to allow their school higher level of access to YouTube as it would further assist in teaching and learning for this particular cohort of learners. However, no reply has been forthcoming.
4.7.7. Time.

One teacher mentioned that teacher time was also a barrier as so much time is taken up with adapting resources and this is all willingly done on the teacher’s own time.

4.7.8. Universal Design For Learning.

A specific barrier exists for the Deaf as Universal Design for Learning has not been adapted for all web-sites or pieces of software.

4.7.9. Suitable Resources.

Resources such as suitable software which are age appropriate and which are applicable to the Irish context are difficult to source.

More specialised equipment, e.g. applicable to the Deaf is often not available in Ireland and so the schools need to source it elsewhere.

4.7.10. Assistive Technology.

During interview, teachers felt that systems for applying for assistive technology were unwieldy and awkward.

One interviewee relayed the account of a learner who was assessed for assistive technology. Because of the length of time the process took for the S.E.N.O. to grant approval for the device, that learner only had two months in which to train with the assistive technology. This was not enough time to ascertain whether it helped her to access and work on the computer or not.
One interviewee, while the learner in her school had been assessed for assistive technology and had subsequently taken possession of that equipment was awaiting assistance regarding it’s set up for the learner.

During observations in the junior class, the teacher needed to attach a head-switch on a universal mounting arm to the class chair of one learner. Even with practise and a photographic guide, this process took quite a lot of time during which the learner became increasingly fractious, leading to more repositioning and learner anxiety.

4.7.11. Problems Using Switch Accessible Software

Teachers were asked if they ever experienced any problems using Switch Accessible software based on a 3 point scale of occasionally, never and often. The majority of teachers, 42%, reported they experienced problems occasionally, 33% never and 25% experienced difficulties with their software often.

4.8. Conclusion.

This chapter illustrated the findings from the research that was undertaken using a postal questionnaire, observations and interviews. In the following chapter, these findings will be further discussed in reference to the literature as detailed in Chapter 2.
Chapter 5. Discussions.

5.1. Introduction.

In looking at the findings in Chapter 4, questions were asked of teachers which elicited responses of both quantitative and qualitative nature. This chapter will discuss these findings in more detail. It will consider these results in relation to the literature review which was expounded in Chapter 2 and also in relation to the research questions under these headings:

- Training for teachers.
- Adequate resources.
- Teacher's use of I.C.T.
- Support.
- Technical Support.
- Barriers to the Effective Use of I.C.T.

5.2. Training for teachers.

5.2.1. I.C.T. Training During Initial Teacher Training.

In the postal questionnaire, the question about undertaking specific I.C.T. training during their initial teacher training was put to teachers. Less than half of the respondents had undergone such training. In further studying these results, it transpired that of this group, more than half of them were in the younger age range of 20-34 year olds. This still leaves quite a few newly qualified teachers or recent graduates leaving teacher training colleges without having been given any preparation on how to use I.C.T. in school/class.
When looking at the percentages within each age range, the percentage of teachers having received training in I.C.T. during their initial teacher training decreases as the age range increases.

This would seem to indicate that until recent years, the preparation of new teachers has proceeded along traditional methods. It would also seem to imply that third level training colleges are beginning to provide skills training for student teachers as the Inspectorate Evaluation Studies Report, (D.E.S., 2008, p. 186) implored them to do.

However, those teachers who have studied a recognised S.E.N. Diploma course have also studied one module in I.C.T. which would relate specifically to S.E. N.

In talking to teachers during interview, one interviewee was within the middle age range of 35-49 years and she reported that she had undergone one module of her training in I.C.T. She felt that although this was a useful experience, it was not adequate preparation whatsoever for today’s classrooms as technology is advancing at such a rapid rate, initial teacher training could never keep pace with it.

Another teacher who is in the upper age range, was thrown in at the deep end during the early 1990s when she was given a computer and had to find out for herself what to do with it. She found that this computer was of great value to her and her learners as it had great software which was appropriate to her needs at the time, possibly because early computer software was based on the Behaviourist learning theory which often suits learners with S.E.N.
5.2.2. Further Training.

When asked if they had undertaken any C.P.D. in the area of I.C.T., many of the respondents (62%) answered that they had. As technology is such a part of life now and will play an even more important role as time goes on, teachers have recognised the need to up-skill and prepare themselves to use technology for their own benefit and the benefit of their learners in class. The majority of these courses taken were summer courses run by the N.C.T.E. with a duration of 20 hours and a certificate of completion as recognition for undertaking the course. The choice of subjects on these courses is vast, although the researcher has noticed a decline in face-to-face I.C.T. courses in recent years.

Many of the courses involved an element of using the Internet as a tool for learning. However, no specific mention was made about using Web 2.0 tools in the classroom which would seem to indicate the validity of the findings from B.E.C.T.A. (2008) where teachers were reluctant to introduce these newer tools into the classroom. One progressive school had discovered the benefits of using an iPad with the learners in a school for the Deaf and will be fundraising in order to equip the school with more iPads as they have proved very useful for this cohort of learners. This particular school seems to embrace I.C.T. as they have been awarded a Digital Schools Award. Contrary to Mulkeens findings where training had not increased the levels where I.C.T. was been used throughout the curriculum, this school continues to find ways to use I.C.T. in all aspects of their educational life. (Mulkeen, A. 2003)

As more and more classrooms are becoming equipped with I.W.B.s, quite a few teachers chose to study a course on the use of these in the classroom. Mulkeen also
recognises that whole school training like this is a positive step towards the integration of I.C.T. in teaching and learning.

A number of teachers have undertaken an E.C.D.L. course with the objective of up-skilling and equipping themselves for using it in school. This may be in order to use a computer efficiently for administrative purposes and also in order to pass on that knowledge to their learners.

Another teacher has, with his/her skills and knowledge, decided to share her learning and experience of using Microsoft packages and I.C.T. for S.E.N. pupils in his/her local Education centre for teachers and S.N.A.s.

Only two teachers reported that they have had training in Clicker, which is not only a programme for literacy attainment but also a writing tool for learners of all abilities, not just those who experience physical disabilities. The researcher has herself undertaken a short training course in Clicker but would not consider herself trained in its use or be confident in training learners with S.E.N. in its use.

Other respondents have obviously an interest in computers as they have studied to diploma level in the area of Computer Science, Computer Programming, I.C.T. in Education and Digital Media Development for Education.

A small number of teachers who have an interest in assistive technology, possibly because they may not have had access to professional A.T., have themselves gone on
to study for a Diploma in Assistive Technology, (D.A.C.A.) or the Certificate in Assistive Technology Applications. (C.A.T.A.).

5.3. Adequate Resources.

5.3.1. Learner Access to Computers.

Most teachers responded that their class had access to computers and that they accessed computers in the classroom. Some classes also had access to computer labs within the school and 6 classes accessed computers in a computer lab only. However, even with the computer labs taken into account, only 26% of teachers reported that there was a computer for every learner.

One of the teachers interviewed felt that her learners need computers more than other learners without disabilities as they do so much work on the computer. She also claims that in her experience, the teacher has to use the class computer for any I.C.T. related work. ‘it’s the class computer they’re using unless they bring in their own laptop’. She says that there isn’t any special computer for the teacher and that if learners are using the same computer in class, they could easily break the machine inadvertently or do something which would render it useless until it’s repaired.

Bearing in mind that this research occurred after the second tranche of grants towards schools to equip every classroom in the country with a teaching computer, long range wireless keyboard & mouse and a fixed digital projector, (Smart Schools=Smart Economy) funding still seems to prove inadequate for special schools. This is because funding is based on enrolment numbers and as special schools have smaller
pupil/teacher ratios, the grants received were not sufficient to equip each class in this way.

5.4. Teacher’s Use of I.C.T.

5.4.1 Use of Other Technologies in Class.

Teachers in special schools use a range of digital technologies in class. These include:

- Digital Cameras.
- I.W.B.
- Visualiser.
- T.V. and D.V.D.
- Scanner.
- Printer.
- Laptops.
- Desktop Computers.

Interviewees expressed their dependence upon the printer for everyday work in the classroom. This was also shown during the observation of the post-primary class when the teacher printed out worksheets and notes for her class and also in the primary class for daily communication with parents for non-verbal learners.

One interviewee felt that the camera and printer together are essential

‘I suppose the printer, I suppose yeah for printing off that kind of stuff you know. But the cameras are fabulous, ‘cos we do a lot of ehm, for the kids who you know wouldn’t have a lot of sign language, like we would print off their news for the day and put photographs of them in, to encourage them to talk to their parents at home about it, about what happened during the day in school and so there would be photographs, a lot of photos going home.’
Some schools also reported that they use digital video cameras in addition to still
digital cameras. In a comment on the questionnaire, one teacher remarked that he/she
has been using their own personal camera for class work.

It would seem from these findings that some schools have resourced themselves well
using their I.C.T. grants while other schools seem to have other priorities.

5.4.3. Software/Online Interactive Resources

Teachers in special schools use a range of software/online resources, both S.E.N.
specific and mainstream software/online resources. Of those teachers who use
software/online resources which can be differentiated for individual learners, teachers
can spend on average up to two hours per week preparing these resources for the
learners to use.

5.4.4. Switch Accessible Software.

As some learners with S.E.N. may have difficulty in accessing and using a computer,
switch accessible software may be the means by which they can achieve success in
this area. Unfortunately, some teachers admitted to not knowing what this referred to,
perhaps this is because these teachers taught in schools for Mild and Moderate G.L.D.
where the learners may not have mobility or dexterity issues.

In order to use such software, switches and other assistive technology equipment are
necessary to work it. Less than a third of respondents stated that they had access to
switches or other assistive technology devices. This does not mean that they actually
use it, as both the setting up and running the software can prove problematic.
However, a quarter of the respondents found that they experienced frequent problems in using switch accessible software with 42% experiencing the occasional difficulty.

Indeed, during the observations of the primary class, the teacher spent a number of minutes in adjusting a universal mount with a head switch attached onto a learner’s wheelchair in order for that learner to have the optimal positioning to use the equipment. This teacher has had advice from O.T. in how to set up this equipment and has used the digital camera to print out a photograph showing the best placing of the switch so other teachers or S.N.A.s can set it up if necessary.

Many teachers expressed their satisfaction with the software they use in class and felt that it met the needs of their learners and that of the S.E.N. curriculum. There were some comments about a number of issues regarding software/online resources with many teachers articulating the same concerns. These come under three headings:

- Suitability and age appropriateness of software.
- Hardware and software compatibility.
- Lack of funding to special schools to buy specific suitable software.
5.5. Support.

Supports come in many guises for the special school. Some of these are:

- The S.E.N.O.,
- Multidisciplinary Team
- National I.T. & Special Needs Advisory Service
- Regional I.C.T. Advisory Service.
- Technical Support.

5.5.1. The S.E.N.O.

When a learner has S.E.N., assessments are carried out by the multidisciplinary team (Appendix E) to ascertain what supports should be put in place to enable him/her to access an appropriate education. The S.E.N.O. is the professional person who grants approval for supports such as assistive technology for learners.

As reported during one interview, the S.E.N.O. involved seemed to offer not support but obstacles in the way of a young learner accessing a piece of assistive technology and being given time to train to use it. The teacher recounted an incident where a request was submitted to the S.E.N.O. for an assessed piece of equipment which would enable the learner to access a computer. This request was sent to the SENO eighteen months before the equipment was actually sanctioned by the S.E.N.O. Unfortunately for the learner, by the time it was sanctioned and supplied, there were only two months left of this learner’s formal education before she graduated from school. This did not give her time to be trained to use the equipment or to find out if it would have benefitted her at all and as it was the property of the school, she had to leave it in the school. (see Appendix F1)
Another interviewee also found that the system of assessing and providing learners with the necessary Assistive Technology to be cumbersome and inefficient too. She feels that as a teacher, she would see the problem as a needs based one but that the S.E.N.O. may not agree with the assessment. (Appendix F2) She reported that she needs to provide three quotes for the D.E.S. before she is granted permission to proceed to buy the equipment and that because the technology the learners need in her school is quite specialised, many of the quotes she can provide come from English firms as there is only one Irish supplier.

5.5.2. Multidisciplinary Team.

The questionnaire asked respondents if they had access to a multidisciplinary team. The majority of schools replied that they did have access, either on-site or off site. The most important therapists pertaining to this research are Occupational Therapists (O.T.) and Assistive Technologist. However, it is the O.T. who must sign off on any recommendations for assistive technology in order for the Principal to apply for these supports for the learner. All respondents acknowledged that they have access to O.T. but some of these are off-site which would then necessitate arranging visits from these professionals to school to assess the learner. This may result in further delays in the assessment and then the procurement of assistive technology.
5.5.3. Advisory Support,

5.5.3.1. National I.T. & Special Needs Advisory Service.

Ms Anne Jackson had been the National Advisor in the above mentioned service. She conducted seminars, conferences and also made school visits on request, often revisiting schools multiple times. She demonstrated hardware and software for learners of all different abilities within the S.E.N. criteria to teachers both on an individual basis and whole school groups.

The questionnaire asked teachers if the removal of the National IT & Special Needs Advisory Service had made a difference to their school or class. 44 respondents answered yes to this question with 49 answering no. There were 11 omissions on this question. Some of the respondents had written a question mark against these questions, others had omitted to answer and a few had made a short remark about not being in the school/class during the relevant time period. The researcher, on checking against the age range of these respondents, ascertained that four of these omissions were in the youngest age range so were possibly not in the teaching profession while the National I.T. & S.E.N. Service was operating. Another teacher noted that he/she was not in the school/class and another actually stated that he/she did not know that the service existed.

In looking at the figures for each category of school, it seems that 64% of schools for the Physically Disabled seem to find that the withdrawal of the service has had an impact on them whereas Hospital schools don’t seem to have used the service before.

In answer to the question asking if the school had had a visit from the National Advisor prior to the service disbandment, again it seems that schools for the
Physically Disabled benefitted from this more than other categories of schools. However, in scrutinising the questionnaires, a number of teachers spontaneously commented to this question remarking that the support given on visits to schools by the national Advisor was very helpful and informative.

Another teacher expressed her apparent frustration at the end of the questionnaire:

‘Very few people have expertise in the area of I.C.T. with children with Severe & Profound General Learning Difficulties. Sometimes you are more of an expert than the expert. Not good enough!’

An additional comment along the same vein from a young teacher:

‘I taught in the U.K., Ireland is actually disgraceful in terms of use of technology in our curriculum etc. No supports, hardly any use of technology, is a disaster. It is up to young teachers to open their minds and use it.’

5.5.3.2. Regional I.C.T. Advisory Service.

The Regional ICT Advisory Service had been in operation through the local Education Centres. This service was open to all teachers both in mainstream schools and special schools. Its main function was advice and support in relation to all aspects of I.C.T. within schools - planning, broadband access, website development, internet security, purchasing hardware, software and organising I.C.T. related courses. When asked if the withdrawal of this service had made any difference to the teacher/school, most teachers felt that it has made some difference to them. The exception would be Hospital schools and Autism Specific Schools. However, when asked if this service should be reinstated in their opinion, only 5 respondents replied no. There were some omissions (15) to this question and perhaps,
like the few omissions in response to the question on National IT & Special Needs Advisory Service above, a number of these respondents may also not have been in the teaching profession when this service was in operation.

Some of the additional comments written on the questionnaire were:
‘Don’t know, mind, care!’ this came from a teacher in the upper age range, perhaps with no interest in I.C.T., although from answers to previous questions on the questionnaire, this person seems very comfortable with and skilled in the use of I.C.T. in his/her class. Another reason for this apparent disinterest could be they feel they have adequate knowledge and skills to continue teaching and learning using I.C.T. in the class.

Another few comments – ‘Didn’t know it existed. Find www.ncte.ie and www.sess.ie both very useful.’ and ‘I wasn’t familiar with it’.

**5.5.4. Technical Support.**

When it comes to maintenance of class computers, more than half of the respondents reported that they experienced problems on more than three occasions in the last school year. The respondents reported that their school deals with this a number of different ways:

- In-house P.O.R. for ICT.
- External trained I.C.T. professional.
- External technical support service company.

For those schools which do have a P.O.R. for I.C.T., although only 31% have any training in this area, many of them are able to maintain the computers for the small
difficulties that arise from time to time. However, as these can arise during class teaching time, this puts pressure on that teacher. In schools where there is not a P.O.R. for I.C.T., it can be more difficult ‘it is a real headache especially when we don’t have a Post and you’re relying on somebody’s good nature, who’s good at I.C.T. and calling them out of class all the time and that kind of thing, you know, it’s hard.’

Most schools rely on an external trained I.C.T. professional who will either come in to the school or remove the computers to work overnight on them. This can lead to some difficulty if there is only one computer in the class as the teacher may be without a valuable resource for a day or more.

Other schools call in the assistance of a Technical Support Company. For many schools a mixture of the three options seems the preferred method of dealing with computer maintenance.

When asked in interview if the teachers would like to see a centralised, online secure service run by and paid for by the D.E.S. which could access their problem computer remotely, teachers were in agreement. They felt that it would also cut down on costs to the school as the I.C.T. grant does not cover the expense of maintenance. While the Inspectorate Evaluation Studies report, ‘ICT in Schools’ does not specifically state that this service would be funded by the state, it would greatly benefit schools in the long run.
5.6. Barriers to the Effective Use of I.C.T.

5.6.1. Barriers Identified.

A number of barriers to the effective use of I.C.T. have been identified in this research. These are:

- Gender and Age.
- Teacher’s Attitudes.
- Obsolete Hardware and Software.
- Funding.
- Suitability and age appropriateness of software.

5.6.2. Gender and Age.

Barriers, as we have seen in Chapter 2, can be age and gender related. Of the 103 respondents who answered these questions in the questionnaire, 35% of respondents were aged between 20 and 34 years, 38% were between 35 to 49 and the remaining 27% were in the older age range of 50 to 65 years.

Of the total respondents, only 18% were male and 82% female.

When this was broken down further into their respective age groups, the results are that within the older age range of 50-65 years, 16% were male and 33% were female. Within the middle age range of 35-49, 42% were male and 37% female and within the younger cohort of teachers 20-34 years, 42% were male and 30% female. As the number of male respondents was quite small, these findings may not give a true reflection of the attitudes and abilities of the teaching population in special schools in Munster which follow.
5.6.3. Teacher’s Attitudes.
Another aspect to this question is teacher’s attitudes towards I.C.T. which encompasses both skills levels and comfort with using I.C.T.

5.6.3.1 Comfort Levels.
When asked about these aspects of their own attitudes, most males rated their comfort levels within the very comfortable to comfortable points of a five point scale. Only one male teacher, who was within the older age range of 50 -65 years, claimed that he felt uncomfortable using I.C.T. in class.

When female teachers were asked the same question, no teacher declared themselves to be either uncomfortable or very uncomfortable with using I.C.T. However, quite a number considered themselves to have neutral feelings towards using I.C.T. 32% of all female teachers felt they were very comfortable with using I.C.T., 46% were comfortable and 22% had neutral feelings towards using I.C.T.

5.6.3.2. Skills Level.
When looking at gender and I.C.T. skills levels, we can see that 1 male teacher and 10 females are at the beginner level across all age ranges. 14 males and 64 females declared themselves to be operating at the Intermediate skill level. When it comes to expert level, we can see that 4 male teachers rate themselves expert and 10 female teachers do likewise.

When comparing both male and female skills levels, the majority declared that they felt they had intermediate skills levels, 74%/76% respectively. 21% of male teachers
categorized themselves as expert as compared with 12% of female teachers and only 5% of male teachers felt they were at beginner level as opposed to 12% of female teachers.

This research shows that more male teachers identified themselves as being expert users of I.C.T. than female teachers which seems to uphold the finding of Brummelhuis (2009) who found that males were more likely to embrace new technologies than females.

5.6.4. Obsolete Hardware and Software.

In looking at the age of computers in schools, the oldest computer was found to be 16 years old. Many teachers reported having new computers this school year with the newest one being one month old. Hospital schools would seem to fare the worst with the average age of older computers being 10.5 years although they did report having a new computer this year also.

In checking the overall age of computers across all school categories, it was found that 45 computers were reported to be six years or older which goes against recommendations from the D.E.S. It also means that if Recommendation 4, ‘technical support should only be provided for computers that are six years old or less.’ (D.E.S. 2008, p.23-24) were to actually be put in place, then remote access maintenance would exclude many of the computers that special schools have come to rely on.

Some of these schools may choose to keep older computers as hardware and software compatibility can be a problem. One respondent from a Hospital school remarked that
‘Windows 7 won’t run older established software we have come to rely on, so we keep older computers to run them. Updated software not available.’ This may account for the fact that this teacher reported that the oldest computer in his/her class is 11 years old. This teacher wasn’t the only one who has experienced difficulties with hardware/software compatibility, teachers from schools for Physically Disabled learners and A.S.D. schools also commented about this hindrance.

5.6.5. Funding.

Funding for special schools, as in mainstream schools, is based on enrolment numbers. This has proved rather contentious with teachers in special schools as the most recent I.C.T. grants arising from Smart Schools = Smart Economy report, 2009 and 2010, given in order to equip every classroom in the country with a teaching computer and a fixed projector, were also based on enrolment numbers rather than on the number of classrooms in the school. However, a special school has a different pupil/teacher ratio and so will have more classrooms than the enrolment numbers imply thereby leaving special schools short of money to equip their classrooms to the level that the D.E.S. envisions.

One teacher’s school had done a lot of fundraising before the grants became available and had equipped each classroom with I.W.B.s. The grant money was then used to upgrade the computers to drive the I.W.B.s. The teacher remarked ‘so we’ve used the grants to update the computers for the boards and you know, I mean we didn’t get enough money to get a computer for every classroom but, I wouldn’t call it adequate but it was a help.’
A teacher from a school for Severe/profound G.L.D. felt that in his/her opinion, a touch-screen computer would be of more benefit to his/her cohort of learners but the school cannot afford either this hardware or suitable software to run on it and the I.C.T. grants of recent years do not allow for the purchasing of this equipment.

Although grants have been issued to schools to update their hardware, no such monies have been allocated to update software thus creating an incompatibility between hardware and software. A teacher from schools for the Physically Disabled commented that the cost to update software so that it will run on newer operating systems will be prohibitive to already cash strapped schools.

5.6.6. Suitability and age appropriateness of software.

Many teachers expressed the opinion that the reason why they may not use software in class was to do with its suitability for learners. Some of them felt that when they found software/online resources which were suitable for the learner’s stage of development, they were not age appropriate.

A teacher working in a Youth Encounter Project school stated that ‘age-appropriate material is also a must to help aid the teacher in literacy/numeracy delivery at a level suitable for the individual pupils.’

5.7. Conclusion.

This chapter has examined the findings of the research in relation to the literature review and the research questions. Many of the findings from this research seem to show that while there is a development in the way I.C.T. is being implemented in the teaching and learning in special schools in Munster, there are many obstacles still to
be overcome such as teacher training, attitudes, suitable infrastructure, maintenance and funding.
Chapter 6. Conclusion.

6.1. Introduction.

This research proposed to ascertain how teachers in special schools in Munster implement I.C.T. in their teaching and learning and what barriers, if any, exist in that implementation. This chapter reviews the research carried out and makes recommendations for additional consideration in this area.


6.2.1 Initial Objectives.

The objective of this study was to ascertain how teachers implement the use of I.C.T. in their teaching and learning and if any barriers exist to this implementation. The objectives of the investigation were:

- **Training for teachers** – has teacher training adequately provided for the implementation of I.C.T. into teaching and learning?
- **Adequate resources** - Is funding sufficient to provide the necessary I.C.T. equipment for teaching and learning for learners with S.E.N.?
- **Support** – have teachers access to professional support?
- **Technical Support** – is the technical support available on-site or off-site? Is it adequate to provide day-to-day solutions to teachers in order to provide successful outcomes to both teachers and learners?
- **Barriers to the Effective Use of I.C.T.** - what, if any, barriers exist in the implementation of the teaching and learning with I.C.T. in special schools in Munster?
6.2.2. Summary of Findings.

The findings based on these objectives suggest that:

Finding 1. While initial teacher training does provide some training for the implementation of I.C.T. into teaching and learning, it still has some way to go to ensure all teachers are adequately prepared.

Finding 2. Many teachers were prepared to undertake C.P.D. in order to keep their skills up to date.

Finding 3. Resources were found to be deficient for the needs of the learners in many special schools with funding especially inadequate.

Finding 4. Many special schools find accessing professional support in the area of assistive technology or O.T. to be difficult.

Finding 5. Advisory support in the form of the National I.T. & Special Needs Advisory Service and the Regional I.C.T. Advisory Service was missed by the minority of teachers in special schools. However, the majority would like to see the reinstatement of the Regional I.C.T. Advisory Service.

Finding 6. Technical support in the form of computer maintenance is costly and time consuming. Most schools do not have expertise on site to carry out routine maintenance.
Finding 7. Barriers do exist in the implementation of the teaching and learning with I.C.T. in special schools in Munster. These have been identified as:

- Age and Gender.
- Teacher’s Attitudes Towards I.C.T.
- Learners Other Than Official Designation.
- Class Size
- Funding,
- Restricted Websites.
- Time.
- Universal Design For Learning.
- Suitable Resources.
- Assistive Technology.
- Problems Using Switch Accessible Software

6.3. Recommendations for Additional Consideration.

In reviewing the above research, some topics recur. The following recommendations arising from these include:

- C.P.D. in the area of digital technology for S.E.N. should be offered to all teachers of special schools. This should take the form of whole school training using the resources in that school and should cater for the cohort of learners in that school.
Resources specific to the type of special school should be considered, looking at the needs of the learners and the expected outcomes of using I.C.T. with that cohort of learners. Further research is necessary to ascertain what specific methodologies in using I.C.T. should be utilised in order to maximise the learning outcomes of learners within each category of S.E.N.

Specific grants should be offered to special schools to update obsolete hardware and to identify and source up-to-date appropriate software.

Consideration should be given to reinstating the Regional I.C.T. Advisory Service based in Education Centres.

Funding to special schools should be reconsidered. This should be based on teacher numbers rather than on enrolment numbers.


Access to A.T. should be looked at in a regulated, planned approach for all special schools in Munster in order to make best use of the specialists working in this field.
6.4. Conclusion.

This investigation examined the use of I.C.T. in special schools in Munster. The results of this study show that while teachers’ overall use of I.C.T. in many aspects of their teaching and learning is good, there are also many obstacles to that implementation.

While this study focused on special schools in Munster, this result may not be applicable to the whole of Ireland’s special schools. The recommendations above, however, would go a long way to smoothing the path to full implementation of I.C.T. in teaching and learning in Irish special schools.
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<th>Description</th>
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<tr>
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</table>
Dear Principal,

My name is Cathy Cooper, a class teacher in St. Gabriel’s Special school in Limerick. I am presently engaged in an M.A. programme in University of Limerick studying Digital Media Development for Education and as part of this programme, am conducting a survey of all 33 special schools in Munster. I am specifically interested in finding out how we as teachers use ICT in our teaching and learning in special schools, the good things and the difficult things.

I would really appreciate your and your teaching staffs’ help in conducting this survey by completing the enclosed questionnaire and returning same in the SAEs attached.

As you will see, it is completely anonymous and all information will be treated confidentially.

Again, thank you for your time in helping to complete this survey.

Yours sincerely,

Cathy Cooper.

cathyconnorcooper@gmail.com

(087) 2742916
APPENDIX B. Letter to Teacher.

Coolanoran
Ardagh
Co. Limerick
23/05/2011

Dear fellow Teachers,

Thank you for agreeing to take part in this study of how we use ICT in special schools in Munster. I hope by gathering the data from you that I may present findings which will show how teachers in special schools embrace ICT in our teaching and learning, what are the great things about ICT and what are the obstacles which we face in using it in class.

The questions are straightforward and shouldn’t take too long to answer. Please be aware that the questionnaire is printed on both sides of the paper. As you will see, it is completely anonymous and all information will be treated confidentially.

I would ask that you use the S.A.E. provided to return your responses before June 3rd. Again, thank you for your time in completing this survey.

Yours sincerely,

Cathy Cooper.

cathyconnorcooper@gmail.com

(087) 2742916
APPENDIX C. Request for Permission to Observe.

Cooloranran
Ardagh
Co. Limerick.
23/05/2011

Dear Principal,

I am presently engaged in an M.A. programme in the University of Limerick studying Digital Media Development for Education. As part of this programme, I would like to observe how teachers in special schools implement I.C.T. in their teaching and learning.

I am asking for your permission to conduct two observations, one in a Primary class and one in a Post-primary class. I propose to carry out these observations using my E.P.V. days.

I await your decision,

Yours sincerely,

Cathy Cooper.

cathyconnorcooper@gmail.com
(087) 2742916
APPENDIX E. Sample Questionnaire.

A. ABOUT YOU:

1. In which age group do you belong? 20 -34 □ 35 – 49 □ 50 – 65 □

2. Are you male □ female □

3. How many years experience teaching have you?

4. How many years experience teaching in a special school?

5. Do you hold a recognised Special Education Diploma? Yes □ No □

6. During initial teacher training, did you learn to use ICT as a tool for teaching and learning? Yes □ No □

7. Have you undertaken any ICT courses since graduating? Yes □ No □

8. If you answered yes to above question, please list here (type of course, duration, award)

<table>
<thead>
<tr>
<th>Course</th>
<th>Duration &amp; year.</th>
<th>Award (certificate, diploma, Post Grad dip, Masters etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

9. How would you rate your comfort level with ICT? (please tick one box only)

<table>
<thead>
<tr>
<th>very comfortable</th>
<th>comfortable</th>
<th>neutral</th>
<th>uncomfortable</th>
<th>very uncomfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

10. How would you rate your skill level with ICT? (please tick one box only)

<table>
<thead>
<tr>
<th>beginner</th>
<th>intermediate</th>
<th>expert</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
B. ABOUT YOUR SCHOOL:

1. **What is the official designation of your school?**
   a. Mild General Learning Disabilities, □
   b. Moderate General Learning Disabilities, □
   c. Severe and profound General Learning Disabilities, □
   d. Schools for the Deaf, □
   e. Schools for the Visually Impaired, □
   f. Schools for the Physically Disabled, □
   g. Autism Specific Schools, □
   h. Youth Encounter Project schools for disaffected youth, □
   i. Hospital Schools, □
   j. Children detention Schools, □

2. Does your school cater for pupils whose disabilities are other than those of your official designation?  
   Yes □  No □

3. Does your school have access to a Multi-disciplinary team?  
   Yes □  No □

4. What is the make-up of this team? *(tick as many as may apply)*

<table>
<thead>
<tr>
<th></th>
<th>On-site</th>
<th>Off-site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupational Therapist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistive Technologist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech and Language Therapist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C. ICT IN YOUR CLASS.

1. How many pupils are in your class?

2. Do you have SNA support in class?

3. Does your class have access to computers?

4. Where does your class access computers:
   a. computer lab?
   b. in class?

5. If you answered yes to lab, is there a computer for every pupil?

6. If you answered yes to class, is there a computer for every pupil?

7. Can all pupils access the computer at the same time?

8. Have all your pupils been assessed for computer accessibility?

9. Have all your pupils been assessed for assistive technology?

10. Have all your pupils been supplied with necessary assistive technology?

11. Have you been trained to assist pupil(s) use their assistive technology?

12. Have your SNA.s been trained to assist pupil(s) use their assistive technology?

13. Is there an Interactive White Board in your class?

14. Can the pupils access the IWB?

15. If you answered no to above, please give brief details. *(eg. nature of disability, make or model of IWB, height, etc)*

16. How old is the oldest computer in your class? (years approx)

17. How old is the newest computer in your class? (years approx)
D. USE OF OTHER TECHNOLOGIES IN CLASS.

1. Do you have access to the following equipment in your class? (please tick as many as may apply)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>How many</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Desktop computer(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Laptop computer(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Printer(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Scanner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. T.V. and DVD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Visualiser</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Interactive Whiteboard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Digital camera</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. How do you use ICT? (please tick as many as may apply)

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Lesson/class planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Using computers for assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. I.E.P. Preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. As a means of differentiation for pupils</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Make web quests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Using computer for in-class lessons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e.g. presentations)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Accessing the Internet during class teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Email for school administrative purpose</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
E. SOFTWARE/ONLINE INTERACTIVE RESOURCES IN USE IN YOUR CLASS.

1. Do you use specific S.E.N. software/online interactive resources in class?  
   [ ] Yes  [ ] No

2. Do you use mainstream software/online interactive resources which can be differentiated or personalised for individual learners?  
   [ ] Yes  [ ] No

3. If you answered yes to No 2, how much time do you spend personalizing the software/online interactive resources? (per week approx)  
   [ ]

4. Do you use switch accessible software?  
   [ ] Yes  [ ] No

5. Have you access to switches and other equipment necessary to use this software?  
   [ ] Yes  [ ] No

6. Have you access to advice from a professional re setting up and a. using switch accessible software?  
   [ ] Yes  [ ] No

7. Have you ever experienced any difficulties using switch accessible software?  
   Occasionally  Never  Often

   (please tick one box only)

8. Is the software you use satisfactory in meeting your learner’s needs?  
   [ ] Yes  [ ] No

9. Does it address the Irish S.E.N. Curriculum needs for your class?  
   [ ] Yes  [ ] No

10. Please use this space to outline briefly any difficulties and/or successes you have had using software in your class

    ___________________________________________________________

    ___________________________________________________________
D. COMPUTER MAINTENANCE SUPPORT.

1. How often have you experienced problems with your class computer(s) during this school year approximately.(please tick one box only)

<table>
<thead>
<tr>
<th>Once</th>
<th>Twice</th>
<th>Three times or more.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Does your school have a Post of Responsibility for ICT?  
   Yes [ ] No [ ]

3. If you answered yes to No. 2, is this person a trained ICT professional?  
   Yes [ ] No [ ]

4. When computer maintenance is required, who carries out this job? (tick as appropriate)
   a) In-house ICT post holder [ ]
   b) External trained ICT professional [ ]
   c) External technical support service company [ ]

B. ADVISORY SUPPORT.

1. The role of the National IT & Special Needs Advisory Service has been withdrawn since 2008. Has this made any difference to your school/class?  
   Yes [ ] No [ ]

2. To your knowledge, had Ms. Anne Jackson (National Advisor) visited Your school prior to 2008?  
   Yes [ ] No [ ]

3. Has the withdrawal of the Regional ICT Advisory service offered through local Education Centres made a difference to your school/class?  
   Yes [ ] No [ ]

4. Would you like to see the re-opening of this advisory service in the Future?  
   Yes [ ] No [ ]
# OBSERVATION SCHEDULE

**Primary Class.**

<table>
<thead>
<tr>
<th>TIME</th>
<th>Curriculum area</th>
<th>Teacher/ Pupil</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:30</td>
<td>English Communication</td>
<td>Teacher</td>
<td>Laptop setup for IWB, morning roll-call + news on IWB</td>
</tr>
<tr>
<td>9:30 – 10:00</td>
<td></td>
<td></td>
<td>Storytime &gt; IWB &gt; accessed internet for online talking story.</td>
</tr>
<tr>
<td>10:00 – 10:30</td>
<td></td>
<td></td>
<td>Poetry IWB &gt; flipchart opened with poem &gt; teacher read poem for class.</td>
</tr>
<tr>
<td>10:30 – 10:45</td>
<td>Switch Skills</td>
<td>Teacher</td>
<td>Set up switch skills programme for 1 pupil with single switch. Pupil needs constant prompting to wait &gt; presses switch constantly. Cause/ effect programme.</td>
</tr>
<tr>
<td>10:45 – 11:00</td>
<td></td>
<td></td>
<td>BREAK.</td>
</tr>
<tr>
<td>11:00 – 11:30</td>
<td>Science/ Geography</td>
<td>T.</td>
<td>Accessed website to get instructions how to make a warming video on IWB. &gt; class make warming.</td>
</tr>
<tr>
<td>11:30 – 12:00</td>
<td>Music @ 11:50</td>
<td>T.</td>
<td>Accessed website for Irish Eurovision entry. Painted out Jedward masks for class</td>
</tr>
<tr>
<td>Time</td>
<td>Activity Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00 - 12:30</td>
<td>Switch Skills @ 12:15. Teacher sets up head switch for 1 child who takes long time to switch. Child works on cause/ effect programme.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30 - 12:40</td>
<td>Teacher worked on switch skills with 2 children on 2nd pc. Cause/ effect + ordinary mouse.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:40 - 13:10</td>
<td>LUNCH BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:10 - 13:40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:10 - 14:30</td>
<td>Music. Teacher plays Eurovision song for last 10 minutes before home time.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX D2. Observation Schedule, Post-Primary.

## OBSERVATION SCHEDULE.

**Post-Primary Class**

<table>
<thead>
<tr>
<th>TIME</th>
<th>Curriculum area</th>
<th>Teacher/pupil</th>
<th>Observations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 9:30</td>
<td>MATHS</td>
<td>T.</td>
<td>Points out worksheets for group of 4 girls. Works on history website w/ 2 leaving cert boys.</td>
</tr>
<tr>
<td>9:30 - 10:00</td>
<td>History</td>
<td>T.</td>
<td>Sets up Leaving Cert group with digital voice recorders + head phones. Passage on past papers. Works with second group on reading + comprehension on laptops + individualised material.</td>
</tr>
<tr>
<td>10:00 - 10:30</td>
<td>English</td>
<td>T.</td>
<td>↓ ▼ ◀</td>
</tr>
<tr>
<td>10:30: - 10:45</td>
<td>BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45 - 11:15</td>
<td>Geography</td>
<td>T.</td>
<td>Project on Spain → 2nd group look up images of specified subjects on laptops + PCs.</td>
</tr>
<tr>
<td>11:15 - 11:45</td>
<td>English</td>
<td>T.</td>
<td>Leaving 2nd group writing dictating using digital voice recorders → descriptive passages of downloaded images.</td>
</tr>
</tbody>
</table>
### APPENDIX D2. Observation Schedule, Post-Primary.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45</td>
<td>AER.</td>
</tr>
<tr>
<td>12:10</td>
<td>T.</td>
</tr>
<tr>
<td></td>
<td>Homework</td>
</tr>
<tr>
<td></td>
<td>T.</td>
</tr>
<tr>
<td></td>
<td>Prints out template for making a retirement gift for visiting teacher.</td>
</tr>
<tr>
<td></td>
<td>Prints out worksheets for homework in English + Maths.</td>
</tr>
<tr>
<td></td>
<td><strong>LUNCH BREAK 12:10 – 12:40</strong></td>
</tr>
<tr>
<td>12:40</td>
<td>F.E.T.A.C.</td>
</tr>
<tr>
<td>13:10</td>
<td>T.</td>
</tr>
<tr>
<td></td>
<td>Teacher sets assignment for learners to download 8 logos of car makes for F.E.T.A.C. folders.</td>
</tr>
<tr>
<td>13:10</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td></td>
</tr>
<tr>
<td>13:40</td>
<td>English/History</td>
</tr>
<tr>
<td>14:10</td>
<td>T.</td>
</tr>
<tr>
<td></td>
<td>Teacher prints out homework + study plan for leaving cert group.</td>
</tr>
<tr>
<td>14:10</td>
<td></td>
</tr>
<tr>
<td>14:30</td>
<td></td>
</tr>
</tbody>
</table>
Teacher in a senior class in school for pupils with multiple disabilities.

Q. For those teachers who qualified before computers became such a large part of our lives, how did you familiarise yourselves and become comfortable with using ICT as part of your teaching and learning? (pause)... like what was your first introduction to... to computers in the classroom?

R. A computer was eh given to me in my classroom, and it was an old BBC, it had great programmes for young children and eh it was easy to use, the programmes were very good so I learned how to do it very quickly and the kids got a lot out from it because that stuff was absolutely excellent.

Q. And you weren’t given any formal training or anything?

R. No, no.

Q. You had to basically find out yourself.

R. Just find out myself yeah.

Q. I’d say that’s the way a lot of us did it (laughs)

Q. Do you mainly use ICT for administrative purposes, class planning, record keeping etc.?

R. Yes, all the time.

Q. Yeah. And what’s the, what’s your main use say?

R. of ICT?

Q. Yeah. Well, for, for administrative purposes?

R. For administrative purposes I suppose planning, class planning, eh writing, eh documents, any writing really that has to be done ehm for administration from that
side of it. I’d use it also ehm for documents you would have to send to the Department and fill them in I would do it online rather than do it manually and post it.

Q. And it’s much easier that way is it?

R. It is. Yeah, usually.

Q. (laughs) Do you find ICT so a helpful tool for planning?

R. Oh yeah, it’s very good yeah.

Q. Has it made the workload any less time consuming?

R. No, not really, because my typing is slow, I haven’t a fast rate of typing but eh, it’s in the end you can gain more from it because ehm, you can change it and delete it, and take in, take out pieces or put in something you have forgotten whereas if you are doing it by hand you’d possibly would have to scrap what you did and do it all over again, which would be more time consuming in the end. (yeah) Once you have it done, it’s easy to alter it. Whereas if you have it done by hand and it’s, you need to do something with it you might have to it do it all out all over again.

Q. And would you see like that you can still keep documents or whatever from year to year and rearrange them or whatever for a different class?

R. Oh yes of course if you’re using the same programme basically like you can have your basic document and then eh alter it as needs be for a different class or different students or that. So once you have the groundwork done in the first time, its and if you’re doing the same thing again it’s possibly easier.

Q. (uhuh) Have you accessed the many tools for planning purposes available on the internet, like the NCTE, PPDS, Scoilnet, or the NCCA? Have you used any of those sites for planning now?

R. Have I used any for planning? Eh, planning, not really, no, I would have used FETAC. Eh, I would have downloaded stuff rather than ehm photocopying it out from
books or whatever, I’d have downloaded it from FETAC and put FETAC bits into plans and that sort of thing. And

Q. Have you found that those resources make planning for your class easier in that sense? R. Eh...yeah I suppose they do because you can put your, you know, you can get what you need almost immediately whereas you could be trawling through books for a long time before you actually find what you want, you know. You can get what you need much quicker.

Q. So in your opinion, do these tools adequately address the needs of teachers who teach in special schools?

R. From my own point of view?

Q. Yeah, if they’re doing a FETAC programme

R. I think so yeah. Yeah I think so. You know, you can get information as well as the actual programme itself on the internet so I think that they do.

Q. That’s great. Do you make, or sorry do you use the computer for making resources for the pupils in your class?

R. Yes, all the time, worksheets, ehm, templates maybe of drawings or something you want to paint. I would get make out worksheets myself and do them on the computer or else I would get them on a website. And there are very good websites available eh for maths, English.

Q. And things like, even images for your history and things like that.

R. yeah, if you want, you can look up something immediately like and you want to know something about somebody you can look it up or you can get a picture of somebody or you know it’s very broad really.

Q. And you have access to other peripherals? Say the printer, camera, etc.

R. Yes.
Q. And which one would be the most useful?

R. The printer. (laughs)

Q. The printer. Why would you say that now, just that you would use a lot of paper?

R. Yeah I mean if you had no way of printing out the stuff, if it was worksheets or images that you’d want printed out sure, how would you get them like if you hadn’t the printer?

Q. Do you feel that the recent government grants which meant to equip every classroom in the country with a teaching computer and visualiser were adequate for special schools?

R. No definitely not.

Q. No. Considering that the grants were calculated on enrolment?

R. On the enrolment, yeah. We need more computers than anybody else I think. You know and people are, teachers are using the class computer if they are using a computer in school it’s the class computer they’re using unless they bring in their own laptop or something. They’re using the school resources really because there isn’t any special computer for the teacher. Or and that can be a drawback like, because once you put the students on the computer, you know, it mightn’t, it can, something can happen to it very easily so like it’s good for the teacher to have a computer that she uses herself.

Q. Simply just for class?

R. For class, yes. Well I’m sure we all manage like, by using our own computers at home but still it would be handy to have one in the classroom as well.

Q. So do you feel that the system for assessing and providing pupils with assistive technology which our SENO, who is assigned to the school, has to approve is an efficient one?
R. No, it’s not.

Q. Why would you think that?

R. There are children who need assistive technology eh who in cases here before who have been passed for certain pieces of equipment eh the request has gone to the SENO and the child has been about to leave the school before eh the technology has been available. And that they couldn’t take it with them because it belonged to the school.

Q. And how long before that child left school did the SENO actually approve it?

R. Two months.

Q. And how long before that had the approval gone in to her?

R. About a year and a half.

Q. So this child was assessed a year and a half before she left school...

R. And didn’t get the technology until two months before she left which was useless because she couldn’t be trained to use it in that time and it wasn’t, nobody had any idea as to whether it would help her in the future or not. Or you know if we saw that it might help her, maybe somebody might invest in it later on or something but like as it was, we didn’t really know whether, how good it was or not.

Q. because she hadn’t enough time..

R. she hadn’t enough time to learn to use it and we didn’t see what value it was to her.

Q. If it was going to be.

R. If it was going to be, yeah.

Q. That’s very bad. Considering software, do you regularly use software in the class with all pupils?

R. No, not really, we use the internet mostly, mostly the internet.

Q. There are good programmes out there for children with disabilities so?
R. On the internet? Eh, it would be mostly class based stuff and like maths and English and then the rest information or pictures for projects. Things like that. Eh, I suppose we don’t have a lot of computer time to give specific software you know to different children and they would all need different types of software, different, if it’s for the curriculum like. Whereas I think the stuff you get on the internet is adequate for us anyway at the minute. Could be different.

Q. Could be different if it was another class say?

R. If it was another class or if there was eh a specific child that really needed something very specific but eh at the minute there are some interactive ones on the eh internet as well like where you have to work it on actually on the computer you don’t, it’s not just printed out pages. Eh you give the answer or whatever is required, eh a yes or a no or whatever on the computer and they’re good. I suppose, only one can use it at a time really.

Q. So only one child can access it.

R. yeah. If we can get the laptops set up for the internet.

Q. For wireless internet?

R. yeah, oh my God. We’re moving. (laughs) That’s going to be worse. (teacher referring to moving classrooms) However, however.

Q. O.K., ehm, so you don’t really so.. you would say then that software, you don’t really use software here so you..

R. I wouldn’t, yeah, ehm, we used history stuff a bit, that ehm came from ehm the hist.ie that’s their website but they’re the history society of ehm school based stuff and they have a few CDs, again, they only worked on the old computer, they didn’t work on any of the new ones and it would be eh telling you how to go about doing your
ehm  what will I say, your project or that type of thing, what you could use, you know, it gave hints like that to students.

**Q.** Right, and that was suitable for your particular students who were using it?

**R.** That was suitable for particular students yeah.

**Q.** But it wouldn’t be suitable for the other children who weren’t?

**R.** No, no. I mean in this class I’d say, you’d nearly want something different for most of them like because most of them have different needs altogether. And whereas, at the minute, they’re all able to write, handwrite, so eh doing worksheets and actually writing stuff into copies isn’t a problem, really, so like they can get by without doing, using the computer. Whereas a child that can’t write eh would need more programmes I suppose, more computer programmes more CDs, more that but like..

**Q.** And they’d also need access to a computer for themselves.

**R.** They would. They’d need like, there’s need and need like. There’s need - they really need a computer but they can’t do anything without it. Or you know, there’s need that it’s brilliant and it’s a help and that they need it to reach their full potential because eh even their writing and that is still a bit limited but still they can function quite well without it as well. You know.

**Q.** But it’s preferable if they had one and then they could take off.

**R.** Yeah because I mean that’s the way disabled em people are going to go anyway, they’re going to be very much, they’re going to rely very much on computers I would think. Even, you know, to have good computer skills for doing shopping from home that kind of stuff, eh, looking up catalogues, sure they need never go outside the door like to do anything except to take the fresh air. (laughs)

**Q.** That’s a good point.

**R.** You know. Keeping up with their friends.
Q. As your class have special needs, in accessing software or websites with appropriate content for their development, do you find that the material is presented in appropriate chronological style? Like is it too babyish for a teenager some of them? Some of the ones now that would be developmentally appropriate?

R. Yeah. And also what you could have eh primary four written on top of a worksheet whereas you’d be giving it to 15, 16 year olds like. You’d have to get rid, in that case you’d just have to print one, get rid of the primary four and photocopy it, you know. That could be just maths or something. The English is ok, a lot of grammar on nouns and adjectives and that kind of thing we were doing, putting in different nouns, marking nouns getting picking out adjectives to go with nouns, that was fairly relevant I mean, that was wasn’t too difficult and it wasn’t too easy either. It was, you know fair enough.

And ehm, cloze, the cloze is good as well. You know you can get it as easy or as ehm,

Q. so you can adjust those?

R. difficult as you want to. Yeah you can.

Q. And you can put in your own words or your own particular material you want. Yeah. Ehm, and the, say the online programmes that they’d access, would they be too babyish or would they ....

R. No, there’re a few of them there now that are o.k. but it would be mostly maths like and you know, possibly not problems even just computation and eh that and eh the English stuff, they’d have nice stuff on poetry, the questions might/would be fairly easy eh the poem would be spoken as well as written and the questions would be fairly easy so if they listen to it a few times they should be able to get the answers. All that would be required possibly would be a yes or a no.

Q. So they wouldn’t necessarily have to have a very high reading level?
R. No, they wouldn’t. Most of these are spoken as well like.

Q. That’s great, yeah. Ehm, do you use switch accessible software here, in this class?

R. No. No.

Q. Let me see now, do any of your pupils use assistive technology to access the computer at the moment—special keyboards, mouses etc?

R. No, no.

Q. Eh, o.k. Has your school a Post of Responsibility for I.C.T.?

R. Yes.

Q. And have you experienced any difficulties with your teaching computer during this school year?

R. It got flooded! (laughs)

Q. It got flooded?

R. It got flooded, that’s the teaching one (points to a pc). No, it’s grand. Well I suppose that, it got flooded yeah. It got flooded. If that’s the teaching one, which it is I suppose, its connected to the board

Q. yeah. It’s connected to the Interactive Whiteboard.

R. And we can’t connect the new one to the Interactive Whiteboard.

Q. So it hasn’t been reconnected to the Interactive Whiteboard?

R. No because it can’t. There’s a problem, it won’t work. There’s a problem with the board, the operating system, yeah.

Q. So and have there been problems which necessitated a call out of a maintenance person or could they be fixed by somebody here this year?

R. Eh, I didn’t have a maintenance person really, I think our I.C.T. post holder knew what to do but it wasn’t possible to do it like.
Q. So if a maintenance person has to visit the school, does he/she work on the computer on site or is it taken away?

R. Both really. I mean sometimes it has been worked on on-site and if, at other times taken away, depending on which is the most convenient.

Q. So it could be away for a couple of days or..

R. Yeah, it was, actually yes that one (pointing to 2nd pc) was away for a couple of days, it was yeah, I’d forgotten about that.

Q. And would that cause you problems now so in implementing any of your lessons that you’d planned to do, using it?

R. No because we have a second one.

Q. So you’re lucky in this class having a second one.

R. Yes, we’ve a second one.

Q. Could it give rise to a security question do you think? Like could you have something stored on your computer that would be of a sensitive nature?

R. No I wouldn’t have anything stored of a sensitive nature, I have it on a stick. Unless you’re talking about history (laughs) which everybody knows anyway, no there isn’t, no I wouldn’t have anything on the computer.

Q. So how would you like to see maintenance of computer equipment being carried out, eg would a centralised, online secure service be feasible? One that is run by the DES and paid for by DES? Like if you were to say ‘look I have a problem’, and do you know they said ‘well o.k.,here is a password and now I can access your computer remotely from Dublin’.

R. That would be brilliant.

Q. And they could fix it from there.
R. That they could do that. I mean really, in industry and places, they have IT departments and if someone is using their computer in their office and something happens and they don’t know what to do, all they have to do is consult the IT department and they’re told like do this, do that or we’ll have a look at it or whatever. But like here, we don’t have anyone except the ICT post holder who is more skilled than the rest of us but still, like it isn’t their job to be going around like servicing computers and telling everybody what’s wrong or what they should do like.

Q. So a centralised, say remote....

R. A centralised, would be brilliant, yeah. It would be brilliant.

Q. Plus the maintenance costs that a school would pay are not, are they covered by grants or anything?

R. No. They’re not, sure they’re not. We have to pay for them.

Q. Out of a very limited budget as it is.

R. Out of no budget as it is actually! (laughs)

Q. With regard to Broadband access, have there been any issues regarding access to sites? like NCTE blocking sites?

R. I’ve looked for things which I, I about Popes even which shouldn’t be blocked and they are, different things I’ve looked at and looked for have been blocked for some strange, peculiar reason like the popes, I can’t remember others, now but there have been others as well.

Q. And would that upset plans like say you’ve been at home and you’ve accessed this site at home and then you tried to do it inside in school and you’re all ready to...

R. Yeah, I’d print it out in school and that and I can’t get it up. Well it would, a bit. But, I’ve been astonished at the sites I have found blocked like, I just can’t see any reason for some of them.
Q. And you know that you can ask for them to be unblocked?

R. Can you?

Q. Yeah, they’re, yeah.

R. I didn’t know. Well, I’d possibly do it at home if I needed it. But the popes was now one thing, what could you fault the popes for, and there was something else, what was it, something very simple, again it was just blocked. You just couldn’t imagine why.

Q. Yeah. Some very innocent thing, yeah.

R. Whereas someone looked up Barbie Dolls last year and they got....

Q. Something they shouldn’t

R. They got something they shouldn’t be getting. And that should’ve been, what they were getting, that should have been blocked but it wasn’t.

Q. Even though the security on Google is set to the maximum, yeah.

Q. Do you find that there are any barriers in the way of the implementation of teaching and learning with ICT in special schools?

R. Eh, barriers. I would love a laptop for everyone, we’re getting there, but having had it for a while, eh.

Q. And when you say having had it, what do you mean by that?

R. I mean that we got laptops for the school from a project we were involved in, eh and I had a laptop for every child in the class and at that time they were working. I mean that is how many years ago, four, about six, six years ago, and they reached their last so eh, and because, unless they’re on the computer frequently, you know, they forget and you’re going to, if they go on the computer once every second day or even once a week, eh, somebody’s going to have to help them because they forget what to do but if they’re on it all the time, you know, they’re able to do it. And also
with FETAC, we do a computer studies module, it’s simple, it’s easy, eh, but it’s a great help and we could even go on, but they do need a computer of their own, they need a laptop. We were going to go on to the next level, 4, I think, and they will need access to the internet as well on that for that module, you don’t need it for level 3.

Q. So they’d all need to be able to sit down with a laptop or a pc, and at the moment you haven’t got that.

R. Not connected up, but, I suppose another thing is the maintenance, when we do, if something does happen, it takes a while before it can be sorted out or fixed you know and if you needed the computer badly, you’d eh, you’d just have to wait. And, computers need to be updated as well, don’t they?

Q. Yeah.

R. I mean, we had a lot, before the flood, which was a blessing in one way, we had old computers. But like, eh they have only a certain life and they need to be updated and we don’t get the grants for that, we don’t get enough money to do that.

Q. And in a special school funding is particularly scarce isn’t it?

R. It is. Yeah. I mean if you were to go, I’m sure half the computers in this school are very outdated at the minute you know. You’d need to be constantly doing it especially when there are kids there that rely on them and need them all the time. You need to be updating the computer itself and the software and whatever else and even the software costs so much like.

Q. It does, tremendous, especially for a site license or anything like that.

R. Just think like that as well you know.

Q. And as well as that, if any of the children are using them themselves, they don’t understand them, with their different abilities they, could I remember with the old laptops, keys, keys would go flying...
R. Oh keys would go flying yes,

Q. You know because physically, they were not as well able to control their movements as we would be. Things like that happen and there, you’ve another maintenance job there and another cost and everything.

R. And that why it’s good too that they have their own because like if they’re sharing a computer if you’re sharing it, and you’ve one child who will do something to it, it’s not fair on the others really you know, but apart from that, we’re managing.

Q. So the last question then, in an ideal world, where money was no obstacle, what would you like to see which would facilitate the teaching and learning with ICT in special schools ?

R. Everyone, well you can’t say that really, I suppose if you are talking broadly about special schools, I mean everyone doesn’t need a laptop. In some classes, they would possibly have bigger screens, bigger switches, to access it. Or better software, I mean touch-screens, eh, big touch-screens like that they’re able to cope with. Eh, for the more academic classes, I suppose a laptop and if a child is, eh has a physical disability that prevents them from eh accessing the laptop in the normal way, whatever switches or whatever hardware they require as well, they should have that, whatever assistive technology they need. The teacher should have her own laptop (laughs) a method of charging I suppose, like the trolley we have is good because if you have laptops and you don’t want to leave them out, and you can’t charge them in the store-room, you’re presented every morning with having to charge them up before they, you use them if you’re giving them to them at their desks or else they have to go to wherever they’re plugged in. So you know, some means of charging, eh and the whiteboards I suppose. There again, you’d wonder is it the best thing to buy, you know, if we have money we’ll buy whiteboards when a year down the line, there’s something better. Are you
better to just invest in one and see and then hold off until the next thing comes in because suddenly you find like that we have whiteboards here now over the panel in the middle of the room, the panel for the plugs and in the other rooms, they can be down at a child’s level. And I think the projector is different as well.

Q. On some of the newer ones, it’s on a boom arm, yeah, rather than ceiling mounted.

R. And possibly, I mean with your computers, no matter what time of the day, even if the sun is shining through the window, the computer, you can see the computer. Whereas with the whiteboard, the least bit of light shining in that direction, you can’t see it really, it’s not good, the picture is faded or, eh, dull. I’m not sure if they make them, they must make them where they would be like a computer where you can see the screen anyway, no matter what the light is like, maybe the newer ones again.

Q. That’s great, thanks very much [teacher’s name].
APPENDIX F2. Interview 2 Transcript.
Teacher in a senior class in school for the Deaf.

Q. For those teachers who qualified in more recent years, during your initial teacher training, was much emphasis put on the role of ICT in teaching and learning?

R. Yeah, we had a module on ehm, ICT in the, in college.

Q. And did it, kind of, was it just to introduce you to the basics of computing or...

R. Yeah and then there was parts on how we could use ICT in school and then when I did the course for the deaf, there was a bit on that as well, on ICT, yeah.

Q. So, did you find the advice and training there adequate preparation for classroom practice?

R. Not adequate, no not adequate. Well not adequate for today’s classroom.

Q. O.K., yeah.

R. Cos the, well the most recent training I did for the Teacher for the Deaf I finished three years ago and you know it was useful at the time but now with iPads and all of that, it’s just coming, like it just keeps changing so fast you know, so your, your training couldn’t keep up to that. Your initial training.

Q. Not your initial training, no. So have you undertaken any more ICT courses then since?

R. we did courses on the IWB in school and then we did a summer course in school, a school based summer course on ICT for the Deaf.
Q. Specifically for the Deaf?

R. Specifically for the Deaf, yeah, and it was a teacher in Dublin who had her masters on ICT and she’s a teacher for the Deaf in Dublin and she came down to facilitate the course for a week.

Q. That was a summer course?

R. yeah, a summer course.

Q. So that was very helpful obviously in your view?

R. Oh very helpful, yeah. But like I said, again it just changes so rapidly, that was about six years ago, so it just keeps changing and you know, you just have to keep updating yourself really, your own skills, yeah.

Q. So do you mainly use ICT for administrative, class planning, record keeping etc.? You know all that sort of thing?

R. Everything, yeah everything. We’ve a Digital Schools Award in school, so we were one of the first schools in the country to get it and em,

Q. What does that entail now?

R. Like, it’s an award for use of technology throughout, throughout every part of the classroom day, and we use the IWB in every class and laptops most of the day. A lot of children would use the additional ehm technology during the day as well, like Co-Writer and things like that so laptops and computers would be a very important part of our day, and then with the hearing aids or special devices and extra earphones that we set up that we can plug in directly to the hearing aids, so it all forms part of the Digital School Award.
Q. So it’s a basically an holistic approach?

R. Oh yeah, oh right throughout the day for everything and this year now we’re changing our curriculum in English and Maths and we’re getting all the e-learning books. All the books will be downloadable onto the whiteboard so that ehm, you know just for teaching, all the focus is on the teacher and on the board whereas before, we would’ve always scanned them in for that because, for the joint attention, ehm, for signing and for looking at the book, you know if the children are reading they can’t read and look at the person who’s reading as well, so it just makes it so much easier because they’re at the front of the class and the teacher’s there signing and you’ve joint attention straight off, yeah I think it’s fantastic. Like before it was impossible, well it wasn’t impossible but it was difficult to teach because you had what was called in deaf terms divided attention, they were looking at the books and then they were looking at you and they were missing language all the time. So technology is really, really important for the Deaf.

Q. That’s fabulous. So in terms of administrative purposes, planning and all that sort of thing, do you find it helpful?

R. Oh very helpful, yeah. All our planning is done ehm, online, or on you know the website from the P.P.D.S. all our planning is done on that and our Cuntas Míosúil and all of that is done. So all teachers use that tool. It’s great yeah.

Q. So therefore it has made the workload less time-consuming in that sense?

R. Well, in a sense, yeah, but you still have to, I suppose after you get used to it, it is easier you know but at the start it is time consuming cos you gotta to figure out you know all the links are there for the curriculum you know, all the everything you need is there, but it just takes time to get used to it.
Q. Yeah. I suppose once you get used to it, then it gets easier,

R. It is easier, yeah.

Q. And there I was going to ask, have you accessed the many tools for planning?

R. Yeah.

Q. Yeah. That’s the, what’s it, the P.P.D.S. one?

R. P.P.D.S. yeah, it’s on the N.C.C.A., you can link it through the N.C.C.A. as well. And we use Scoilnet all the time in school as well. But not for planning we wouldn’t use it.

Q. You’d use it for the sites that they’ve recommended?

R. Yeah, yeah all the time. We find it great.

Q. So have these resources made planning for your own class any easier?

R. Yeah, very much so, yeah.

Q. So in your opinion, do these tools adequately address the needs of teachers who teach in special schools?

R. No.

Q. No.

R. No. Well the other curricula aren’t on it yet, there’s only the mainstream curriculum on it. So the mild general learning disability and things like that aren’t on it yet so I suppose when that is, it will make a big difference to us. But as you know yourself, we’ve got one child with mild, and one child on a different curriculum altogether so it’s all I.E.P. based so we draw up our own I.E.P.s and em we use the
template that we got from an inspector years ago and that’s the template we use for our I.E.P.s and we just use that.

Q. And it works?

R. Oh it works yeah, very well but you know, as regards the planning, its not as easy as it would be if you were mainstream. If you’d just a mainstream class it would be so much easier. But with a special school it just makes everything more difficult really from the planning and everything point of view, yeah.

Q. Do you use the computer for making resources for the pupils in the class?

R. Daily, yeah. Daily, we use the flipcharts and then we share flipcharts between us as well.

Q. This is the I.W.B.?

R. Yeah, on the I.W.B., the flipcharts and say we would ehm use that with sign language

And then there are some words there is no sign for? So we would use ehm Google images an awful lot and ehm we would rely on that quite a lot in class because, for example, bleach, it could take you ten minutes to describe what bleach is and I remember exactly teaching bleach in a home economics class and they didn’t have a clue what I was talking about, and you know, I was saying you use it for cleaning the toilet, and it took me ages and then I went o.k., look in images and I put in Domestos and they went Ahh! O.k. and they knew instantly what I was talking about and so that cut out 10 minutes of my day in an instant you know. So it was great.

Q. That was a brilliant.. method of using it at all.
R. Yeah and we use it then for picture dictionaries, so eh if they’re reading a novel and I’ll go through the first chapter and make a picture dictionary of the new words then print that out for them and they’d have that with their new novel as well, and of course encourage them to use the regular dictionary. But this just gives them a visual image of the new words.

Q. Which is very important for somebody who’s deaf, for understanding purposes?

R. Oh very. Extremely important, yeah.

Q. And have you access to other peripherals? i.e. printer, camera, etc.

R. We’ve got em, we do J.C.S.P., so we recently did ehm the photograph initiative and that so each class got their own printer and their own em camera the two JCSP classes for that purpose. So they have their own ones and then we’ve a good quality school camera, we’ve got Flips the video recorders so we use those as well and we use those for lessons as well as for recording just general activities and then all classes have a printer and we’re in the process of buying a laser printer for the school. Yeah, yeah it’ll be cheaper.

Q. I suppose things like your policies and everything and things that are going out to parents as well, it’ll be quicker as well isn’t it?

R. Yeah, yeah, it’s just so expensive as well, the ink

Q. Oh yeah, the cartridges for them, yeah. So which of those would you deem the most useful to you in class? actually in the class now?

R. I suppose the printer, I suppose yeah for printing off that kind of stuff you know. But the cameras are fabulous, ‘cos we do a lot of em, for the kids who you know
wouldn’t have a lot of sign language, like we would print off their news for the day and put photographs of them in, to encourage them to talk to their parents at home about what happened during the day in school and so there would be photographs, a lot of photos going home. We insert pictures into that news that’s printed off every day as well, yeah it just encourages communication at home you know. A lot of them wouldn’t have the signs to express themselves, especially in the junior side of the school and tell exactly what happened during the day so when they have it in printed format, it’s much better for them.

Q. It’s there in front of mum and dad, yeah.

R. Yeah.

Q. Would you feel that the recent government grants which were supposed to equip every classroom in the country with a teaching computer and visualiser were adequate for special schools?

R. Eh well we had a lot of fundraising done, ehm we had a major fundraising drive before we got the Digital Schools Award, ehm, for IWB for every classroom and to update so we’ve used the grants to update the computers for the boards and you know, I mean we didn’t get enough money to get a computer for every classroom but, I wouldn’t call it adequate but it was a help. We would put a lot of our fundraising into technology because it’s so important to us.

Q. Do you feel that the system for assessing and providing pupils with assistive technology which the S.E.N.O., who is assigned to the school, has to approve is an efficient one?
R. Very difficult. Em, with some children need the technology and you know, you see it on a needs basis and but putting that down on paper is a lot different and then the SENO seeing what’s needed is different as well so ehm, it can be difficult, it can be difficult to access the correct technology that you need and then when you get it granted, we find it hard to get the technology that we actually need because in Ireland it’s difficult to get and then when they want 3 quotes and we’re getting a lot of it from England and they don’t have, maybe there’s only one, there’s only one place in Ireland that does it and you want to get it from the Irish place, it’s just, it’s not an efficient system... in my opinion.

Q. That’s what we’re looking for, opinions. Considering software, do you regularly use software in the class with all pupils?

R. Yeah, yeah they use a lot now for example, Jolly Phonics ehm software we use a lot of that, there’s ehm a programme called Simple City and there’s loads of different ones, there’s one for art, and one for maths and it’s very creative for children we use a lot of that, I suppose it’s just getting software where the language is appropriate for us but one thing that we’ve bought now is an iPad, and on the iPad you can download a lot of apps and the apps are fantastic for our kids, they’re so visual and then for the children that can access the sound you know it helps them to repeat words after them, things like that. We’ve that about a month and it’s made a huge impact with the kids so we bought one to see how it would work and we’re going to buy one for each classroom now when we go back, fundraise for it and get one for each classroom because it’s just amazing, the stuff in it is great.

Q. So you have to fundraise for anything that you’re looking for?
R. Oh yeah, oh yeah, well we got that as part of the second ICT grant but the rest of them now, the money’s gone so we’ll fundraise for them and we’ll get them through that.

Q. And do you find it suitable for all the pupils?

R. Eh, I suppose with the assistive technology that’s there, you can you know adapt it to the children’s needs. But all, most of our work, I suppose we create ourselves on flipcharts and use the internet to get a lot. We use BBC Skillswise and BBC, that website a lot, to get a lot of the information down so. You know. It’s hard to get software that’s age appropriate and language appropriate for the deaf.

Q. Is it an Irish produced title or is some of your software Irish?

R. Some of it is Irish and some of it then isn’t, you know, it just depends what’s there.

Q. And does it address the objectives of the Irish curriculum for your class?

R. Eh, well we make it, we fit it in to where it is, but you know, there’s no way that would suit, you’d get a piece of software that say Oh my God, that’s my maths. and it would suit everybody for maths, it has never happened, I’d love if it did but it hasn’t you know, so hopefully.

Q. So, em, as your class have special needs, in accessing software or websites with appropriate content for their development, do you find that the material is presented in appropriate chronological style? i.e. It’s not too babyish for a teenager say?

R. Not really, not really, we find some of the English based ones are a bit better and ehm, there’s some, like it’s the same for reading material but it’s difficult to get
something that’s age appropriate and language, yeah, at their language level. Yeah, very difficult.

Q. So do you use switches or switch accessible software in your class?

R. Em, one of our students has, but it hasn’t been set up properly yet which is part of the problem so I can’t really comment on it ‘cos it’s hasn’t been fully set up.

Q. So it’s not functional really at the moment.

R. No, not at the moment.

Q. That’s the next question, have you experienced any difficulties with its use?

R. Yeah, it’s not functional at the moment, no. So we’re, we’re trying to get somebody in that will do it and then the teacher who was looking after went out on maternity leave, and the sub that came for it tried to sort something out, then when she went back for it, they were recommending something else and so its, it’s a bit crazy.

Q. So what support can you call on if you can’t get it to work? Is it an outside person?

R. Oh for any of our technology we call in an outside technician and em, sometimes they can help over the phone and sometimes they have to come in onsite and fix it.

Q. So do any of your pupils use things like switches, special keyboards, special mouses etc?

R. Some of them do, yeah, about three.

Q. And they’re working o.k?

R. Yeah, they’re working alright.

Q. And would it need any training to use them or anything?
R. Not really no, ehm, it would be you know, just the larger mouse and the larger keyboard and things like that really would be the main things and like I said, for that one pupil, the switches, it hasn’t come on board fully yet.

Q. Have you received any training in assisting the pupil to use their assistive technology?

R. No not for that one, no. Not yet.

Q. And do you have a Post of Responsibility for ICT?

R. No, no, no (laughs) we have one post of responsibility and that’s Deputy Principal, that’s it and ICT isn’t in the Deputy Principal’s. But one of our teachers is very good at it and she does look after a lot of the ICT for us.

Q. That’s great.

R. Yeah.

Q. Eh, have you any difficulties with your teaching computer during this school year?

R. Yes, just the computer crashing or it freezing or we’ll, we replaced all the old, you see we had laptops on all the boards and they were our teaching computers and at this stage they are five years old so you know, they just get slow and there’s a lot of stuff on they so we send them away to be cleaned out regularly but now we’ve put in the bigger computer onto the boards in each of the classrooms.

Q. Is that like the pc now?

R. Yeah,

Q. So you needed a splitter box and all that sort of thing?
R. Yeah, all extra, all that has to be got, yeah the splitters, the whole lot yeah. So they’re great, since we put those in they been great thank God, touch wood.

Q. Have you had problems which necessitated a call out of a maintenance person or could they be fixed by someone on staff?

R. Oh we always have to get somebody else. Now our staff are very much into I.C.T. themselves, most of them, there’s only one who wouldn’t be really comfortable. O.K., the rest of them are really comfortable and there’s only one who you know would call on a staff member a good bit for some reassurance but em, no we’ve a guy that we call and then he’s very good over the phone, you know the way they can access the computer remotely? Yeah, he does that quite a bit and em, the magician part of it and yeah, he’s very good and other than that then he’ll come down and fix something if he can’t get to it, you know.

Q. If your maintenance person has to visit the school, does he/she work on the computer on site or is it taken away for a period of time?

R. If he needs to take it away, he takes it away and he’s married to one of our SNAs so he’ll fix it that night and send it in with her in the morning, it’s fantastic.

Q. That’s great

R. Oh it’s fabulous yeah.

Q. So you’re not actually waiting for any length of time.

R. No and he’s after moving to Raheen, he was based out in Castletroy, and he after moving up here to Raheen so it’s even better so he’s that much closer to us you know.

Q. So the next question doesn’t really pertain.
R. No.

Q. Do you think it could give rise to security questions? Would you have sensitive material stored on your computers?

R. Not really on the teaching computers, I suppose for the sensitive material, the teachers use their own laptops so we have laptops that we can take in and out to school as well and em, the teaching computer but if there was something, I suppose it could, you know, lead to security.

Q. So even those, those laptops that the teachers that the teachers are taking could there be security issues like on there, they’re password protected I presume?

R. Yeah I presume there could because you know he often takes downloads everything that’s on it and clears it then puts everything back on again you know, but ehm, I don’t know, we trust him a hell of a lot really, he’s a really trustworthy guy and as I said he’s married to one of our SNAs and

Q. So you know where he lives!

R. Yeah (laughs) yeah, yeah. Ah he’s very good.

Q. So how would you like to see the maintenance of computer equipment being carried out, for example a centralised, online secure service would that be feasible? One that is run by the D.E.S. and paid for by D.E.S.?

R. I think it should be, yeah, because ehm, your I.C.T. grant, I mean that doesn’t even cover the hardware that you need not to mind the software and then when something goes wrong, maintenance, I mean it’s very expensive to ehm have the computers fixed. And you know, you’re relying on somebody to give you a good deal whereas if
it was a centralised thing where all schools go to one person, I’m sure they could get a better deal.

Q. Run by the D.E.S. and paid for by the D.E.S.?

R. And paid, oh it would be fantastic if it was paid for by them and even run by them cos its a headache, it is a real headache especially when we don’t have a Post and you’re relying on somebody’s good nature, who’s good at I.C.T. and calling them out of class all the time and that kind of thing, you know, it’s hard.

Q. So with regard to Broadband access, have there been any issues regarding access to sites? For example, you know how the N.C.T.E. can block sites?

R. Yeah, we’ve applied to the N.C.T.E. to get a higher level of access to YouTube for example, because YouTube is fantastic because there’s a lot of tutorial, it’s very visual and we’ve put that access in and we haven’t got back anything from them, repeatedly we’ve put in the request so we’d be able to do it but em the Board of Management have paid for a dongle, a mobile internet access so em, that’s kept in the Principal’s office and if somebody needs to use it it’s used, that’s used throughout the day and obviously the kids aren’t allowed to use it without the teacher being present and eh, we advise that if a teacher intends to use it in class to check first and make sure it suitable material all throughout the lesson. And then, and it’s handed out and it’s used daily by staff members. So, but it is, it’s a pity that the nanny is so strict, you know cos there’s a lot of sites even from an administrative point of view that you’d like to get into that are blocked, you know so it’s a, it’s a bit tough.

Q. Yeah.

R. Yeah.
Q. Do you find that there are any barriers in the way of the implementation of teaching and learning with I.C.T. in special schools?

R. Lack of availability of suitable resources. That’s huge. That’s the biggest barrier to us because, em, obviously money is a big barrier, because a lot of them you know, the apps for special needs are really expensive to buy.

Q. Really?

R. Yeah, they could be about €400 for some things you know and that’s a barrier in itself. But as you know, the fundraising is great and you know when you want something, you’ll walk an extra mile or something to get it you know, but finding, sourcing appropriate material for the Deaf is, because it’s very difficult because it’s such a small population and it’s not economically viable for a company to go along and produce the material whereas in England or America, it is. There’s a lot there on American sign language or British sign language so what we would do is we would find something suitable and then adapt it to us but that’s teacher time, yeah, its teacher time all the time. So, I suppose time would be a barrier as well.

Q. Time and money, yeah?

R. Yeah.

Q. In an ideal world, money being no obstacle, what would you like to see which would facilitate your teaching and learning with I.C.T.?

R. Oh I would love to see a lot to do with sign language, Irish sign language and to have a lot of the websites that are there subtitled, or have somebody signing on them in the corner, the way they can do that.
Q. Then, you know, this access for all, then that’s not there?

R. Of course, that’s not there. It’s not just for the deaf, it would be great for other people using it. But that would be one thing, and the other thing would be material that’s applicable to the deaf, age appropriate especially the teenagers with a low reading age, and we’re always playing catch-up, ehm, you know the average reading age of the deaf person is nine years of age for a deaf adult and there’s, it’s the lack of communication is more of the disability rather than the lack of hearing, so it would make such a difference to our world if we had age appropriate, language appropriate material, it would be fantastic. And there is an opening there for it in I.C.T. but it’s not commercially viable, that’s the only problem. So you know it would just cost way too much money to produce it for the small amount of people that would use it. But we live in hope.