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## **An investigation into the effectiveness of using CALL to teach Irish to 1st year students in a post primary school: a case study approach.**

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**A Case Study Approach**

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Master of Arts in Digital Media Development for Education

University of Limerick

Supervisor: Joe Collins

Submitted to the University of Limerick, October 2011

# Declaration

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

---

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October 2011

# **An investigation into the effectiveness of using CALL to teach Irish to 1st Year students in a Post Primary School**

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## **A Case Study Approach**

Agnes Geraldine Hehir

### **Abstract**

It is imperative that the teacher is centre-stage in computer aided pedagogical settings to ensure maximum potential is attained. Constructivist theories challenge teachers to create learning environments that suit their students' diverse needs and abilities. The teacher ought to facilitate the student to increase knowledge retention, user satisfaction and motivate them to enjoy the learning experience. Pedagogical content is vital to effectively integrate computer aided learning in schools. Teacher instruction and facilitation is important to ensure technology is adopted and adhered to.

This study utilizes an age and content appropriate software to assist twelve year old students in a post-primary school with language teaching. This is a mixed ability class; therefore participants portray a broad range of learning styles and learning abilities. Participants are divided into two groups, the control group and the treatment group. Each participant in the control group interacts with the multimedia software which is demonstrated to them in a group setting by the teacher to ensure the navigational structure of the Software is understood.

This study is an attempt to ascertain if a computer aided interactive language resource enhances the pedagogical context and influences learning outcomes. This study uses a case study, experiment and survey. Questionnaire, interviews and observation are all deployed in the collection of quantitative and qualitative data, which is vital to test the Project assumption and ensure validity of data.

# Acknowledgements

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## **List of Abbreviations**

ACCAC	Academic Council Committee for Academic Centres
BECTA	British Education and Communications Technology
CAI	Computer Aided Instruction
CEB	Curriculum and Examinations Board
CEF	Common European Framework of Reference
ELP	European Language Portfolio
ESRI	Economic Social Research Institute
ICT	Information and Communications Technology
MFL	Modern foreign languages
NCCA	National Council for Curriculum and Assessment
NCET	National Council for Educational Technology
NCTE	National Centre for Technology in Education
SIIA	Software and Information Industry Association
TALIS	Teaching and Learning International Survey
TBL	Task-based learning
UNESCO	United Nations Education Scientific and Cultural Organisation
WSE	Whole School Evaluation

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# Introduction

## 1.1 Introduction

The pervasiveness of computers in society highlights the need to embrace change and equip students with Information and Communication Technology (ICT) literacy and lifelong learning skills. It is pertinent to adopt ICT appropriately to maximize its pedagogical value as ICT is here to stay.

Technology offers the potential for innovative, autonomous learning and commitment which enables teachers to teach using diverse methodologies, but it still has not reached its potential. ICT integration in language learning favours active student centered learning, but it is vital that it is adapted to students' needs and circumstances.

While research has been carried out on the benefits of ICT, Mitchell and Myles, (1998, p. 195) highlight that integration of blended learning techniques is vital.

Teaching is an art as well as a science because of the constantly varying nature of the classroom as a learning community. There can be 'no one best method', however much research evidence supports it, which applies at all times and in all situations, with every type of learner

(Mitchell & Myles 1998, p.195).

## 1.2 Statement of Topic

This study is a case study employed in a rural secondary school in County Clare. The study cohort of first year students is co-educational. Participants display a broad range of learning styles and learning abilities.

The research utilizes interactive software to assist with language teaching. The age appropriate software embraces the prescribed secondary school curriculum requirements for the cohort age group in this study.

For the purposes of this study the participants are divided into two groups of twenty participants each: the treatment group and the control group. These groupings are

composed of the existing First Year classes. The teacher will demonstrate first and then facilitate students adopting the interactive learning software. A time constraint of forty minutes applies to each class session.

### **1.3 Research Questions**

This research project is an enquiry into whether Computer Aided Language Learning (CALL) enhances the learning experience and improves performance. The research questions of this study are:

- A) Are educational practices and methodologies modified or enhanced through Technology?
- B) What are the impediments to effective integration of technology in education?
- C) Does computer technology suit a specific learning style?
- D) Does computer technology affect the teaching of Irish?

### **1.4 Relevance**

While computer technology permeates all layers of society, it is difficult to assess its involvement in learning. Computer expertise ought to improve educational outcomes and augment the instructional capability of technology. Unfortunately, some teachers fail to fully integrate ICT into teaching methodologies due to the fear of distractions, time constraints, dearth of resources and a lack of ICT skill. Teachers ought to understand their role as facilitator and guide within computer aided pedagogical settings.

Research findings suggest a myriad of factors that influence both students and teachers to adopting ICT. Successful facilitation of learners by teachers in computer-aided settings is pivotal to ensuring technology reaches its potential (Scrimshaw 1997; Ager 2000; Gibson 2001; Pachler 2001). This necessitates a process of rethinking what is taught, how it is taught, and why it is taught.

### **1.5 Significance of the Study**

The current prevalence of ICT in society and the demand for ICT in the workplace puts greater demands on 21<sup>st</sup> century learners to equip themselves with basic ICT skills and become ICT literate. ICT skills lead to improved employment prospects in the future.

This study will determine if ICT enhances educational practices and methodologies. The author will explore the impediments to effective integration of technology which may enable teachers and management to redress and overcome these inhibitors.

## **1.6 Scope and Limitations of the Study**

The researcher acknowledges that this is not representative of all post primary schools. The small sample (n=40) makes it complex to generalize findings. Pupils access to a computer laboratory is restricted to timetabled only access. While workstations are networked, the broadband Internet connection is of poor quality.

## **1.7 Research Methodology**

A Case study will be employed as an investigative research method because the investigation takes place in situ. The case study gives the researcher the opportunity to observe behaviours that are not quantifiable and measurable through other methods.

Triangulation refers to the procedure of obtaining data using various research strategies and data collection techniques and is employed in this study. A quantitative questionnaire will be administered to all participants in the case study school. The researcher will use semi-structured interviews to gather qualitative data. The interviews will illicit data from the participants and gain an insight into the reasons for responses recorded on the questionnaire. All data will be examined and presented in the research findings chapter. In addition the researcher will observe students over the research period and analyse pre and post test results. Chapter Three includes a comprehensive explanation of this process.

## **1.8 Structure**

This study is structured in six chapters:

- Chapter One outlines the area of investigation by the author, the relevance, significance and background of the study.
- Chapter Two presents literature pertinent to the study and identifies the impediments to ICT adoption in education.
- Chapter Three outlines and justifies a detailed plan of the methodology utilized for data collection.

- Chapter Four outlines the findings elicited from the data collected: observation, questionnaires and interviews. This is presented by research questions.
- Chapter Five analyses and discusses the findings of the study in the context of the literature review and the research questions.
- Chapter Six presents the conclusions and recommendations which arise from the study and identifies areas for further research.

# Literature Review

## 2.1 Introduction

This literature review focuses on research relevant to the role of the student and teacher in computer-aided, pedagogic settings and how these learning environments can be impacted, with the aid of ICT as compared to traditional instruction.

If education truly begins with the child's experience then we must look to the world they live in, a world transformed by technology

(Short, 1971, p.3).

Technological advances are accelerating the pace of change in modern society. Education is obliged to be responsive to societal change and to the opportunities provided by computers to cater for the various talents, needs, and abilities of 21<sup>st</sup> century learners.

In times of major change the ability to lead, is regularly assigned to modern technology. Yet researchers believe, that “very little of the potential of computers to support learning in schools seems to have been realized” (Newhouse, Trinidad and Clarkson 2002, p.5). It is anticipated that computer technology will revolutionize modern day society by means of a promised “information society”. New technology in education is often predicted “to bring about the liberation of students from teachers, schools, and even education in its usual meaning” (Pedersen 1998 p.38). Current technological advances have the potential to modify schools and education. Swan and Mitrani (1993), claim that computer use is changing the structure of teaching and learning fundamentally. This concurs with the NCET (National Council for Educational Technology, 1993) report in Great Britain. Tweedle (1993) asserts that computers would not only change how teaching is done, but would also change what is taught and where.

The research concentrates on students' experiences of and attitudes towards I.C.T. use, with particular focus on the cognitive engagement of learning tasks, and the pedagogical and educational value of the digital resource. The author will investigate the development of self-directed learning and team-work, and the improvement of

communication skills with individual activities to monitor student progress. The author will examine students' motivation to explore learning needs, pace of learning, and taking ownership of the learning process. The success or failure of ICT use relies heavily on the motivation, experience and attitudes of everyone involved in the learning process. Therefore the author will examine how students' attitudes to ICT impact on their learning and development. A British Education and Communications Technology Association (BECTA) report (2001) discovered that principals of 'high ICT' schools acknowledged ICT as having a direct impact on learning: motivation ninety eight percent, subject knowledge ninety six percent and pupils' effectiveness ninety percent. Leach and Moon (2000) claim that the manner in which ICT is both introduced and developed by the teacher is vital, and impacts upon the type and effectiveness of any learning environment.

The next section will examine the current situation as regards a language policy and a lack of an integrated language curriculum.

## **2.2 Current Situation**

The Curriculum and Examinations Board (CEB), precursor of the National Council for Curriculum and Assessment (NCCA), published its Board of Studies for Languages report 1987. It highlighted a lack of clear-language policy and that a series of independent language curricula exists instead of one integrated language curriculum. This leads to poor curriculum planning and educational experiences. The CEB (Dublin 1987) highlights that a lack of overall context, consistency in approach, methodology and terminology does not help the learner to understand and relate different kinds of language learning. This may lead to the learner lacking motivation due to inefficient learning, and reduced learner autonomy which can adversely affect learning (CEB, Dublin, p.33). The next section will identify what language is and discuss its importance in the curriculum.

## 2.2.1 What is Language?

The *Board of Studies for Languages Report* defines “language” as follows:

1. How we think – all language activities are exercises in thinking;
2. Acquirement and organization of knowledge;
3. Interpersonal communication;
4. Growth of the learner’s personality;
5. How societies define and organize themselves and how culture is transmitted within and across societies and cultures

(CEB, Dublin, 1987, p.2).

“Language” should represent a key curriculum area, and first, second and foreign language learning should be specific in the curriculum and in classroom practice (Little 2003). An integrated language curriculum may develop learners’ skills in using their mother tongue, enable students to gain access to other cultures, and give a critical awareness of language and communication skills. Languages should develop a sense of pluri-lingual identity. “Language” ought to get a fixed amount of “curriculum space”, according to the varying needs and interests of students, to ensure successful implementation of an integrated language curriculum.

The National Council for Curriculum and Assessment (NCCA, 1999), claims that since 1987, despite focus on language learning for communication and the introduction of a common syllabus framework for foreign languages, there has been no progress towards an integrated language curriculum. A communicative approach was adopted for teaching languages, emphasizing language-usage awareness and promoting a broadening of methods and learning materials deployed, to maximize target language opportunities for learners. Language awareness in first-language learning builds the foundation for learning additional languages. The Department of Education and Science (DES) report in 2004 highlights the importance of utilising a wider variety of “assessment modes” to assess all language skills. The report found that teachers adopt a narrow range of teaching methodologies, because exam rehearsal techniques take preference over possible, new, innovative pedagogical techniques. This report asserts that ‘greater autonomy’ ought to be advocated to address the imbalance between ‘teacher directed learning and independent learning’.

The communicative approach in Irish language teaching creates a pivotal link between the language taught in schools and the language used in the Gaeltachtaí.

Students at Junior Cycle level are not obliged to learn a language other than Irish. An obligatory, integrated and appropriately diverse language curriculum is required in post-primary education. The NCCA, (1999), claims that the European Union language policy does not encourage this approach. A lack of a language policy makes decision taking and managing language curricula diversification impossible. This concurs with Sajavaara et al. (1993) who states that:

A coherent language education policy should be based on an extensive analysis of Ireland's present and future language needs, undertaken according to internationally accepted standards

(Sajavaara et al., 1993).

The role, nature and outcome of the learning of Irish has to be re-examined to include a more integrated language curriculum (CEB 1987, Little 2003) and investigate the place of Irish in the constitution, and Irish cultural life. The next section will address the role of language policy in the curriculum.

### **2.2.2 Language Policy**

An implicit policy is in place governing modern languages as Leaving Certificate subjects. Language subjects are required to meet matriculation requirements. Irish is obligatory within the post-primary curriculum, and furthermore answering examination questions through Irish gains bonus marks. However, students can be exempt from Irish. An explicit policy is vital. In a survey on languages in the post-primary curriculum carried out in 2004, there were approximately two hundred and eighty responses, forty-four percent teachers, twenty-four percent parents and seventeen percent of principals responded. Fifty-five percent of teacher respondents felt a general policy on language teaching existed in schools. When asked if English teachers discussed language teaching with teachers of modern or 'other' languages the rate of positive response dropped to thirty-eight percent. 'Non-language' teachers took no responsibility for the teaching of languages. Sixty-five percent of teachers felt that language teaching was essentially the responsibility of 'the individual language teacher'. Timetabling restrictions can have a bearing on the amount of languages offered in schools. Teachers of various languages work independently of each other. Only forty percent of respondents agree that junior cycle students are capable of making cross language links. This illustrates a piecemeal post-primary curriculum language policy, which lacks consistency.

The DES identifies the importance of developing a language policy in education. The Council of Europe encourages the development of this language policy. The Irish Constitution protects the Irish language. European integration influences uptake of modern European languages in the curriculum. The next section will outline the definition of language awareness.

### **2.2.3 Language Awareness**

Language awareness identifies:

1. Language acquisition (Carter 2003);
2. A language learning foundation (White et al 2000);
3. Consistency in pedagogy (Little 2003);
4. A solution to deteriorating literacy levels (Hawkins 1999);
5. Improving learning experience (Little 2003).

Language awareness in the teaching and learning of all languages improves awareness of the workings of students' mother tongue. Knowledge of one language enhances and facilitates the learning of another, yet students lack fundamental English grammar rules and parts of speech. Modification and enhancement of school programmes leads to a lack of basic information. Therefore, language teachers must start with the basics of language in the mother tongue before advancing to the target language. The NCCA course committee seminar remarked, that students who lacked understanding of the grammar of their mother tongue, faced another barrier when grammar of another language was introduced. The English committee report highlights the need for harmonization across languages. Fifty-nine percent of survey respondents wanted learner strategies developed, and provision for students making cross language links while fifty-one percent wanted a more integrated language curriculum.

Pilot studies to assess an integrated approach to language learning has been carried out in Wales, following the launch of the Welsh Assembly Government's National Foreign Languages Strategy in 2002, which aims "to celebrate Wales as a bilingual country...and raise awareness of the importance of modern foreign languages" (p.20). The Academic Council Committee for Academic Centres (ACCAC) publication, *Making the Link* (2003), gives examples of how to improve language skills across languages, and illustrates how language links can be made. The following section will deal specifically with the Irish language curriculum.

## 2.3 Irish

Irish is many students first experience of learning a second language. This experience should be positive and empowering. O’Croidheáin (2006) points out, that students have a negative attitude towards the language.

Communicative need shapes foreign language syllabi. The mother tongue language is a requirement for communicating in countries like Italy, France and Germany, but in Ireland the mother tongue is English with the exception of Gaeltacht areas, therefore the communicative need of Irish is redundant. However, language learning requires a communicative purpose to succeed. Irish requires a curriculum based on viable, communicative goals.

According to the CEB (1987), this situation places unrealistic demands on non-native speakers where

the needs of Irish as L1 at post-primary level have been ignored, the curriculum and syllabus lacks recognition of linguistic differences between learners of Irish as L1 and L2. The same Irish syllabus for native speakers of Irish and native speakers of English has not served students. Syllabi have over ambitious demands, yet fail to challenge Irish speakers. A separate syllabus for Irish in Irish-medium schools must take precedence. New courses in Irish are pivotal to reflect its vital role as mother tongue

(CEB, 1987, p.17).

In 2007, the DES raised the marks awarded for the oral examination from twenty-five percent to forty percent to put emphasis on the spoken language (DES, 2007d). The Junior Certificate Examination (2000), Chief Examiner’s Report on Ordinary Level Irish, highlighted widespread practice of teaching Irish through the medium of English. Low standards of proficiency, lack of vocabulary, frequent resort to English and poor grammar, syntax and spelling were recognized (DES, 2000, p.13). An Economic Social Research Institute (ESRI) report commissioned by the NCCA, found Irish to be the most difficult and least enjoyable subject among first year post-primary students (Smyth, McCoy and Darmody 2004). The *Schools for the Digital Age Progress Report 1998-2002* ranked Irish last, as regards ICT integration into teaching and learning in post-primary schools (Mulkeen, 2004).

Survey results show students’ interaction in Irish language classrooms lacks motivation as regards Irish language learning. Students do not acquire language if they are

incapable of using language in new contexts. Students do not construct their own opinions, or think through the target language. Time spent on literature was inappropriate and development of good communication skills and language awareness are affected. Expert opinion highlighted the inability of current practice to enable even partial fluency in the language (Ó'Riagáin, 2003).

A study of students' meta-linguistic awareness and strategies found some learners had not grasped that Irish was taught as a modern language, had no experience of group work and did not realize that they were learning a language in their Irish classes, due to time spent on rote learning (Ó Laoire et al., 2000, p. 52–59).

Prior to the 1980s, Irish was treated in isolation from other modern languages. A communicative language teaching approach in modern languages is a stepping-stone for a 'newer' approach to teaching Irish. A new, Irish syllabus was developed in the mid-1990s with similar sections, and prescribed or un-prescribed literary texts were integrated. Irish literature promotes cultural awareness and enables access to authentic language use within the communicative approach.

Modes of assessment in Irish and modern languages comprise similar-type aural and oral components, but writing tasks in Irish are different. Language learning experiences require greater integration with a more consistent pedagogical approach and delivery of curriculum. The next section will outline the common syllabus framework of foreign languages.

### **2.3.1 Foreign Languages**

The NCCA integrates agreed approaches to syllabus, pedagogy, and assessment of modern languages. A common syllabus framework based on basic communicative proficiency, language awareness and cultural awareness was adopted in the 1990s for French, German, Spanish and Italian. The Junior and Leaving Certificate framework addresses general educational and communicative aims as regards themes, implementing relevant linguistic skills and structures. The Leaving Certificate framework integrates language and cultural awareness, but culture is not assessed in the examination. Communicative proficiency is expected of students and this is examined in the oral examination.

Educational priorities, such as assessment, determine implementation and effectiveness of all curricula and restrain curricular integration of modern technology. Foreign languages ought to develop students' communicative proficiency. Thus, listening and speaking are equally as important as reading and writing. The Junior Certificate Examination tests listening comprehension, but does not test oral proficiency. The Leaving Certificate Examination has an oral proficiency test, entirely separate from the written paper held counter to communicative reality. Modes of assessment ought to benefit interdependence of language skills. An Inspectorate report on modern languages (DES 2004), highlighted various issues associated with teaching and learning modern languages, including over-reliance on translation, textbooks and past examination papers as a teaching methodology. The next two sections outline the European frameworks for languages.

### **2.3.2 Common European Framework of Reference (CEF)**

A language policy should indicate how language achievement and proficiency is to be monitored and assessed. The CEF for Languages promotes "... the prospect of a general language education" (Council of Europe, 2001). It enables curriculum integration, teaching and assessment and fosters improved proficiency levels. Pedagogical approaches stimulate interest in languages and cultures and develop learners' confidence, language strategies and skills in observing and assessing languages.

The CEF will shape international assessment of second and foreign language proficiency, the European Language Portfolio (ELP) has stimulated second and foreign language pedagogy reform in domains of learning in various countries. Neither the CEF nor the ELP can be ignored; both have much to offer as regards setting curriculum goals, managing the language learning process, and assessing learning outcomes

(Little, 2003).

### **2.3.3 European Language Portfolio (ELP)**

The ELP is a set of proposals introduced for development in 1997, consisting of three obligatory components. It enables students to record and reflect on language learning and cultural experiences.

The portfolio contains:

1. A language passport, illustrates students' language competences;
2. A language biography supports the setting of language targets;
3. A dossier presents personal work.

The ELP encourages active learning, analyses, and assists language attainment, thus developing independent learning strategies. The ELP is a means of formal assessment that evaluates learner achievement. The ELP fosters plurilingualism development, “values learner’s language and intercultural competence and experience” (ELP 2000). It scaffolds the learning process, emphasizing learner autonomy, and develops students’ ability to plan, monitor and evaluate learning. Translating schemes of grading and certification into an internationally transparent format, addresses second language acquisition proficiency.

The ELP reiterates the communicative goals of the Junior and Leaving Certificate syllabi. The Secondary Schools’ Programs state: “the examinations in Irish and modern continental languages may include an optional oral examination” (DES 2004).

Some schools adopt the optional oral for the Junior Certificate examination in languages. A predominant focus on summative assessment exists in state examinations as the majority of marks are allocated to terminal examinations. The ELP could be used for the oral examination where students talk about her/his portfolio and reflect on the learning experience of developing it.

Skehan (2003) claims that task-based learning (TBL) effectively stimulates target language use by engaging learners to participate in tasks that have some non-linguistic goals, and may be determined by the authenticity of tasks (Skehan, 2003, p.3).

Little (1991), states that learner autonomy expands on reflective self-management as regards the content and process of ones learning. It develops gradually and the teacher plays a key role at every stage. Autonomous learners reflect on what they are doing, why, and how, all activities require spontaneous target language use. Current curricula for foreign languages mentions learner autonomy as an educational goal but does not define the concept. Pedagogical approaches are not addressed which may lead to the development of learner autonomy.

Little et al., (2002), state that “integrative” and “instrumental” motivation dominates language learning. Integrative implies learning a language to identify with native speakers of the language, while instrumental implies the ability to use the language for material benefit. Our intrinsic motivation is stimulated, when we participate in tasks

that scaffold our autonomy. Learners' motivation to learn depends on the amount of ownership of the learning situation and the learning process that they acquire. The following section outlines factors that promote and impede ICT use in Irish.

## **2.4 Teaching Irish and ICT**

ICT properly integrated into the curriculum is an asset (Ng'ambi and Johnston 2006). Yet technology is "constantly fighting a battle against pre-existing educational cultures, occasionally succeeding but generally failing to be effectively adopted" (Goodson and Mangan 1995 cited in Selwyn 2000, p.98). This view is confirmed by Gibson (2008 [online]) that "educational systems recognise technologies potential to enrich and improve teaching and learning, but the realisation of its potential has been disappointing". Kenning (2007) claims that, "while technological progress has affected the way in which languages are learnt and taught, it has not initiated paradigm shifts" (p.195).

Effective ICT is vital as a teaching tool to enhance language learning and motivate students to excel and broaden their knowledge of Irish. "The relatively low level of use [of ICT] for language learning and teaching is a matter of concern" (DES 2004). Research on ICT use in post-primary schools carried out by a DES report (DES 2008b) notes that teachers of modern foreign languages (MFL) and Irish were least likely to have access to ICT facilities in their classrooms. The report also indicated that teachers of Irish acquired the lowest level of ICT skills and lowest use of ICT (DES 2008b).

The author highlights that research on suitable digital resource materials for teaching Irish in the Irish context, and teachers' views about educational materials is limited especially in post-primary education. This concurs with the DES (2008b) report which claims that "access to appropriate software for teaching Irish is limited". In the current climate of societal change research on suitable digital resources has become a priority as computers permeate society. The author concurs with the views that computer use as a learning tool is beneficial to students when it is successfully integrated into the learning environment and based on learning theory.

Kozma (2008, p.1085-1087) highlights three rationales for introducing ICT into education.

The economic rationale prepares students as future workers to enhance economic development.

The social rationale aims to increase knowledge sharing, encourage cultural creativity, increase civic participation, make government services more accessible and enhance social cohesion.

The educational or pedagogic rationale enables ICT to improve educational reform and educational management structures.

ICT facilitates a richer learning environment through new technologies that assist the learner's capability to interact on a personal level, taking ownership of the learning process. Computers enable learners to retain more from the learning process and increase levels of engagement and collaborative learning. Technology can be a "patient, non-threatening tutor for basic skill acquisition.... offering students infinite opportunity to repeat problems until process or content is mastered" (Dwyer, 1996, p.18). The Information Society Commission publication, *Building the Knowledge Society, A Report to Government* (2002) acknowledged that while Ireland has a strong reputation for a well-educated, highly skilled workforce, it lags behind leading countries in ICT application. The report recommends integrating basic ICT skills as a core component of mainstream education and training.

Cuban et al., (2001) highlight that in an international framework, despite much assistance among policy makers, administrators and parent-bodies: integration of technology is still commonly a secondary goal.

Practitioners will be influenced by the presentation of national policies in curriculum and other documentation, assessment procedures, their own knowledge and beliefs, resource provision and accountability and pedagogical practices

(Cook, 2003, p.31).

Curriculum documents and assessment mould teachers' methodologies and approaches. There are four different curricula in Great Britain: England, Northern Ireland, Scotland and Wales. Do policy makers want digital media for education or digital media in education?

In Ireland the primary school curriculum foundation *Curaclam na Bunscoile*, was revised in 1999. Teachers are encouraged to integrate ICT and digital media usage in all subject areas. However, an explicit ICT subject is not assigned time within the curriculum for developing digital media skills and this is also true for most second level education. The Irish curriculum lacks guidance in the digital media area. Cook, (2003) suggests that various curricula throughout Britain also lack guidance concerning digital media use.

Cook's (2003) study affirmed that

while educators claim using computer features significantly in their practices, and ICT supports many aspects of children's learning, it also seems clear that curriculum documents influence their views

(p.36).

This concurs with the National Policy Advisory and Development Committee (NPADC)

The role of the curriculum in causing change to occur is not to be underestimated. If ICT integration is an aim, then there needs to be appropriate curriculum revisions

(1998).

The DES (2008) acknowledges that some subjects integrate technology more than others do. It affirms ICT usage in Science, seventy percent and Mathematics sixty one percent, but states that in the teaching of Irish ICT is rarely used. Goal achievement and exam success within stringent timetables have a pivotal effect on how material in the classroom is illustrated and how digital media is used.

There are many who feel that the emphasis on literacy, numeracy and measurable learning gains within the curriculum guidance has been at the expense of more holistic education

(Cook, 2003, p.36).

This concurs with the NCCA (2003) as regards future-learning environments, ninety-four percent of feedback affirmed "learning for understanding should take precedence over learning for examinations".

Little (1991) states that:

for many learners at second level the most important thing is not that they should learn, but that they should get good qualifications

(p.47).

The next section addresses the revised Irish curriculum and the four aspects of the Junior Certificate curriculum.

### **2.4.1 Revised Irish Curriculum**

Curriculum may be defined as, the full range of learning experiences encountered by students. Challenges such as a background of individualism among teachers, a domination of examination results, and the changing and increasing demands on schools confront curriculum development in Irish schools. The current entry requirement for most third level colleges in Ireland is a pass grade in the Irish Leaving Certificate.

The Irish post-primary education system lacks a specific curriculum for integrating ICT at Junior Certificate. While continuous efforts are made to incorporate and embrace ICT, the various curricula at Junior Certificate level have not been reviewed in relation to ICT apart from the introduction of project mathematics. Yet the DES promotes ICT integration across all curricula areas. A specific approach to ICT integration is vital if we want to modify teaching methodologies and revolutionize educational practices. Currently, schools develop their own ICT curricula and methodologies. The establishment of the National Centre for Technology in Education (NCTE) in 1998 advised schools “to start from a curriculum perspective, and ask how available technology will enhance the teaching and learning environment for teachers and students”. The NCTE website offers strategies for schools on improving ICT integration.

The NCTE “plays a central role in increasing benefits for learners and teachers in using ICT” (1998 [online]) through providing support services, resources and undertaking research. It assists teacher professional development and advises that digital media be used to progress and enhance students’ learning. A report in 2003 presented figures of ICT usage per month. Irish classes were the lowest at only seven percent (NCTE 2003, p.16). This lack of ICT is highlighted in Whole School Evaluation (WSE) reports, inspectors recommend: “the integration of ICT in the teaching of subjects should be considered for the future” (DES, 2006b). It was highlighted that no ICT resources were available in the general classroom for teaching Irish. According to the Pisa international research report based on forty countries, conducted by the Organisation for Economic Co-operation and Development (OECD) Ireland lagged behind the OECD country average on pupil computer ratio of nine pupils per computer in Ireland compared to six

point two pupils across OECD countries (2005). The percentage of computers with internet connection was sixty seven point four percent compared to seventy nine point four percent ranking Ireland twenty-ninth out of forty countries, and networked computers were thirty five point seven percent compared to sixty nine point one percent, ranking Ireland thirty-fourth out of forty countries.

In 2003, eighty-nine percent of fifteen year olds in Ireland reported having access to computers in school compared to ninety two percent in OECD countries. Twenty-four percent of Irish students frequently use computers compared to OECD forty-four percent. The NCTE report states that ICT for developing higher order thinking skills, creative skills, social skills, independent working and communication skills is not developed (2005). “Our policy makers spurred on by the achievements of the Celtic Tiger, continue to be driven by technical interests” (Leonard and Gleeson, 1999, p59).

The author will view the Junior Certificate Irish Programme as a framework to examine current resources. The aim of education is the enhancement of student learning. The broad aims projected by this syllabus focus on:

1. Communicative Skills
2. Language Awareness
3. Learning Strategies
4. Cultural Awareness

### **2.4.2 Communicative Skills**

The Junior Certificate Programme aims to teach the four competencies to enable students to communicate in the target language with others. Students ought to engage in spoken and written interactions, through Irish.

Communicative proficiency is achieved through language immersion. Therefore, is it practical to expect students to be fluent in communicative competence after forty minutes daily in the Irish language classroom, as all other subjects are taught through the medium of English. Foundation level Irish caters for students’ various abilities and aptitudes and enables students to experience a quality education appropriate to their needs. Teaching methodologies are governed by assessment; therefore, syllabus language aims and objectives are not reached. Interactive technological resources

improve communicative competencies, stimulating the learner and motivating him/her to excel in any learning environment if integrated effectively. Yet, teachers are reluctant to adopt new technologies. This affects students' willingness to speak in the target language. Honey et al., (1999) purports that "technology creates circumstances which have a positive effect on student achievement."

### **2.4.3 Language Awareness**

Language is vital for assessment in learning. Through language, students develop critical and cultural awareness. A broad curriculum caters for various learning styles. The medium of instruction in Irish should enhance students' language acquisition skills.

The current curriculum puts emphasis on student centered learning. Independent and collaborative learning is encouraged as the best way forward. Therefore, one asks the question can modern day technological tools improve the situation?

### **2.4.4 Learning Strategies**

"What a child can do in cooperation today, he can do alone tomorrow" Vygotsky (1986). The syllabus aims to facilitate autonomous learning for students and equip them with relevant skills to become more effective, creative and independent life-long learners. Language learning continuously broadens new vocabulary but relevant skills are required to enable students to increase vocabulary. Cognitive strategies and meta-cognitive skills are available to students. Effective learning strategies, lead to student motivation, while social strategies identify interaction with other target language learners. Integration and enhancement of learning strategies facilitate effective teaching and learning. Empirical evidence illustrates that, students who have difficulties with reading, can be motivated and engaged with ICT (Lynch et al 2000; Ó Murchú 2000; Segers and Verhoeven 2002).

Lack of in-service courses in Irish hinders teachers in up-skilling and facilitating development and assessment of strategies.

### **2.4.5 Cultural Awareness**

Knowledge of cultural differences is pivotal for improving communication. We ought to preserve our national language, culture and heritage. Various dialects of Irish are examined in the Junior Certificate aural paper. WWW.Scoilnet.ie is a well-structured

website that has links to other websites and contains relevant curriculum resources. Using English translation in an Irish class reduces target language immersion. The next section will illustrate the barriers, which impede the use of ICT adoption in Irish.

## **2.5 Barriers to the Adoption of ICT**

The Teaching and Learning International Survey (TALIS) identified Ireland as one of the countries with a ‘need to develop teachers’ skills in using ICT’ (OECD, 2009). Teachers’ apprehension in using ICT is a major constraint to using digital media as is evident in the study of nurseries in North Hampshire, UK.

The staff were often wary of new technology and although they accepted that there was now a place for computers in their Nurseries they were unconvinced of the potential learning gains they offered young children

(Ager et al., 2003, p.3).

Research studies (NCTE 2001, DES/COE 2008), highlight a lack of relevant “age, class and topic appropriate” digital resources as a major barrier to digital media usage in the classroom.

This concurs with the OECD (1999)report

one reason why teachers might be reluctant to use ICT in their teaching on a larger scale could be due to the lack of quality educational software

(p.58)

The major constraint for teachers using digital media is their lack of competency in ICT. “One of the most prominent explanations for low level of impact is teachers feel ill-prepared to use technology effectively” (Becker 1999, cited in Laffey *et al.*, 2003, p.77).

Tella *et al.*, (2007) share this opinion when they claim

teachers’ expertise and lack of knowledge to evaluate the use and role of ICT in teaching as the two major factors hindering teacher’s confidence and willingness to using ICT.

Training is crucial as regards effectively integrating technology into the curriculum.

United Nations Education Scientific and Cultural Organisation (UNESCO) states that:

training... should be designed to accommodate emergent skills of pre-service or beginning teachers, master teachers, and innovative or advanced teachers or other school level actors or roles

(UNESCO, 2008, p.8).

Mumtaz, (2000) highlights factors, which inhibit teachers from using technology:

- Lack of on-site support;
- Lack of help supervising children when using computers;
- Lack of ICT specialist teachers to teach students computer skills;
- Lack of computer availability;
- Lack of teaching experience with ICT;
- Lack of time required to successfully integrate technology into curriculum;
- Lack of financial support

(pp.2-3).

The next section will identify the effectiveness of drill and practice for specific tasks, and outline effective exploratory software.

## **2.6 Explorative Learning**

“Educators can lead change” (Kalantzis, 2006, p.7), but only when the educators themselves have adapted their aptitudes and methodologies.

ICT is more than just another teaching tool. Its potential for improving the quality and standards of pupils' education is significant. Equally, its potential is considerable for supporting teachers, both in their everyday classroom role and in their continuing training and development

(Ghicas, 2000, p.7).

A revolution from drill and practice, and a behaviourist approach in education and learning to an explorative, cognitive or constructivist approach developing collaborative learning will pave the way forward. A less goal-centered education with “the emphasis on literacy, numeracy and measurable learning gains within the curriculum guidance...” and a “more holistic education” (Cook, 2003, p.36) where digital media is an essential part of the child’s prescribed learning should be aimed for by teachers, schools and policy makers. Kosakowski (1998) demonstrated the effectiveness of drill and practice for learning factual material and basic skills. Drill and practice computer programs are the “most common application of CAI in school today”. (Collins, Hammond & Wellington, 1997)

CAI has become a prominent tool for teaching, from a behaviourist perspective it is an effective way of learning. CAI uses the drill and practice approach to learning new concepts or skills. The question acting as the stimulus, elicits a response from the user. Based on the response a reward may be provided. Rewarding the user to a different level for correct responses follows the approach of operant conditioning

(Forrester & Jantzie 2001, [online]).

Abbott (2000) refers to drill and practice as “drill and kill” because the learner has no control of the content or interaction with the content. Grouws (2004) contends with this, stating, “if students are initially drilled too much on isolated skills, they have a harder time making sense of them later” (p.168).

### **2.6.1 Explorative Learning Software**

The belief that computers would be a catalyst in the revolution of education is neither new nor original. Modern technology has improved, attaining the potential to integrate intricate graphics, audio, colour, animation, and improve interactivity.

“There is a strong demand from teachers for software suitable to the Irish Curriculum” (Digiscoil, 2002, Tangney et al., 2004)

Hegarty (2001 cited in Tangney 2004), acknowledges that software production for minority languages can be challenging. This often leads to the production of poor quality, irrelevant software which lacks effective learning outcomes. Wilson (1992) believes the continuous enhancement of technology is capable of reaching superior levels of interactivity, and that improved computer proficiency assists learners to access

a multidimensional, multisensory interweave of self-directed reading, viewing, listening and interacting, through activities such as exploring, searching, manipulating, writing, linking, creating, juxtaposing and editing

(Wilson, 1992, p.186).

Mayer (2003) asserts that students learn more from words and pictures, than from words alone. His research illustrates learning is more meaningful when information is stored via auditory and visual channels. Rogers (2002) concurs with this view stating technology encourages the student to construct knowledge using various thinking and learning tools.

### **2.6.2 Effective Exploratory Learning Software**

Educational software design is vital in determining pedagogic value. It should be relevant, should scaffold learning and suit a variety of learning styles and learning needs. The navigational design of software should facilitate ease of user control. Effectively integrating computers into learning environments involves pedagogic understanding of what computer assisted learning applications are trying to do and, of what hardware and software are capable of doing (Robinson 1997). Philipps (1997) concurs stating that effective computer technology integration in learning applications is

as reliant on pedagogical knowledge as on technical knowledge and skills. The following section will address the importance of feedback.

## **2.7 Returning Feedback**

Unfortunately, not all learners will learn more effectively if ICT is used (Healy 1998; Townsend 1997). Tomei (2008 [online]) revealed that immediate computer feedback increases confidence and improves performance, compared to feedback given by the teacher. Students may think teacher's feedback is personal or subjective, while the computer concentrates attention exclusively on the task (Tomei, 2008 [online]). Immediate computer feedback is more effective than feedback imparted through traditional methods (Frank, 2008 [online]). Frank (2008) purports that continuous assessment is better than the traditional end-of-term assessment, as end of term assessment lacks opportunity to correct mistakes or to achieve learning goals. Immediate reinforcement and feedback prevents continuation of practicing incorrect skills (Access Centre, 2006). Educators should avoid ICT resources that are rich in attractive images, sounds and video but lack educational value (Aldrich et al., 1998).

### **2.7.1 Relevance of Subject Matter**

Educational software is obliged to support learning and embrace how students learn, (Squires and Preece, 1996).

Software should promote independent learning that enhances the learning process by adopting relevant and familiar content that supports age appropriate skills. Content should be accurate, consistent, challenging and intuitive, encouraging students to participate in a "non-threatening environment". Material needs to be clear and suit the student's pedagogical and curricular needs and pace of learning. Kuittinen (1998) argues that CAI should focus on what users need and want to achieve. The next section outlines the importance of focusing on learning to assist learners to achieve learning goals.

### **2.7.2 Focus on Learning**

Technology has become ubiquitous as it permeates all layers of modern society, which has led to the use of computers as a learning tool, a requirement in much of learning. "Computer technology can and should enhance pedagogical practice" (Agir, 2000).

It is imperative that the teacher is center-stage as facilitator in computer aided pedagogical learning environments to ensure maximum potential is attained, rather than putting emphasis on the technology itself. Multimedia tools can provide “focal points for different audiences” accommodating different learning styles (Brunner and Tally, 1999, p.18). Due to technology, teachers can reach learners in an innovative way. This may offer unique learning opportunities for both the individual learner and the collaborative learner. Computers are not the strategy for best practice when it comes to learning, but are paramount as a learning tool in today’s society. The centrality of all learners’ needs is critical to ensure effective learning and to motivate the student. Kirkpatrick and Cuban (1998) claim ICT, which mismatches the expectations of its users, may, hinder the promotion of higher order thinking skills.

### **2.7.3 Navigation and Challenge**

Software navigation should be user friendly, attractive and interesting. Students should be encouraged to become active and independent learners.

Various levels of difficulty motivate students to progress at a suitable pace, ensuring achievement. BECTA (2004, p.7) suggests, “ICT offers teachers the opportunity to provide personalised programmes of study for every learner in mainstream school”.

Draper and Brown (2004) state that “it is the pedagogy and not the technology that matters”

Kirkwood and Price (2005), who advise that the objectives and teaching enhance learning and not the technology, also endorse this sentiment. Wishart and Blease (1999) affirm that ICT enables teachers to create differentiated tasks for all types of learners.

### **2.7.4 Interactivity, Multimedia and Learning**

Learners may be visual, auditory or kinesthetic learners. Students must be motivated for learning to take place. Students using computer-based instruction show higher motivation due to the novelty of technology (Young, 1991). Researchers anticipate that students will embrace more computer-aided independent learning, which should have a positive effect on student achievement (Honey, Mc Millan-Culp and Spielvogel 1999). The teacher’s role alters in a computer-aided educational society. Interactivity encourages engagement and fun. Speed and ease of use is vital to develop higher order skills. Tweedle (1993) refers to the teacher’s new role as “enabler”, “mentor” or “tutor”.

Educators focus on developing strategies that improve skill development, problem solving, and collaboration.

Ross and Schulz (1999), state that Computer Aided Instruction (CAI) enables learners to meet specific needs through individualised instruction. The value of a CAI instructional session may be influenced by background knowledge, motivation and learning styles.

Cloke and Sharif (2001, p.12-15) claim that, “the empowerment which ICT can bring is best suited to teaching which also empowers the learner”. Thus motivational issues may be addressed through interactive activities where students play an “active rather than passive” role. This section will outline the affect ICT has on learning styles and the importance of learning theories.

## **2.8 Learning Theories**

Theories of learning identify how teaching practices can be altered to suit learner needs and lead to effective technology implementation. Van't Hooft et al., (2008, [online]) believe that the key to learning is the notion of interaction with content, instructors, and learners. All theories of learning can be used for teaching and learning and can be achieved in online learning environments (Moore, 1989 [online]).

### **2.8.1 Technology Integration and Learning**

“Learning does not take place in a vacuum”, humans learn actively in the interaction with others (Wang, 2008 [online]). The Internet is a “fertile ground” for instructors and learners to develop “an assisting relationship, depending on instructors' teaching styles and learners' learning styles” (Wang, 2008 [online]). Using technology does not guarantee success (Tomei, 2008 [online]). Technology planning and implementation, and using appropriate approaches to improve learning strategies are vital. Unwin (2007, p.300) concurs with this view “technologies in education have often been seen and used as providing the answer to all our educational problems”. ICT is no exception “often being promoted by politicians as a solution to efficient learning”

## **2.8.2 Behaviourist Theory and Technology**

Behaviourist methodologies promote desirable behaviour and depend on the student's stimuli and response i.e. rewarding learning with encouragement, and punishment for inappropriate response. It illustrates that behaviours are conditioned through reinforcement. Wang (2008 [online]) cites a Chinese proverb: "If a learner reads a book a thousand times, its meaning will be self-explanatory". Behaviourism treats the student as "an empty vessel" and the teacher as the "bearer of all knowledge"; the student plays no role in knowledge construction. Behaviourist methodologies may not be suitable for ICT as it is a 'closed system,' where the designer sets the goals for the student. Learning is passive as opposed to active, thus if the student misinterprets tasks or finds them too challenging the student may lose motivation to continue.

## **2.8.3 Constructivist Theory and Technology**

Constructivism affirms that human beings are active learners and construct their knowledge from personal experiences, and from efforts to give meaning to experiences (Tomei, 2008 [online]). Frank (2008 [online]) cites Vygotsky's (1986) theory, which presumes learners build knowledge and understanding due to active learning, reflection, and participation in social contexts. The constructivist curriculum teacher influences the students' own understandings and interpretations thus encouraging them to learn (Rogers, 2002).

Means and Olson (1997) highlight that constructivist pedagogy is capable of transforming teacher student relationships thus enabling learners to be more active, motivated and interactive in the classroom. Teachers provide appropriate tasks and resources for students, but students are responsible for their own learning, thereby creating independent learners. Teachers assist individual students or groups over challenges and motivate students to become engaged in their learning.

Learning activities ought to engage an experience, observing or doing, or a dialogue, with one's self or with others (Frank, 2008 [online]). Wang (2008 [online]) agrees, citing Gagne's theory from 2005: "All activity is purposeful, and by participating in activities, learning occurs".

The constructivist approach effectively integrates technology by motivating students to construct meaning. It promotes a hands-on approach, collaborative learning, teamwork, real-life situations, making learning relevant to developing crucial 21<sup>st</sup> century skills

and engaging the student with the task. The following section will outline the importance of teachers' competence and support for ICT integration. The constructivist theory embraces ICT and facilitates more self-directed learning, facilitating the development of higher order skills and problem solving skills thus leading to student's attainment of necessary 21<sup>st</sup> century skills.

## **2.9 Pedagogy- Teacher Centered Versus Student Centered**

The "Net Generation children" are immersed in technology because they have grown up with it, but modern educators have "to learn to accommodate and accept it: a different and much more difficult type of learning process" (Tapscott 2009, p.18). This generation forces a change "from a teacher-focused approach based on instruction, to a student-focused model based on collaboration" in education (Tapscott 2009, p.11).

Students' motivation to learn is extraordinary.

Students are largely their own teachers, and in a right learning environment they will teach themselves more than all the schools can teach them

(Mee, 1953, p.2).

Ensminger (2008 [online]) envisages that only a shift in pedagogical values, practices, and views of technologies' role in instruction, will ensure the introduction of technology into teaching is beneficial to modify education.

Ensminger (2008 [online]) affirms that technology accomplishment can and will occur, but professional development, support from peers and from leaders is vital for success.

Uden et al. (2008 [online]) portray the evidence from Lim and Hang (2003) that technology integration in schools has assisted higher-order thinking skills attainment in students. The next section will highlight the importance of teachers who are open to change and adapt to facilitate ICT integration.

## **2.10 Teachers Role and ICT**

Digital technologies are promoted as "innovative" and "transformative" specifically in educational and classroom methodology (Thomas, 2009). Yet, despite increasing access to technology a fundamental change in classroom pedagogy is not fostered (Cuban, 2001). Laurillard (2008) corroborates this view, claiming that increasing digital technologies provide opportunities to transform teaching, yet institutional factors resist necessary changes.

The Education at a glance report asserts that, in Ireland

less than one third of teachers use computer applications, a quarter or less use the internet and thirteen percent or less use email for educational purposes at least once a month

(OECD, 2003)

The teacher plays a significant part in the learning environment to enable digital media to support students' learning.

To live, learn, and work successfully in an increasingly complex, information-rich and knowledge based society, students and teachers must utilize technology effectively

(UNESCO, 2008, p.1).

Teachers are challenged with what MacFarlane (1997) calls *The Teacher Dilemma*. This is a discrepancy between the classroom culture and the culture of the computer.

Multimedia gives learners the power to explore and manipulate information, and enable individuals to construct their own 'knowledge base'. Present institutional demands on teachers ensure that the culture of the classroom is governed by the need to control learning outcomes, to maintain authority, to meet demands of content-laden syllabi, and yet moderate behaviour of a large group of young people

(Collins, Hammond and Wellington 1997, p. 104)

Modern teachers want to control the learning, due to the content heavy curriculum, its constraints and the need to cover it, but teachers have control on curriculum delivery and can develop and assist collaborative learning environments. The computer can be an added obstacle, something they are not comfortable using. As Tyack and Cuban (1995) put it "computer meets the classroom, classroom wins". Thus, the teacher will always play a pivotal role in the fostering of a successful learning environment

Only when teachers adapt how they teach, will digital media become a prominent tool to enhance student learning. According to Collins, Hammond and Wellington (1997, p.127) teachers ought to evaluate relevant software and content and be confident with it to become a facilitator. Teachers should provide appropriate access to technology, offer open-ended tasks that require collaboration and discussion, and assess group work, suggesting appropriate activities that lead to development in students' learning, thereby improving the learning process.

"Change is one thing, acceptance is another" (Roy 1997 cited in Galvin 2002, p.15). A progress report on computer technology integration into Irish primary and post-primary schooling suggests that although there has been significant progress since the Schools'

IT 2000 initiative, more advancement is vital to maximize the pedagogical benefits of computer technology (Mulkeen, 2004).

In its summary of “2000 research report on the effectiveness of technology in schools” the Software and Information Industry Association (SIIA) state that:

Introducing technology into the learning environment has proven to make learning more individualized and student-centered, to encourage cooperative learning and stimulate increased teacher-student interaction. Technology has been used successfully to support constructivist inquiry-based and project-based instructional methods

(SIIA, 2000, p.7)

Cloke and Sharif (2001, p.8) declare that “teachers beliefs and theories about teaching are major factors in influencing teachers to use ICT in their teaching”. But, this is “by no means the only factor”. They also emphasize that teachers may view ICT as changing the nature of their subject and how it is understood rather than seeing it as a tool for teaching (ibid, p.10).

Wang (2009) concurs with this highlighting the instructive value and capability for teaching and learning that can be attained through various ICT tools available to teachers but states that:

teachers must have the competency to find and select proper tools for their teaching and learning needs and effectively apply them in the instructional process

(Wang, 2009, p.23)

Teachers ought to guide and support students appropriately, to build self-confidence and improve skills. Learning theories and course goals must be integrated and support appropriate technologies, teaching, and methodologies.

Only by changing “the teacher, the school and policy makers”, will learning initiate change and achieve “successful implementation of ICT” (Mumtaz, 2000, p. 319). When teachers enhance their skills in ICT and realize its potential, their future ICT needs intensify and change (Scrimshaw 2004). The next section illustrates the importance of putting students at the center of the planning for ICT integration. Students want and expect more from their learning process.

### **2.10.1 Students' Role and ICT**

Students can become motivated learners, critical thinkers, and problem solvers through educational change that offers the learner vital tools to enhance and dominate the learning process. Papert believes the computer is a suitable tool to achieve this pedagogic change. Teachers are capable of achieving this educational transformation. How digital media is integrated is crucial in scaffolding students' learning.

To suggest that using technology will bring about all the needed changes in education is simplistic. Technology alone will not change schools. Technology integrated into effective learning environments by reflective and flexible educators will assist restructuring of classroom practices for the benefit of all learners. The challenge is to use technology appropriately so that students' learn with the computer, not just from it.

(Gibson, 2001, pp. 55-56)

As Johnson (1998) writes:

Pedagogical agents are autonomous agents that support human learning, by interacting with students in the learning environments. They extend and improve on previous work on intelligent tutoring systems. They adapt their behaviour to the dynamic state of the learning environment, taking advantage of learning opportunities as they arise. They can support collaborative learning as well as individualised learning, because multiple students and agents can interact in a shared environment

(Johnson, 1998, p. 13)

Ross and Schulz (1999) claim that, for teachers to integrate ICT successfully they need to consider how students learn. Management also influences integration of ICT, which will be addressed in the next section.

### **2.10.2 Role of the School and ICT**

The role of the school and not just that of the teacher is of vital importance. "A strongly supported strategic framework which covers resources, technical support, professional development and curriculum development" (Ager *et al.*, 2003, p.10) is pivotal to teachers' ability and willingness to use digital media for students to learn effectively. Leaders, principals, teachers and support staff all have a crucial part to play in guaranteeing the adoption and integration of digital media in schools for all students. It is ultimately the role of the school to encourage "the need for a much greater emphasis on ICT pedagogy" (Tella *et al.*, 2007). Unfortunately, current in-service teachers are not well prepared to use technology, nor does it appear that the next generation is being adequately prepared to enter the profession as technology-using teachers (Laffey *et al.*, 2003, p.77). A survey carried out in the United States by Dawson and Rakes (2003) to examine the influence of principals' technology training on technology integration into

the curriculum highlighted that a more technologically driven principal who realizes the potential of ICT will encourage teachers to adopt ICT in their teaching methodologies.

## **2.11 ICT and Motivation**

Technology has the capability to motivate teachers. Seyoum (2004) indicates that teaching through ICT will re-stimulate teachers leading them to revisit what they are teaching and how they teach. The NCCA believe that ICTs enhance students' engagement with collaborative learning, adding value to learning. This view concurs with the BECTA report (BECTA 2004a) on the importance of ICT in education. BECTA claim that ICT enhances education as it creates a range of learning opportunities and promotes the "development of skills, knowledge and understanding"

Computer use can facilitate consistency in learning, generating new and different learning environments. According to promoters of computer-aided instruction, computers in some learning environments are so innovative that students respond more positively to them due to the innovation of learning with technology (Bayraktar 2001-2002 cited in Grabe and Grabe 2004). But Albe (1996) purports that CAI in mainstream education will gradually lose the novelty effect. Gibson (2001) feels learner individuality and learner diversity needs to be considered to achieve successful integration of technology based learning environments.

Multimedia technology has more potential than a personal tutor has. It enables students to become active learners. Research advocates that:

relatively easy access to vast amounts of data offer pupils of all ages the opportunity to become independent learners and take control of their learning

(Collins et al., 1997, p. 103).

This leads to motivated learning processes, students participating in inquiry based learning, thus developing higher order thinking skills. Passey et al., (2004) studied the motivational aspects of ICT in seventeen schools in United Kingdom. The study highlights that both students and teachers claimed ICT had a positive motivational effect on students' desire to learn. Students' attitudes to schoolwork and homework improved and students' confidence and abilities were enhanced.

## **2.12 Research Studies on ICT**

Studies on how ICT influences educational structures, such as Davis et al., (1997) and Davidson (2003), concur that new technologies enhance the quality and availability of education, however old methods of teaching and learning need to be altered to achieve beneficial enrichment.

ICT's potential transformation of education and its current performance differ greatly. ICTs encourage students to become interactive learners, offering teachers greater potential for reaching and motivating students. Effective use of ICT can achieve greater comprehension and social advancement. The main constraints associated with ICT use for educational purposes are failure to associate theory and practice, and training teachers to use ICT creatively.

The role of digital media and ICT in education is a pivotal part of curriculum. ICT use should guarantee efficient and successful learning for and in education, in the future. The BECTA (2010a) report highlights that schools, which integrate ICT across the curriculum and wider school life, achieve more A-C grades at GCSE level.

Only by addressing frameworks, the challenges they present and instigating change in all areas can digital media use and integrate ICT successfully (Mumtaz, 2000, p.319); and become an invaluable tool in educating students and in their development of appropriate life-long skills.

The next chapter will outline the research methodology conducted by the researcher to identify the factors that promote and impede effective curricular integration of technology.

# Methodology

## 3.1 Introduction

This chapter identifies the research methodology and outlines the procedures utilised in conducting this research. The research setting, background of the research, and the research questions will be presented. Various research methodologies will be examined before arguing in favour of the methodological approach adopted. This chapter will also examine the selection and implementation of the research instruments chosen to satisfy research questions raised and illustrate the validity and reliability of data gathered. Ethical considerations adhered to throughout the research will be presented. This chapter will conclude with an investigation of how the data will be analysed and will outline the limitations of the research methodology adopted by the author.

## 3.2 Background to the Research

Educational practices are continually faced with the demands and challenges of everyday society, and the needs of its 'digital natives'. ICT has impacted on almost every facet of society. Technology is becoming increasingly prevalent in the educational sector, therefore the manner in which educational institutions adapt to this modification, demands investigation. The ubiquitous nature of ICT has transformed society and radically changed how people live, work and play (Komza, 2005). Researchers assert that ICT will be an essential component of the education process for future generations (Bransford et al. 2000; Grimus 2000; Yelland 2001).

ICT in education has undoubted potential, to be influential in changing teaching methodologies. Various bodies of research assert that ICT integration is a worthwhile endeavour, leading to a marked enrichment of the teaching and learning process (Condie and Munro 2007; Frear and Hirschbuhl 1999; Korte and Husing 2007; Panagiotakopoulos and Ioannidis 2001; Wishart and Blease 1999). But computer equipment in itself does not guarantee ICT integration in education. Successful

implementation is a complex process, determined by pedagogical values, attitudes, curricular needs and physical infrastructures (Granger et al., 2002, p.480).

Technology use in the learning environment has become an unstoppable force in recent years (Cohen et al., 2004; Laubsch 2006). This research investigates the contributors, outlined in the literature review, which modify and enhance ICT use within educational practices. This research also identifies issues exclusive to teaching through the medium of Irish.

### **3.3 Research Setting**

The setting for this research is a rural post-primary school in the West of Ireland. The school is located in a small town; its catchment area includes the surrounding rural town-lands. The school offers the Junior Certificate and Leaving Certificate programmes.

Fourteen full time teachers and three part-time teachers are employed in this school, almost every teacher teaches both programmes. The school is managed by a Vocational Educational Committee system, whose mission statement advocates that they are committed:

to promote, offer and support accessible, inclusive and holistic learning opportunities which will enable young people and adults to empower themselves to reach their full potential in society.

(VEC, 2008)

There are currently one hundred and eighty students on roll. The students who participated in this study consist of Forty First Year Students who would have previously learned Irish in the Primary School Curriculum. The participants were selected from both First Year classes. The control group of twenty First Year students' were taught using traditional methods, while the target group of twenty First Year students' used the CAL resource produced by the author based on the chapter 'Mo scoil' which is part of the Junior Certificate curriculum.

The school has a Technical Graphics ICT suite and one computer laboratory where the research using the CAL resource was carried out.

### **3.4 Research Questions**

While technology integration is an admirable objective, various factors promote and hinder ICT use in education, and a significant number of teachers do not feel proficient in its use. This research identifies that resource acquisition is an important factor in ICT integration, but real and meaningful progress will only occur if and when there is a shift from a focus on the technology itself to the use of technology to learn.

The primary aim of this research is to elicit if any of these factors exist within a VEC post-primary setting. Therefore this research will identify the research aims:

- A) Are educational practices and methodologies modified or enhanced through technology?
- B) Impediments to effective integration of technology?
- C) Computer technology and learning style?
- D) Computer technology and the teaching of Irish?

### **3.5 Research Methodology & Rationale**

The literature review enabled the author to identify factors which previous academics had investigated as regards ICT integration. This gave the author a deeper knowledge base of the chosen setting. The author identified various research methodologies and selected the case study approach to be the most suitable one for this research. The next section outlines the advantages and disadvantages of two methodologies associated with educational research, the action research approach and the case study approach.

Action research involves deep inquiry and examination of existing practice. Case studies can afford an ideal approach to gain in-depth information about real people in real life scenarios (Gummesson 1991, Hammel et al. 1993, Yin 1994).

The aim of this research is to ascertain the effects of teaching Irish using ICT compared to the teaching of Irish in the traditional, textbook “chalk and talk” method.

#### **3.5.1 Action Research**

Action research, combining practical problem-solving along with scientific research, is concerned with thoughtful inquiry into the researcher’s practice to change or improve that practice (Bell 2005). Cohen and Manion (1994) state defining action research is

difficult, as its usage varies as regards time, place and context. Hopkins and Ebbutt (1985) define action research as a form of disciplined inquiry in which a personal attempt is made to understand, improve and reform practice.

Action Research in education has many advantages. According to various studies, it can change teachers' beliefs and broaden their views on teaching (Noffke and Zeichner, 1987). Kemmis and McTaggart (1992) suggest it is concerned with changing individuals, and the culture of groups and institutions to which they belong. Most definitions of action research believe that it investigates and analyses current practices, to enable improvements to be made (Cohen et al. 2007). McNiff (2001) maintains that an examination into one's own practice is needed for change to take place. She states:

the self-studies the self. Therefore it is important to gather data about one's own practice, and the practice of others with whom one is working, to change a situation,

(Ibid)

While action research can be effective, it also presents some inherent disadvantages such as its focus on the workplace. Another critical disadvantage is that the action researcher may find it difficult to detach themselves from the research.

For the purpose of this study students will be researched and relevant observations will be made. Zuber-Skerritt (1996) note that observations are relevant within the context of this small research group. They argue that within a small scale study, action research techniques would not be precise enough to lead to new findings within a specific area. Consequently to "capture the dynamics of unfolding situations" as confirmed by Nisbet and Watt (1984, p.84), it was decided to conduct a case study approach.

### **3.5.2 Case Study**

A Case Study has been identified as a thorough study of a single individual, group, incident, or community (Bell 2005). This approach involves a detailed, examination of a single instance, event or case. The case study has an ability to study something in-depth. Case studies allow the researcher to look at events, gather data, analyse information and present findings. They can allow the researcher to understand why something happened and what might need further research.

Another significant strength of this approach is that things are examined within real life contexts. Anderson (1993) highlights that case studies identify why and how things

happen. Case studies combine qualitative and quantitative methods of investigation. Qualitative research identifies the attitudes, behaviours and experiences of participants regarding the research topic. While it is an effective method, it is less susceptible to generalisation. In contrast, quantitative research generates statistical data using questionnaires, worksheets and surveys.

However, the author acknowledges a case study approach is not flawless and needs to be conducted correctly. The research findings and data collected could be misrepresented if evidence that only supports the author's belief is documented. According to Nisbet and Watt (1984) a case study may be 'selective, biased, personal and subjective in some instances', (ibid, p.54).

### **3.5.3 Methodology Chosen**

For the purpose of this research the author wished to examine reality in a particular educational setting. Following careful consideration the author decided to adopt the case study approach using interviews, observations and questionnaires as research methods. The philosophical assumption underpinning the qualitative research is ontological, as the nature of the reality of the school setting is being researched.

Aldeman depicts a case study as "an umbrella term for a family of research methods having in common the decision to focus on an inquiry around an instance" (Aldeman et al. cited in Bell 1993, p.10). The author outlines that the 'instance' of this case study is work carried out over the research period by a cohort of First Year students of mixed ability in a co-educational rural school. This case study will use observation and informal discussion as qualitative research methods and questionnaires and worksheets as quantitative research methods of collecting data.

Case studies may permeate circumstances in ways that are not always susceptible to numerical analysis (Cohen et al., 2004). The author believed that this case study would illustrate the reality of participants' thoughts and feelings about the situation through examining the research questions (Cohen et al., 2004). Case studies facilitate the use of a variety of research methods and sources of data, enhancing validity through triangulation.

Action research was not considered as a methodology, as the author, in this particular instance, is seeking to examine current educational practices and ICT use.

### **3.6 Research Methodology Instruments**

Research has been defined (Kerlinger, cited in Cohen et al. 2008) as “the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena”. In this research study, the questionnaire (quantitative) was the dominant research instrument, while interviews, pre and post testing and observation (qualitative) added depth to the research and validated the data.

The Interview

The Questionnaire

Observation

Pre and post testing

A test-teach-retest methodology was adopted to conduct the research which was deemed appropriate as outlined by Hasson and Joffe (2007) in a pilot study of dynamic assessment of children with language impairments.

#### **3.6.1 Interviews**

Interviews in research, involve the collection from individuals, of detailed information of a conversational, face-to-face nature, on thoughts, feelings and behaviours.

Interview techniques can be structured, semi- structured and unstructured. Structured interview questions attract quantitative data, while less structured questions attract qualitative data. In this study the author chose the semi-structured interview instrument as it offers greater flexibility to obtain more in-depth information from the interviewee. Kerlinger (1970), states that with structured interviews there is more freedom to make modifications (cf. Appendix 9). Semi-structured interviews give the interviewer a guide containing a list of relevant issues to be addressed. Cohen et al., (2004) believe the interview process ‘can be used as the main means of obtaining information which in turn has a direct influence on the research objectives’, (Cohen et al., 2004, p.268).

Interviews took place at a time convenient to interviewees and were recorded with their permission. However, interviewing is prone to subjectivity and should be complemented by other methods (Cohen et al., 2000).

Tuckman (1972) also states that:

by providing access to what is inside a person's head, it makes it possible to measure what a person knows, what a person likes or dislikes and what a person thinks (attitudes and beliefs)

(cited in Cohen et al., 2004, p.268).

A skilled interviewer can probe responses and examine motives and feelings in ways which questionnaires cannot do (Bell, 2005).

Oppenheim (1992) believes that

interviews have a higher response rate than questionnaires because respondents become more involved and hence, motivated. They enable more to be said about the research than is usually mentioned in a cover letter to a questionnaire, and are better than questionnaires for handling more difficult open-ended questions

(ibid, p.269).

### **3.6.2 Conducting of Interviews**

Students' attitudes towards ICT were examined in general. The author designed the interview questions carefully to ensure they were not worded ambiguously. To overcome this, the interview questions and questionnaires were piloted on a weaker stream of second year students early in the first semester. The students were not participating in the study and questions were modified in accordance with feedback from the pilot questionnaires. The research questionnaires were administered to First Year students post the CAL intervention towards the end of the last semester in First Year.

### **3.6.3 Observation**

Observations obtain data based on the behaviour and actions of people in a particular setting. The researcher observed the students throughout the research period and recorded evidence of increased or decreased motivation levels relating to the teaching method used. A daily diary recording observation of students' behaviour, enthusiasm, and performance was kept. Students were observed at five separate intervals during each class period. It triangulated the findings with the findings from the interviews and questionnaires.

"It is non-intrusive and a non-interventionist technique" (Cohen, Mannion and Morrison 2000 p. 288). Information recorded related to students was based on their facial

expressions, their application and attention to tasks, their length of time taken to complete various tasks, their enjoyment levels, their interaction with the lesson and in relation to assistance required from the teacher to complete the tasks.

Only comments relevant to the research study were recorded. Observations enabled the researcher to establish if the students were engaged with the tasks and motivated throughout the sessions. Students were encouraged to proceed with the regular classroom activities to enable accurate observations to be recorded. Observation allows the researcher to study people in their natural setting, giving a more holistic view of the topic being researched. For the purpose of this study, observation was carried out on how students interacted with the book and the CD-ROM in the Classroom setting (cf. Appendix 6).

During the classroom observation, the author kept written notes which included information of date, place of event, participants, the physical setting, and interaction and activities that had taken place (cf. Appendix 7).

### **3.6.4 Questionnaires**

Questionnaires are a valuable research mechanism if used properly as they can elicit large amounts of information from respondents. The language used within the questionnaire was precise, easy to understand and unambiguous. When the questionnaire was developed, a pilot study was carried out to eliminate errors, rectify omissions and improve the design and layout to enhance validity. Mertens (1998) regards research as insignificant unless it is valid. Questionnaires were completed by students who were not taking part in the survey. DeVaus (1993, p.103) emphasises that “pretesting should be done on people who will resemble the types of people to whom the questionnaire will finally be given”. A question and answer session with students from another class was used to discuss and evaluate the pilot.

For the purpose of this research, questionnaires were distributed by hand, to all respondents, for self-completion to improve response rate (cf. Appendix 8). Closed questions were used extensively for ease of completion by all respondents as they enable easy analysis of data. These questions ensured the removal of bias, as respondents ticked a box. Open-ended questions were used to obtain more in-depth information and encourage respondents to develop their answers. Likert scale questions

produced valuable data which was rated as regards students' preferences and to achieve accuracy in measurement. Mouly (1978) proposes that a combination of open and closed questions are beneficial for various reasons.

The closed questionnaire makes for greater coverage and more likely return, allows more systematic tabulation and it structures the concept under study and minimises the risk of misinterpretation. The open questionnaire allow the respondent to clarify their position with regard to some of the items and allow the respondents more leeway in stating their position

(Mouly 1978).

### **3.7 Triangulation**

To ensure triangulation of data (Yin, 1994) and to ensure authenticity of results (Spencer et al., 2003) both quantitative and qualitative data was documented to increase the validity and reliability of the research.

A blend of qualitative and quantitative research methods was integrated to form a holistic study. The pre and post-test gathered quantitative data. Qualitative research may be used "to provide in-depth information on a small group of people" (Ambert et al., 1995 p.4). In contrast quantitative methods "can be used to answer questions on how much change occurred as a result of your intervention" thereby, providing precise information (Francisco et al., 2001, p.21). Quantitative research methods were used through testing prior to and after instruction to identify present strengths and weaknesses in language learning. This was pivotal to measure progress levels (Hasson and Joffe, 2007, p.15).

#### **3.7.1 Data Analysis**

The extent of data collection was strongly influenced by the availability of time to complete the study, as outlined by Bell (2008). Results were analysed using Microsoft Excel for statistical analysis and precise graphical representation of results. Transcripts were examined and common trends were identified.

### **3.7.2 Research Sample Group**

Assessment of all students in both First Year groups was conducted using testing. Vocabulary was introduced through the medium of mnemonics to encourage target language use. Suitable comprehensions were administered to assess knowledge and progress.

### **3.8 Validity and Reliability**

Validity determines whether the test works “as it is intended to” (Hasselgreen 2004, Introduction). Various research methods employed in this study were essential to verify findings as regards oral language skills. The convergence between two methods “enhances our belief that the results are valid (Jick, 1979, p.603).

Babbie (1994) defined reliability as giving the same answer continually, in an unchanged situation where answers had not been forgotten (Van der Velde et al., 2004, p.45-59) and emphasises that a methodical approach to testing is vital to ensure reliability.

Each researcher brings a unique dimension to the study. Conformability identifies how precise the results could be confirmed by others. The researcher can record procedures for verifying the data throughout the study. The researcher can actively search for and describe circumstances that contradict prior observations.

All raw data was transcribed to facilitate a conformability audit. Lincoln and Guba (1985, p.289-392) refer to the importance of a conformability audit. The audit facilitates data collection procedures and analysis in order to minimise the potential for bias or distortion after the study. Conformability is adhered to in this research as raw data to support the findings made are included.

#### **3.8.1 Documentary Evidence & Triangulation**

Triangulation enables data to be observed from various perspectives and thus be able to confirm or challenge the findings of one method with those of another (Laws cited in Bell, 2008). This concurs with Cohen and Mannion (1994) who inform us that

triangular techniques... attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data

(ibid, p.233).

Quantitative research methods provide knowledge that “can be used to answer a number of questions about how much change occurred as a result of your intervention” (Francisco et al., 2001, p.21).

Quantitative research methods were employed in the form of tests, administered to assess students’ strengths and weaknesses prior to instruction and to aim instruction towards areas requiring assistance. Tests were pivotal to establish participants’ progress subsequent to a period of instruction (Hasson and Joffe 2007 p.15). Students’ previous performances on specific tasks were compared. Triangulation between the qualitative and quantitative data was an important feature of this study to ensure reliability and validity.

### **3.9 Limitations of the Study**

Some of the limitations of this study include sample size, scheduling issues and researcher/participant bias.

#### **3.9.1 Sample**

A sampling frame is classified as a list of the entire population from which a sample is to be selected (Linehan and Cadogan 2007). The availability of a broad homogeneous sample was beyond the scope of the study. As noted by Noor (2008) generalisation of a larger sample of students would have been preferable. A random sample of eight students was asked to participate in interviews- four from the control group and four from the experimental group. For the purpose of this research the cohort of students was the sample of First Years in the researcher’s school. The researcher acknowledges that, as all First Year students participated in the study there was no other First Year group in the school to pilot the questionnaires, so the researcher piloted the questionnaires on a group of second year students early in the first semester of second year. Therefore, the researcher acknowledges (DeVaus,1993) that there is circa four to six months age difference between the cohort of students who participated in the pilot and the cohort who participated in the study.

#### **3.9.2 Scheduling Issues**

The research for the control group was carried out mainly in a computer laboratory and had implications attached. Availability was not always guaranteed as other teachers were timetabled for the laboratory when required by the study group. Difficulties re

rostering of the computer laboratory were facilitated by colleagues throughout the study. Similarity of methodology was maintained with both groups.

Other limitations of the study refer to the short period of intervention. The results may have been impressive if a longer intervention period was available.

### **3.9.3 Researcher/ Participant Bias**

The author tried to minimise bias and analyse concrete data found by combining a range of methodologies. There is danger of bias creeping into interviews as “interviewers are human beings and not machines” (Selltiz et al., 1962, p.583). The main drawback encountered was that the interviewees knew the author, who was also their teacher. Research on interviewing, has indicated that people respond differently depending on how they perceive the person asking the questions (Denscombe, 2007). The students being conscious of the fact that the teacher conducting the interview was also the researcher may be more aware of the response that they gave. Also the number of interviews that were conducted by the author was limited to what was available within the research setting. The findings are limited to this particular setting and environment where the study was carried out and will therefore have limitations in their application.

The participants may be biased, as students may not want to disclose information if they were not motivated, if they like or dislike the chosen topic, or if they did not learn as much as was expected from this pedagogical approach. Familiarity with and knowledge of the students was used to determine if students were reaching their potential or making a good effort.

### **3.10 Ethical Considerations**

To ensure authenticity of findings, ethical issues were adhered to throughout all stages of the research. Prior to investigating the research, permission was sought and granted to undertake the research within the school (cf. Appendix 1). It was communicated to all parties that the school, would not be identified so that anonymity would be adhered to.

Parents/Guardians were informed of the research being carried out (cf. Appendix 2). Students were able to “choose whether to participate in an investigation after being informed of facts that would be likely to influence their decision” (Diener and Crandall 1978, p.57). All students received a certificate at the end of the research period (cf. Appendix 10).

The next section of the study will present the findings obtained by the author following the data collection.

# Findings

## 4.1 Introduction

This chapter presented the findings of the author's case study research. For the purpose of this study, the responses from students studied were collated and analysed. The quantitative and qualitative findings are presented accordingly. The software was evaluated in a natural environment to increase the validity of the data obtained.

All questionnaires utilised in this study were fully completed by all twenty students and all findings are based on twenty responses on the part of the target group participants (n = 20).

## 4.2 Student Profile

The target group in the study comprised of fifty-five percent girls and forty-five percent boys, while forty-five percent girls and fifty-five percent boys were part of the control group. The data was acquired from various research methods: observation, students' worksheets, questionnaires and interviews. The results were presented based on the research questions which constitute the core of the research findings.

The findings enabled the researcher to compare the attitudes, enthusiasm, motivation and achievement of students taught in a technologically integrated classroom environment with students taught in the traditional didactic method of chalk and talk learning. The findings attempted to assess the factors that promote and hinder ICT use in the post-primary setting.

The main findings of the research study are divided into four different sections dealing with each research question. Charles (1995) cautions against using statistics when there is a small sample group: "to make generalisations about the population and to test for significance" (p.142). The researcher adhered to this caution throughout the research, while pre and post test results assisted with the interpretation of data and aided with the validation of findings. The questionnaire completed by all twenty participants, in the control group focused on questions relating to both the educational and technological aspects of the resource. The differences between the results of the students taught in the

traditional chalk and talk method and the results obtained by the students taught using ICT are examined. Attitudes and motivation expressed towards the unit after the four-week period and additional data was collected from class observation and subsequent interviews. The next section will outline the findings recorded from all respondents.

### 4.3 Evaluation of Students' Learning

Table 4.1 below shows the results attained by twenty students in the computer instruction class for both pre and post-test assessment. Analysis of the quantitative data (cf. Table 4.1) reported that nineteen students increased their post-test marks: three by 11, three by 9, one by 4, one by 14, two by 6, one by 12, one by 26, one by 19, one by 3, one by 5, one by 27, one by 24, one by 10 and one by 8. Students' enthusiasm throughout the research was palpable. All students were more favourably disposed to the software and computers compared to the 'chalk and talk instruction'. One student's post-test results decreased, by six marks. The researcher noted during observation that this particular student whose marks decreased, was absent for three of the computer class periods and also went 'off task' for some exercises. He also scored low on the quiz. The students who increased their post-test results understood the tasks involved, they asked for assistance from the teacher at times and all questions were project related.

#### 4.3.1 Computer Instruction

Students	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Mean
Pre-test	88	33	30	70	74	77	74	84	65	62	54	35	89	95	78	72	70	81	80	52	65.35
Post-test	99	44	39	74	88	86	80	95	77	88	60	54	98	98	83	99	94	75	90	60	79.05

**Table 4.1:** Pre/Post-test results (N=20)

Table 4.2 below illustrates the pre-test and post-test results for the twenty students which formed the chalk and talk instruction group. One student obtained the same grade in both the pre-test and the post-test. Following the observation schedule carried out over the four-week period this student went 'off task' numerous times and never asked a project related question. One student's, post-test results decreased by five marks. During observation this particular student appeared to be continuously unmotivated and

uninterested in learning, he was very easily distracted and rarely attempted exercises. Eighteen students increased their post-test marks: two by 6, one by 10, four by 5, two by 25, one by 17, three by 2, one by 8, one by 3, three by 7, and one by 12. The student who increased her mark by 12 always remained on task, was motivated and enthusiastic to learn and understood the tasks to be completed. While the remaining student's grade did not change and she stated that she didn't mind using computers but she was more accustomed to using the "chalk and talk" method.

### 4.3.2 Chalk and Talk Instruction

Students	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Mean
Pre-test	80	79	84	73	60	49	49	57	86	93	89	87	90	48	86	54	83	75	43	72	71.85
Post-test	86	89	89	78	85	66	44	63	88	93	97	89	93	55	98	59	88	100	50	79	79.45

**Table 4.2:** Pre/Post-test results (N=20)

### 4.4 Are Educational Practices and Methodologies Modified or Enhanced Through Technology?

This study found that educational practices and methodologies are enhanced through technology. Students in this particular Irish VEC School claim that ICT facilitates the enhancement of educational practices. Ten percent of students have been learning Irish for one year, ten more percent of students have been learning it for between two and five years while the remaining eighty percent are learning Irish between six and ten years.

In this study ninety-five percent of students enjoyed the topic 'Ar scoil' (Fig 4.1) while only five percent did not enjoy it. The qualitative data from this study reported the need for the designer to consider the fun element of the software to motivate students to learn.

I think that it had a motivating and encouraging impact, a positive impact 'cos it encouraged children to go on to the next page because there were fun activities rather than in the book where there's just questions

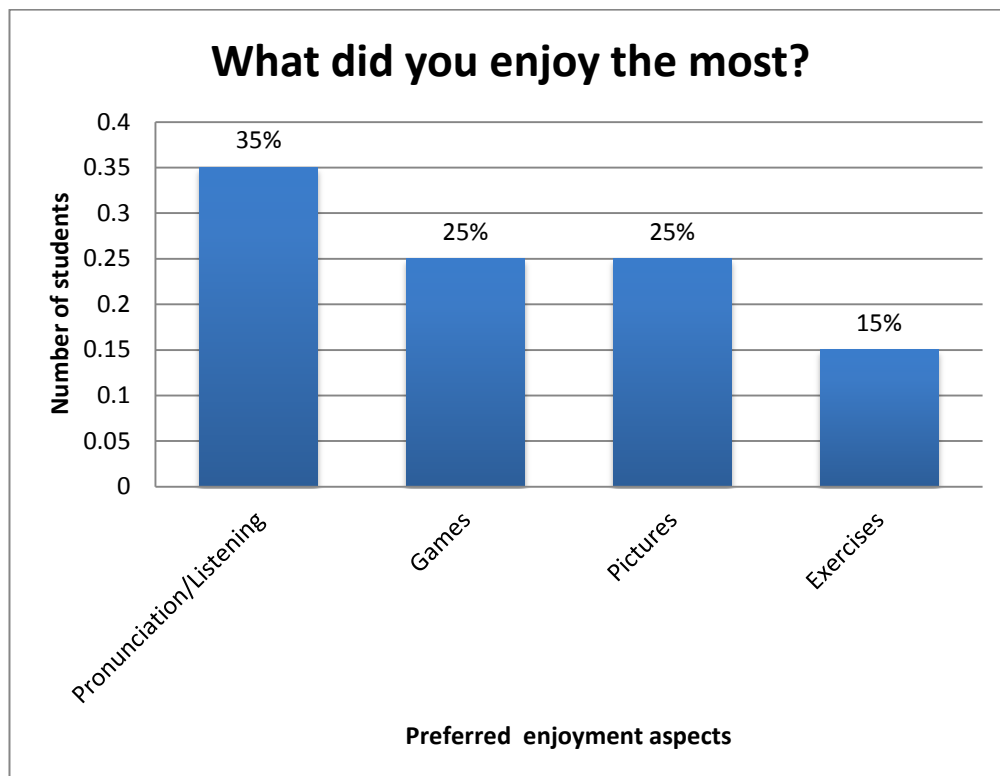
(Interview, Student A).

### 4.4.1 Engaging Learners

On analysis thirty-five percent (Fig 4.1) liked the pronunciation and listening exercises. Twenty-five percent enjoyed the various games; drag and drop exercises, the quiz and the reward of applause for correct answers. Subsequent interviews ascertained that all students agreed that pictures, sound, layout of text and graphics were impressive. This helped to gain and maintain interest throughout the topic, which enhanced learning. Twenty-five percent liked the pictures and colour while fifteen percent enjoyed all the exercises and the opportunity to repeat exercises until they were understood.

I liked the questions and activities because they were challenging and you could do them in your own time and you could go over them and if you got some questions wrong you can keep doing them until you get them right

(Interview, Student A).



**Figure 4.1**

The majority of students stated that they enjoyed using the software.

Because of the different stuff you do doesn't really feel like you're doing work and you just learn it without noticing it

(Student B, Interview).

This study reported that students enjoyed this method of learning. ICT improved the learning process. Learning was enhanced through the use of audio. Pronunciation and pictures facilitated the visual learner to understand new vocabulary.

#### 4.4.2 Reasons for Enjoying the Topic

Thirty-five percent felt (Fig 4.2),

It was easier than the book it seems easier than the book and it doesn't feel as much work you're doing and it's more fun

(Interview, Student B).

Twenty-five percent believed it was easier to learn and complete tasks, twenty percent preferred using the software as opposed to the book, this was because it was a new methodology being adopted and they liked the change. Ten percent liked being able to go at their own pace,

I liked the questions and activities because they were challenging and you could do them in your own time and you could go over them and if you got some questions wrong you can keep doing them until you get them right

(Interview, Student A).

Repetition of exercises for this student was vital to keep her focused and to ensure she would stay "on task". Ten percent enjoyed getting printouts of the pages as opposed to writing down vocabulary in the copy.

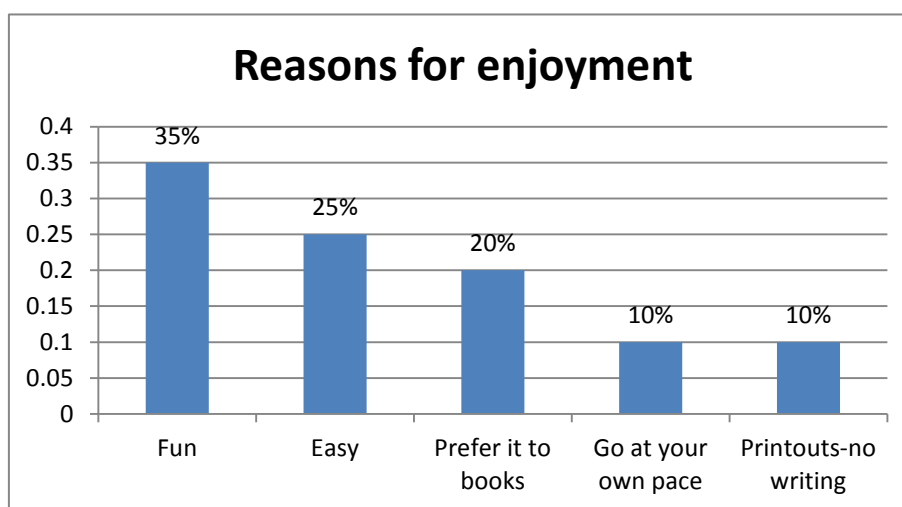


Figure 4.2

### 4.4.3 Blended Learning

Thirty percent of students felt blended learning would be better (Fig 4.3). Twenty-five percent claimed computers are not always suitable for all subjects, while five percent indicated it could become boring. Twenty percent felt computers made the subjects more interesting and fun to learn, ten percent highlighted that it was of great benefit especially in languages to help with pronunciation. Five percent highlighted that work may be lost or deleted on a computer, while the remaining five percent believed it would focus students.

It was an interesting way to learn how to do it and it helps you with the spellings of the words and it improved my vocabulary too

(Interview, Student B)

### 4.4.4 Time on Task

The researcher found that students were more focused using computers and understood the task better as a result. Learning was enhanced as the researcher noted she could devote more time to students while using computers in comparison to the book. One student said when using “the book you are just flicking through pages and you can do like proper activities on the computer” (Interview, Student E). The researcher observed that students had a better understanding of the topic after using the software and were more willing to complete tasks.

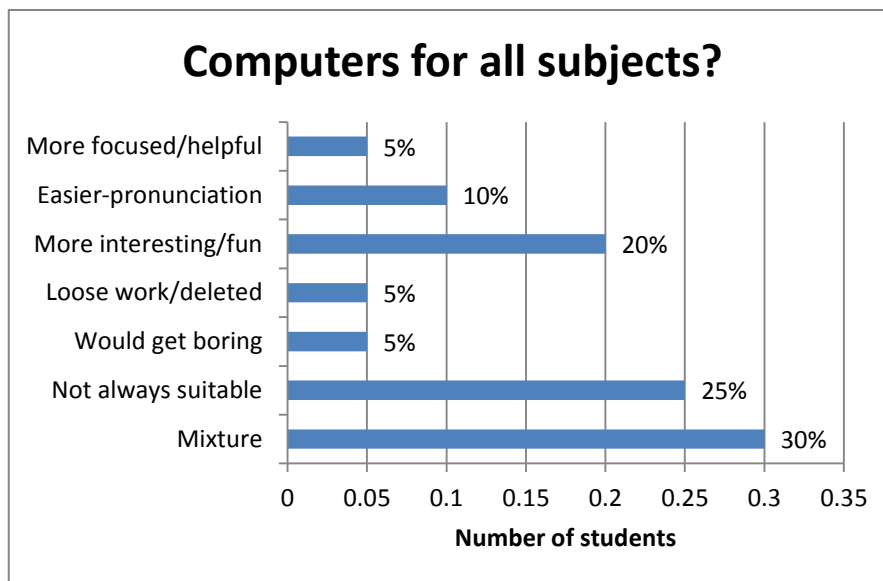


Figure 4.3

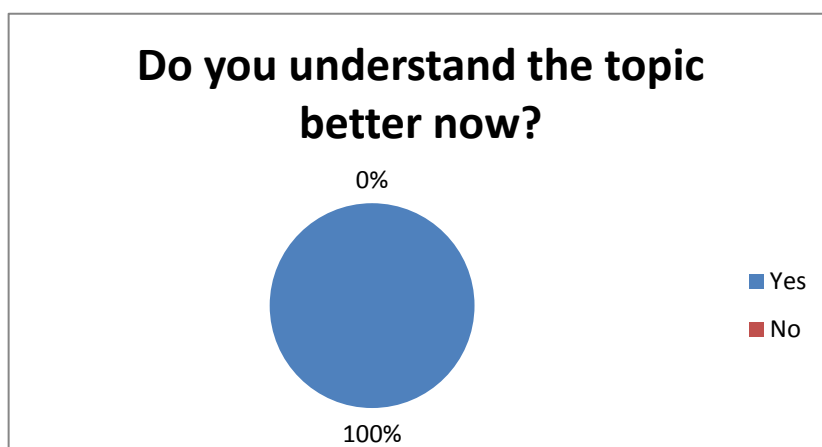
#### 4.4.5 Effective ICT Integration

The majority of students claimed blended learning was the best method of teaching the topic “Ar Scoil”. All students who participated in the study stated that they had a better understanding of the topic after using the software, (Fig 4.4)

It’s pretty much the same as the book except you might try harder using the CD as it feels easier with all the games and stuff

(Interview, Student B).

A focused professional approach in the implementation and integration of ICT is imperative for students to achieve maximum potential. In this study the researcher found that all students claimed ICT improved the teaching and learning of Irish.



**Figure 4.4**

#### 4.4.6 Teachers

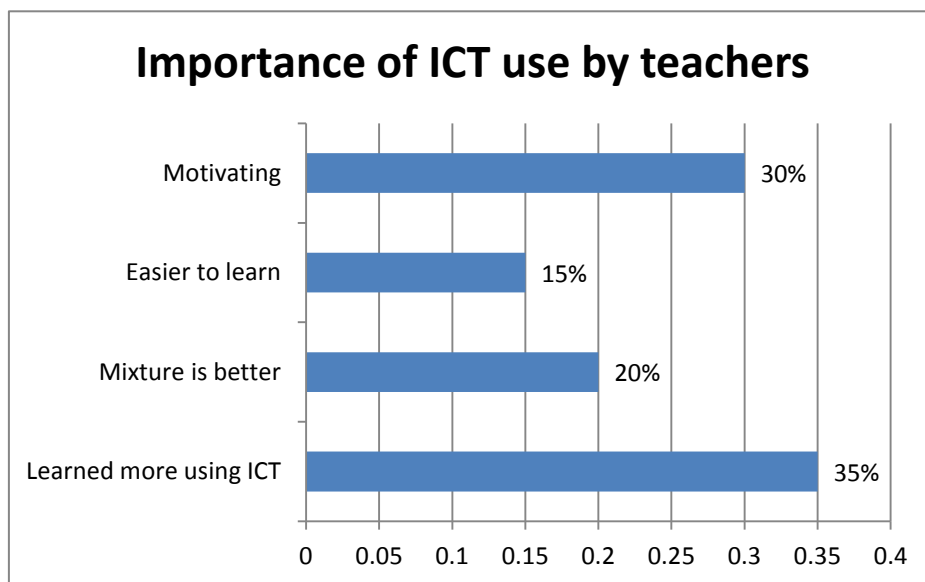
Educational practices and methodologies can only be enhanced and modified through the appropriate use of modern technology and teachers adoption of it. Thirty-five percent of students felt teachers should use more ICT in teaching as they learned more by integrating ICT (Fig 4.5). A further thirty percent believe ICT was more motivating.

Teachers must be confident when using ICT to enable students to adapt to new methodologies being employed and have a positive experience of using ICT effectively. One student said

It was just enjoyable like and you’d want to keep going like in the book you’d get sick of it ‘cause like you just keep going on and on and on

(Interview, Student C)

However twenty percent believed that teachers should integrate blended learning, the remaining fifteen percent felt it was easier to learn using ICT. However methodologies deployed are reliant on the subject being taught “ah well it depends like for practical subjects I would like to just use my hands and pencils like” (Interview, Student F).



**Figure 4.5**

#### **4.4.7 Conclusion**

The graphics and animations deployed in the software enhanced teaching. It was evident that the infusion of multimedia software into existing Irish curricula enhanced learning and the performance outcomes associated with it. The researcher felt that this method is likely to save time for the teacher and the students when compared to other means of presenting Irish, while educational practices are also improved. The software improved the quality of education and motivated low-achieving students and it encouraged them to take control of their own learning. The next section will identify the factors that hinder effective integration of ICT.

#### **4.5 Impediments to Effective Integration of Technology?**

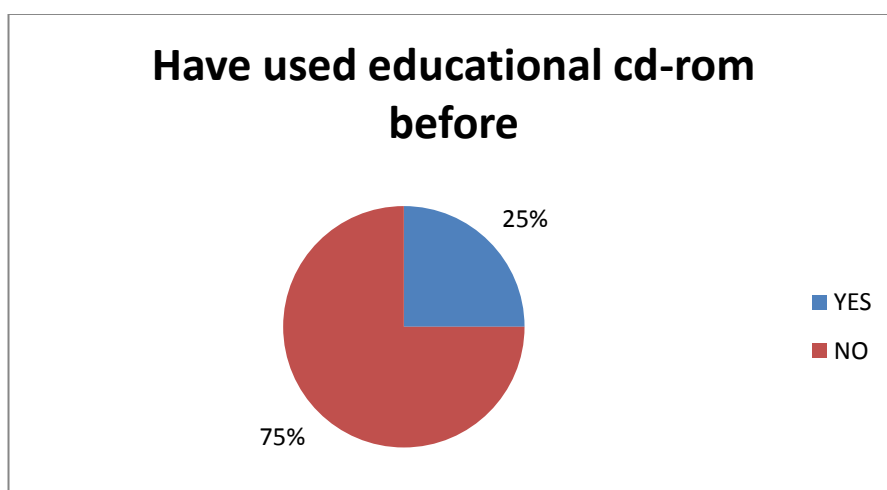
This study highlighted the factors that hinder effective curricular integration of technology. Seventy-five percent of students surveyed had never used educational software before, only twenty-five percent had used it in their study of other subjects,

and none of the participants had used educational software for learning a language (Fig 4.6).

The study found that some students were apprehensive about using ICT to learn Irish due to teachers' attitude towards ICT. While there is a dearth of software resources for teaching Irish designing educational software is time consuming.

#### 4.5.1 Revised Curriculum

The curriculum is already overloaded with topics for examination purposes. The researcher feels that current assessment methodologies hinder the effective integration of technology for teaching and learning.



**Figure 4.6**

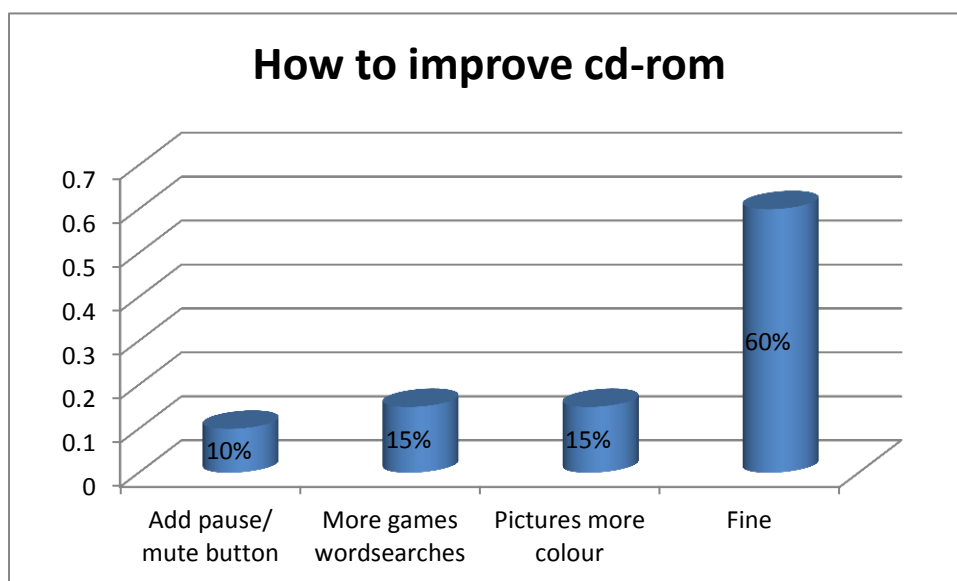
#### 4.5.2 Sound

While students felt that the sound was useful to help with pronunciation, ten percent felt that a pause or mute button would have been beneficial at times (Fig 4.7). If the button was inadvertently clicked twice the sound played twice. Some students would have preferred more “bells and whistles” but Tripp and Bichelmeyer (1990) highlight the danger of informal design and advise against the use of bells and whistles.

When prototyping an instructional package, creeping featurism, the adding of bells and whistles, may lead to designs that get out of control

(Tripp and Bichelmeyer, 1990, p. 44).

Fifteen percent of students believed the software would be better if there were more games and wordsearches, fifteen percent felt more pictures and colour would be better while the majority, sixty percent claimed it was fine.



**Figure 4.7**

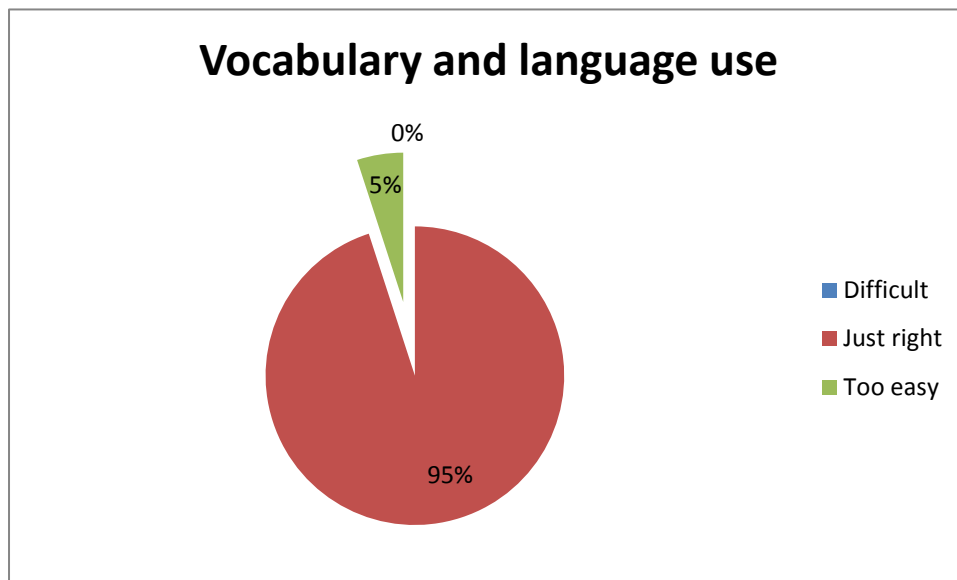
Ninety-five percent of students indicated that the vocabulary used was just right, while five percent felt it was too easy at times as this topic is also covered in primary school (Fig 4.8).

It was fun to do and if you got it wrong you just do it over again until you get it right, it was cool like if you didn't have the right answer like it would return to the start like it wouldn't go in to the box unless it was the right answer

(Interview, Student E).

### **4.5.3 Pace of Learning**

While ICT accommodates various paces of learning, teachers ought to meet students learning needs to integrate educational technology successfully. ICT may not suit every student as all students are unique and have different learning needs.



**Figure 4.8**

#### **4.5.4 Conclusion**

This study found that this VEC School lacks ICT resources which are a major inhibitor to effective use of modern technology. Timetabling issues can pose problems to teachers in accessing the computer laboratory. Therefore, teachers may be reluctant to use ICT as a result. ICT is not a compulsory part of the Irish language curriculum, therefore some students prefer to use the chalk and talk method that they are accustomed to.

The next section will address the importance of being aware of the differing learning styles and needs of students and will try to identify if computer technology is suited to a particular learning style.

#### **4.6 Computer Technology and Learning Style?**

Computers assist students to learn as it facilitates the pace of learning. This study found that fifty-five percent of students liked the software (Figure 4.9). Repetition of exercises was not as tedious as rewriting incorrect exercises. Forty percent highlighted the advantage of being able to go back and do exercises which they had missed due to absence as opposed to using a book.

Just say you miss a day you'd like fall behind and you'd have to keep studying and studying to try and catch up with the class but in this like you can learn it as you go instead of like learning like one page one day and then if you miss the next day you fall behind

(Interview, Student C)

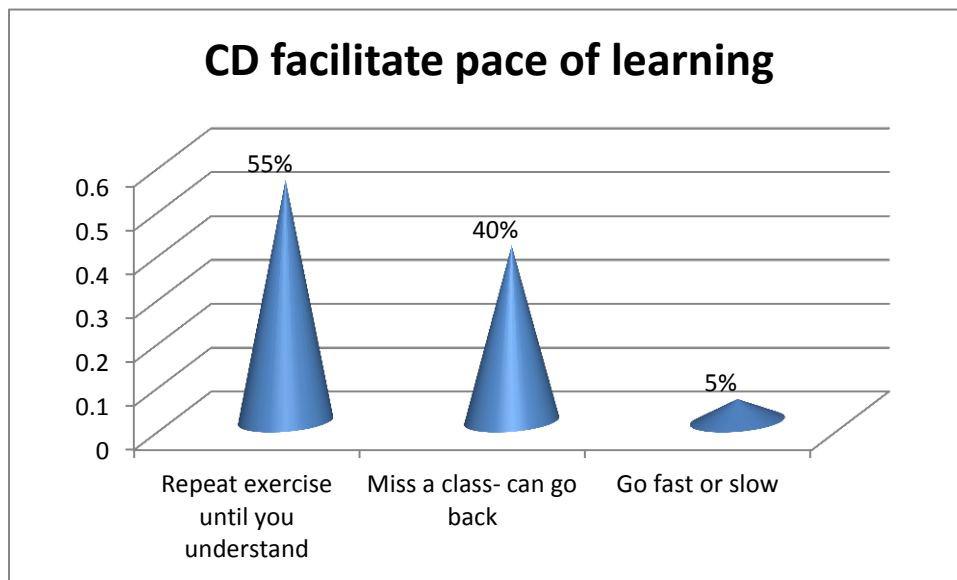
### 4.6.1 Time

A teacher may not have time to repeat exercises that were missed. Five percent of students, liked being able to control the pace of learning depending on the difficulty of tasks to be completed. One student remarked the enjoyment of

going through the questions again and being able to read over things again without the whole class going on, doing it at my own pace.... like you can control how fast you want to learn it and as for the book you wouldn't really because the teacher would go on

(Interview, Student B).

From observation, it was clearly evident that the students were working at various paces and completed a certain number of topics in each class period. The researcher noted that some students were influenced by the progress of other students sitting beside them instead of working at their own pace.



**Figure 4.9**

### 4.6.2 Preferred Method of Learning

The chart below illustrates students' preferences for various learning methods (Fig 4.10). Sixty percent of students felt more successful using computers. One student noted,

It was better as no one knew if I got something wrong or not and I was not afraid to make mistakes on the computer as I would not look stupid in front of my peers

(Questionnaire).

Forty percent were undecided. Seventy-five percent of students were more confident using computers as they felt it was not like learning while twenty-five percent were undecided. Only fifteen percent of students preferred listening to the teacher. Forty-five percent were undecided while forty percent preferred learning with technology. Seventy percent of students liked visual learning and preferred to learn using pictures and DVDs. Twenty percent are undecided, while ten percent do not like learning using DVDs and pictures.

When you're watching a DVD like, you're learning the words without realising it and going along with the story but you don't really realise that you're learning the words

(Interview, Student C).

The majority, eighty-five percent of students, preferred teachers to use ICT, while fifteen percent are undecided. Seventy-five percent enjoyed independent learning from the computer and learning new skills, while twenty-five percent are undecided. Only ten percent preferred using the blackboard as opposed to powerpoint presentations, forty-five percent preferred using powerpoints while the remaining forty-five percent were undecided.

### 4.6.3 Conclusion

This study ascertained that ICT can cater for various learners and paces of learning as it integrates audio and visual components. The adoption of a "hands-on" approach encourages students to direct their own learning and pace of learning. This leads to more motivated and interested students thus facilitating a better delivery of learning processes.

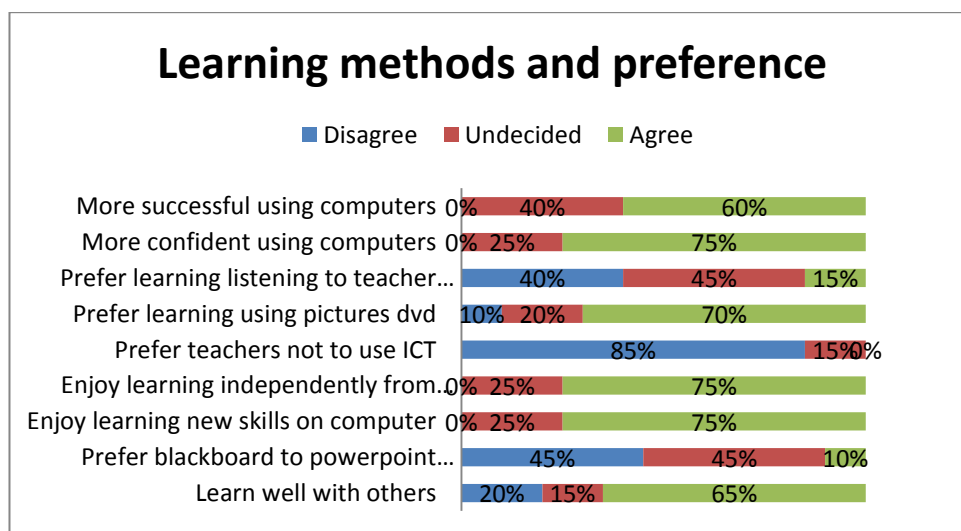
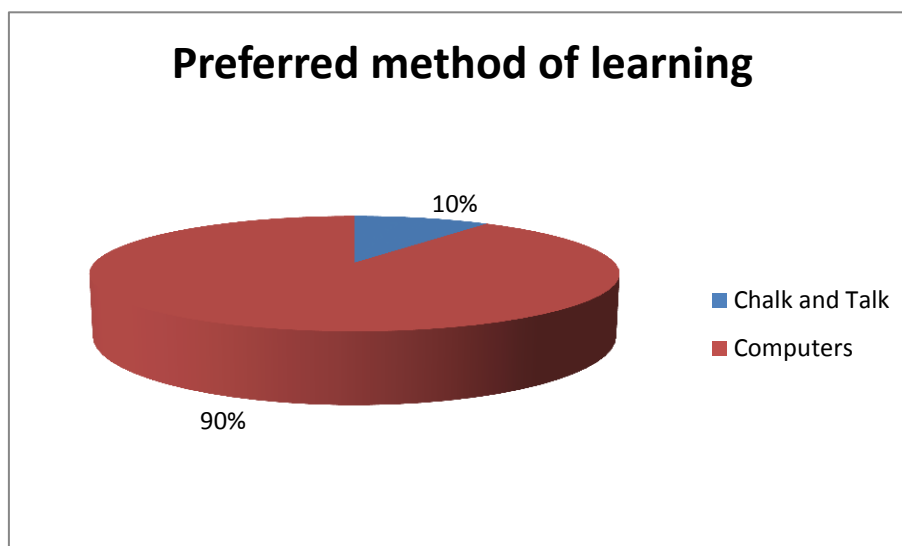


Figure 4.10

The next section seeks to ascertain if computer technology influences the teaching of Irish.

#### **4.7 Computer Technology and the Teaching of Irish?**

This study concluded that the students enjoyed using technology which helped to improve their performance. Ninety percent of students preferred using computers while only ten percent preferred the chalk and talk methodology (Fig 4.11).



**Figure 4.11**

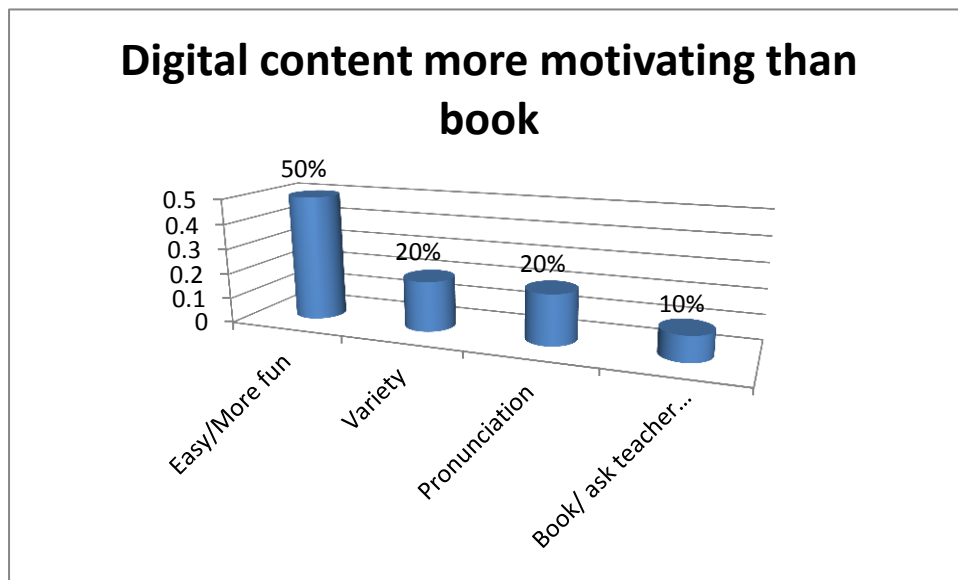
##### **4.7.1 Motivation**

Fifty percent of students were more motivated using the digital content than the book as they felt it was easier to learn and was more fun (Fig 4.12),

Instead of writing them down you can just listen to them and type them.... like and there was more variety

(Interview, Student C).

Twenty percent claimed there was a better variety of exercises on the software in comparison to the book. Another twenty percent claimed the pronunciation of vocabulary and listening to the comprehension helped them understand better. The remaining ten percent preferred using the book and asking the teacher questions, as that is the method they are accustomed to.



**Figure 4.12**

The spelling and the pictures and sound like was useful and the pronunciation helps you to sound out the words right

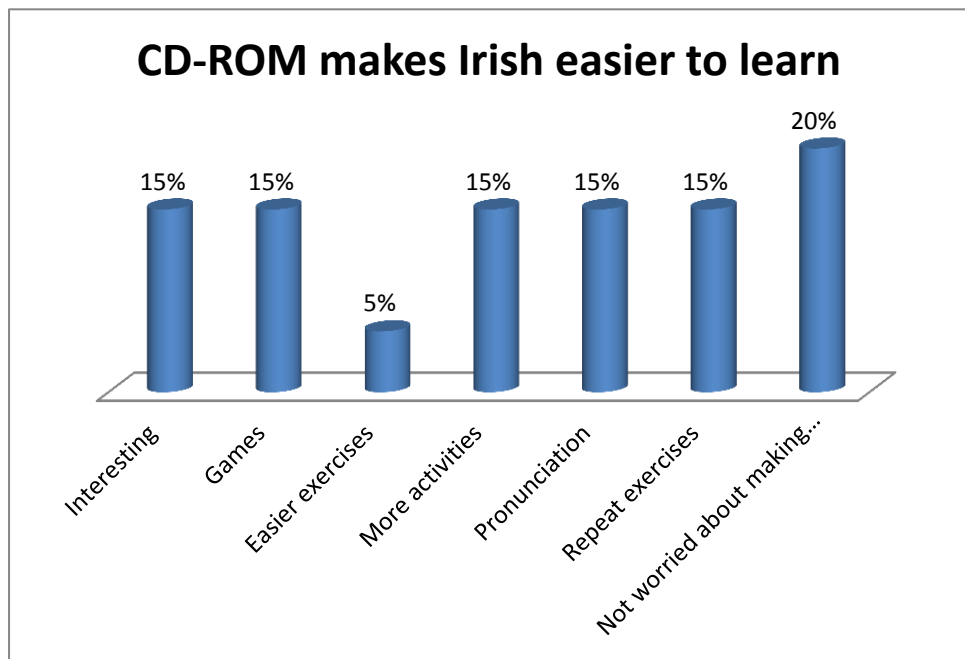
(Interview, Student E).

#### **4.7.2 Enjoyment of Learning**

Exercises and games assess the learning of the topic. Student E stated: “I’d rather PowerPoint’s maybe; the visual is better and easier to understand”. Students claimed the software made Irish easier to learn (Fig 4.13). Fifteen percent said they were more interested in the topic using computers, another fifteen percent felt the games were more fun. One student remarked in the questionnaire that:

it was not like learning in class and getting something wrong, I kept doing one exercise until I got it all right I would have given up if that was using the book.

Five percent claimed the exercises were easier to do using the software and quicker, as there was no writing. Fifteen percent claimed there were more exercises on the software to assess learning. Another fifteen percent liked the pronunciation element to help learn vocabulary. Fifteen percent enjoyed repeating exercises. Twenty percent remarked that they weren’t worried about making mistakes in front of friends using the computer and therefore accomplished more as a result. Monitoring and observation of the students’ use of the software revealed that computer technology affects the teaching of Irish. Students were enthusiastic to learn and demonstrated persistence and motivation during the project.



**Figure 4.13**

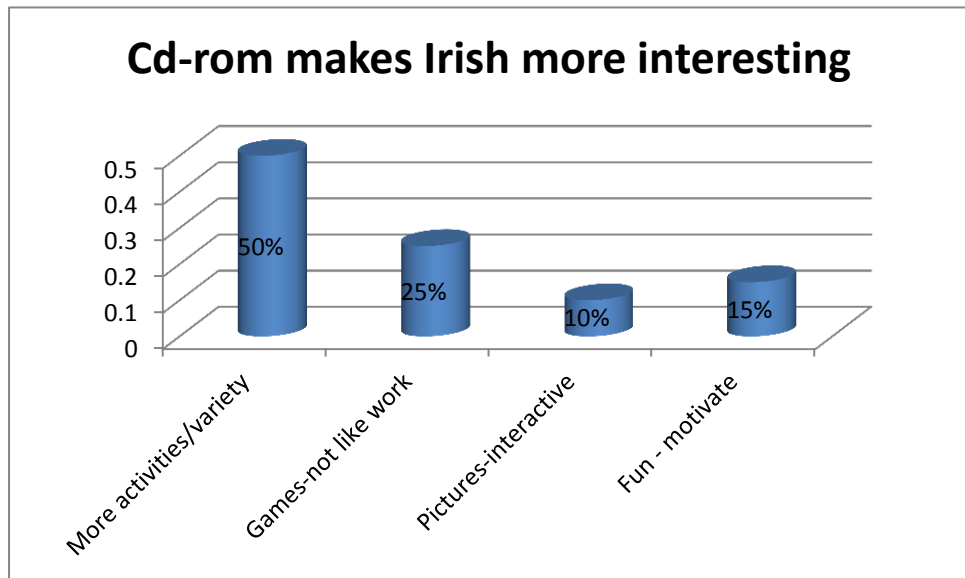
### 4.7.3 Interactivity

The study concluded that students were more interested in Irish due to ICT integration. (Fig 4.14).

Because in a book all the pictures are there but when you are on a computer all the pictures are moving and it's more fun to actually do it than doing it in the book

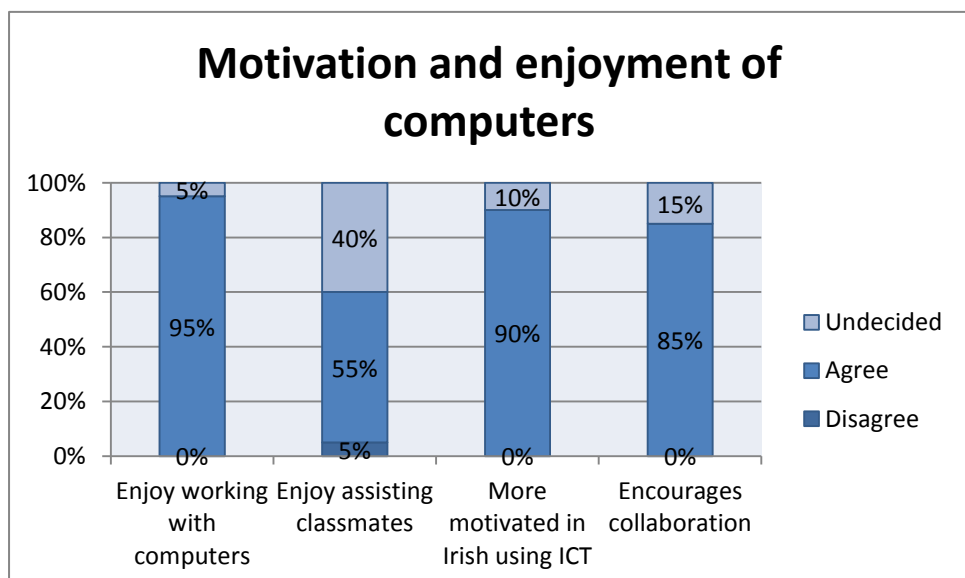
(Interview, Student F).

Fifty percent believed there was more variety and activities, twenty-five percent enjoyed the games, ten percent claimed pictures and visual aids made it more interactive and appealing, fifteen percent felt it was more fun and motivating than the book.



**Figure 4.14**

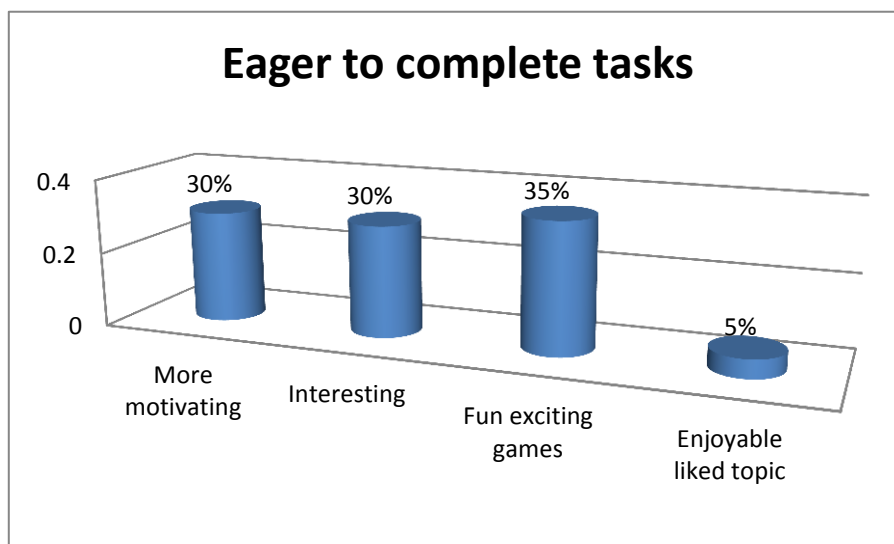
Ninety-five percent of students agreed that they were more motivated and enjoyed working with computers in class (Fig 4.15), while five percent were undecided. Fifty-five percent of students enjoyed helping classmates with computers, forty percent were undecided while five percent disagreed. Ninety percent of students were clearly more motivated using computers in Irish, while ten percent were undecided. Eighty-five percent of students claimed computers encouraged collaboration while fifteen percent were undecided.



**Figure 4.15**

#### 4.7.4 Active Learning

Students were eager to complete tasks on the software (Fig 4.16). Thirty percent believed they were more motivated. Some students brought home the software to practise exercises. Another thirty percent felt the tasks were more interesting, thirty-five percent enjoyed the topic more; it was fun and exciting doing the games. The remaining five percent liked the topic and enjoyed learning the subjects and various classrooms. “I enjoyed the chapter, learning the rooms, subjects and feelings” (Interview, Student F).

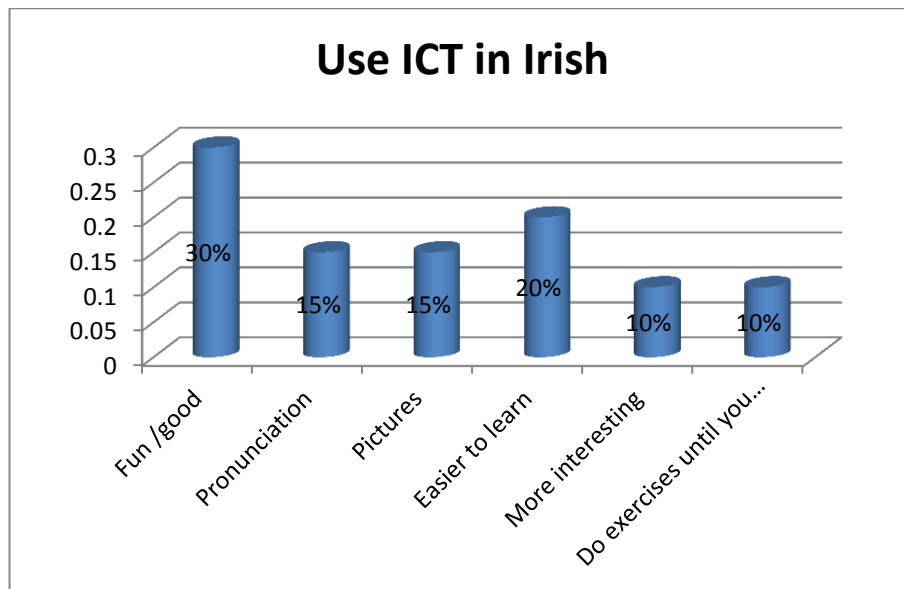


**Figure 4.16**

All students felt ICT was useful for learning Irish. Thirty percent said it was good and more fun (Fig 4.17). Fifteen percent felt it helped with pronunciation of the language, another fifteen percent liked the visual aspect of pictures. Twenty percent felt it made Irish easier to learn, ten percent were more interested using ICT, while the remaining ten percent remarked on opportunities to repeat exercises until mastered was a better approach. These expectations are mirrored in the qualitative data collected in the student interviews.

More funner like if you were doing like ‘Ar Scoil’ you could do a slideshow and like click on exercises maybe and type in the answers on the computer like is better if it’s not attractive, you won’t look at it

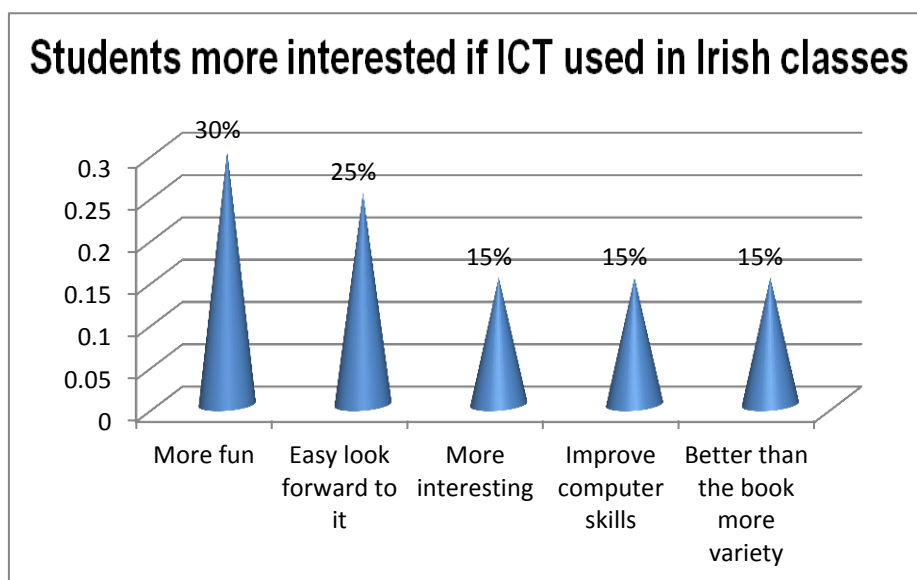
(Interview, Student D).



**Figure 4.17**

#### 4.7.5 Students Perception of ICT and Irish

The study concluded that all students agreed that if ICT was used in Irish classes students would be more interested. Thirty percent felt ICT made Irish more fun (Fig 4.18). Twenty-five percent said it was easier and they looked forward to Irish class when they were using the software. Fifteen percent stated being more interested in learning Irish, another fifteen percent believed their computer skills improved. The remaining fifteen percent preferred computers, as a result of more variety.



**Figure 4.18**

#### **4.7.6 Conclusion**

It is clearly evident that the infusion of graphics and aural components of educational software into the Irish curricula enhances the enjoyment of learning using computers. The next chapter will outline the discussion of findings.

# Discussion of Findings

## 5.1 Introduction

This chapter discusses the findings for the research questions informed by the Literature review. The analysis is presented based on the research questions and identifies how the researcher's study correlates with existing knowledge available to the researcher.

## 5.2 Discussion of Research Findings

The discussions of the research findings are presented by the researcher based on the research questions

### 5.2.1 Are Educational Practices and Methodologies Modified or Enhanced Through Technology?

New technologies facilitate the adoption of innovative learning strategies and methodologies, leading to the improvement of communicative, linguistic and aural competence. This case study school found that the use of the software benefited students' acquisition of listening skills which improved aural comprehension. Student C felt the software enhanced learning,

For pronunciation of the words and stuff...In the book you'd have to learn stuff off like and go over words a million times but when you're using the computer you can just hear it over and over again.

#### 5.2.1.1 Engaging Learners

Skehan (2003) claims that task-based learning (TBL) effectively stimulates target language use by engaging learners to participate in tasks. This is in agreement with research findings that illustrate thirty-five percent believed it was fun, twenty-five percent felt it was easier to learn and complete tasks and twenty percent preferred using the software as opposed to the book. Ten percent liked going at their own pace and a further ten percent enjoyed getting printouts of the pages.

Findings illustrate that students' interaction with content led to improved performance. The various exercises assessed students' learning, and facilitated comprehension of

content. Interviews in this study ascertained that all students agreed that pictures, sound, layout of text and graphics were impressive.

The research findings support Swan and Mitrani (1993) that, computer use is changing the structure of teaching and learning, as it is more motivating. One student in this study felt the software

had a motivating and encouraging impact, a positive impact 'cos it encouraged children to go on to the next page because there were fun activities rather than in the book where there's just questions

(Student A).

### **5.2.1.2 Blended Learning**

Smyth, McCoy and Darmody (2004) stated that first year post-primary students found Irish to be the most difficult and least enjoyable subject, but students in this study disagreed and concurred with Cook (2003) that a “more holistic education” where digital media is an essential part of the child’s prescribed learning should be aimed for by teachers, schools and policy makers. The students felt that ICT and blended learning environments enhanced the learning process as it made Irish more enjoyable and easier. Yet a marked contrast exists between students’ views and teachers’ use of ICT as The Schools for the Digital Age Progress Report 1998-2002 ranked Irish last, as regards ICT integration into teaching and learning in post-primary schools. The research findings in this study revealed that ICT and computers are rarely used by teachers as a teaching methodology other than in a computer class. Student D (interview) stated “Not really, no only for a computer class like we usually use the book as opposed to computers”. However, students noted that ICT may lose its effect if it was overused. Student F felt

it wouldn't be as much fun as much of a novelty if you kept doing it like, it would become boring like the book maybe.

### **5.2.1.3 Time on Task**

Little (1991) states that learner autonomy expands on reflective self-management as regards the content and process of one’s learning. Students in this research study enjoyed repeating exercises until they were mastered and challenged themselves to learn more due to the interactive software. Students were more focused and on observation the researcher noted students using the interactive software stayed on task for longer periods of time and asked project related questions, while those using the traditional approach lacked enthusiasm at times. One student commented in the interview that,

I liked the questions and activities because they were challenging and you could do them in your own time and you could go over them and if you got some questions wrong you can keep doing them until you get them right

(Student A).

This study found that modern technology can enhance educational practices as students believed they participated more due to the fun and interactive element of the software. Kalantzis (2006) argues that “educators can lead change” but only when the educators themselves have adapted their attitudes and methodologies. This concurs with Ghicas (2000) who claims that ICT’s potential for improving the quality and standards of pupils' education and for supporting teachers, both in their everyday classroom role and in their continuing training and development is significant.

#### **5.2.1.4 Effective ICT integration**

It is vital that educators modify teaching methodologies when they integrate ICT into their teaching, to make it effective. Philipps (1997) supports this view stating that effective computer technology integration in learning applications is as reliant on pedagogical knowledge as on technical knowledge and skills. Analysis of students’ responses to ICT integration into education showed that motivation, fun, collaborative and blended learning provided opportunities for students to become actively involved and interested in the learning process. However, Aldrich et al., (1998) warn educators to avoid ICT resources that are rich in attractive images, sounds and video but lack educational value. Bayraktar (2001-2002 cited in Grabe and Grabe 2004) illustrates that according to promoters of C.A.I. computers in some learning environments are so innovative that students respond more positively to them due to the innovation of learning with technology. This concurs with research findings where student F mentioned that,

in a book all the pictures are there but when you are on a computer all the pictures are moving and it’s more fun to actually do it than doing it in the book.

But Albe (1996) purports that C.A.I. in mainstream education will gradually lose the novelty effect. Student A agreed stating “it wouldn’t be as much fun as much of a novelty if you kept doing it like”. Student E (Interview) supports this view also,

Yeah definitely like ‘cause I was eager to see what was on the next page because like every page was interesting so I wanted to see what was next. Am, both because it’s more fun to switch around and like if you did too much of any of them you’d probably get sick of them.

### **5.2.1.5 Conclusion**

Laurillard (2008) claims that increasing digital technologies provide opportunities to transform teaching, yet institutional factors resist necessary changes. There was overwhelming enthusiasm from this study, for teachers to adopt ICT into their teaching methodologies to enhance the learning process. This would demonstrate that students are enthusiastic and keen for teachers to modify modern day teaching approaches.

The researcher believes that the integration of ICT as a teaching tool during this study did enhance teaching methodologies. Students felt they benefitted from an enjoyable learning environment being adopted, and getting the opportunity to work with peers increased their motivation to learn.

### **5.2.2 Impediments to Effective Integration of Technology?**

As stated in the literature review by Ng'ambi and Johnston (2006) ICT properly integrated into the curriculum is an asset. Yet technology is “constantly fighting a battle against pre-existing educational cultures, generally failing to be effectively adopted” (Goodson and Mangan cited in Selwyn 2000). Gibson (2008 [online]) confirms this view “educational systems recognise technologies potential to enrich and improve teaching and learning, but the realisation of its potential has been disappointing”.

#### **5.2.2.1 Computer Access and Usage**

This study presented findings on students' exposure to ICT integration. The researcher observed students over a period of time and while all students' enjoyed using the software, timetabling restrictions sometimes posed a problem regarding accessibility to the only computer laboratory available. A further impediment that effected the integration of ICT in this research school was the slow broadband connectivity. The frequent loss of reception often caused huge problems for teachers who could not rely on it always working when required. The lack of access to quality technological equipment greatly impacts on the overall level of ICT integration in any educational setting. It is worth noting that research on ICT use in post-primary schools carried out by a DES report (DES 2008b) illustrated that teachers of modern foreign languages (MFL) and Irish were least likely to have access to ICT facilities in their classrooms. The report also indicated that teachers of Irish acquired the lowest level of ICT skills and lowest use of ICT (DES 2008b).

### **5.2.2.2 Dearth of Resources**

The author highlights that research on suitable digital resource materials for teaching Irish in the Irish context, and teachers' views about educational materials is limited especially in post-primary education. This concurs with the DES (2008b) report which claims that "appropriate software for teaching Irish is limited". The author concurs with Digiscoil, 2002, Tangney et al., 2004 that "there is a strong demand from teachers for software suitable to the Irish Curriculum".

Cook's (2003) study highlighted a further impediment to ICT integration. Teachers claim that using ICT in their teaching supports children's learning; however curriculum and assessment influence their methodologies.

Research studies (NCTE 2001, DES/COE 2008), highlight a lack of relevant "age, class and topic appropriate" digital resources as a major barrier to digital media usage in the classroom.

This concurs with the OECD report:

teachers might be reluctant to use ICT in their teaching on a larger scale due to the lack of quality educational software

(1999, p.58).

WSE reports recommend that ICT integration should be considered for the future" (DES, 2006b). It was highlighted that no ICT resources were available in the general classroom for teaching Irish.

### **5.2.2.3 Revised Curriculum**

If ICT is to be adopted in educational practices, then it must be assumed that curriculum revisions embed modern technology integration on a national level and incorporate it into assessment.

The role of the curriculum in causing change to occur is not to be underestimated. If ICT integration is an aim, then there needs to be appropriate curriculum revisions

(NPADC, 1998).

Even though the curriculum in Irish has been recently revised, an ICT component is still not required of students; it is at the discretion of teachers. Therefore, teachers are slow to introduce ICT integration as a result; it begs the question why would teachers change their teaching approach when it is not assessed at a national level.

Little (1991) states that the attainment of high points in the leaving certificate is of paramount importance for many students in post-primary.

#### **5.2.2.4 Time**

Teachers do not feel the need to put further pressure on a strained system as the Irish curriculum is already overloaded. Time and skills are also major inhibiting factors to ICT integration.

Cuban (1986, p.49) suggests that ICT integration in post-primary is more difficult because of rigid timetables, a focus on examinations and the separation of subjects. The researcher concurs with this view to a point; exam pressure and the points system are a deterrent to teachers to use ICT. It often forces them to teach the curriculum in a didactic way which students are accustomed to because of time restraints. The researcher noted that it takes time to set up the equipment in the computer laboratory, and also for the students to arrive there.

For the initial set-up there was added time pressure on the researcher as there is a password protection on the computers, therefore the researcher had to get the principal to upload the software onto each computer. This proved to be a further deterrent to embedding ICT into the curriculum.

#### **5.2.2.5 Lack of Skills**

Teachers' skills are a major factor in the adoption of ICT in the curriculum. The TALIS report identified that Ireland has a 'need to develop teachers' skills in using ICT' (OECD, 2009). Teachers' apprehension in using ICT is a major constraint to using digital media as outlined in the literature review.

Tella et al., (2007) claim "teacher's expertise and lack of knowledge to evaluate the use and role of ICT in teaching as hindering teacher's confidence and willingness to using ICT".

#### **5.2.2.6 Conclusion**

"Change is one thing, Acceptance is another" (Roy 1997 cited in Galvin 2002). This study found that some students were uncomfortable with using ICT as they were more accustomed to using "chalk and talk" method. One student feared that she would be more isolated if she was learning using a computer all the time.

Um 'coz like I think it's nicer to be able to use both and just not to use computers all the time. The books like you can talk to the teacher more and its harder to use CDs

(Student A).

The main impediments concerning ICT integration in the research school as found in this study are time, lack of resources, poor broadband connection and access to ICT equipment. This concurs with previous research documented in the literature review.

### **5.2.3 Computer Technology and Learning Style?**

Ross and Schulz (1999) claim that, for teachers to integrate ICT successfully they need to consider how students learn. In this study students felt that the software catered for their visual, auditory and kinesthetic needs. Student E believed “the visual is better and easier to understand”. While student F also liked the visual and fun aspect of the software.

Because in a book all the pictures are there but when you are on a computer all the pictures are moving and it's more fun to actually do it than doing it in the book.

Gibson (2001) feels learner individuality and learner diversity needs to be considered to achieve successful integration of technology based learning environments. Student A felt that motivation and a sense of achievement is vital to encourage students to become successful and active learners:

the CD motivates you to do more because there's a lot of activities and you can do them over and over again but the book like you're in a whole class you're not just on your own and the teachers there as well so like when other people are getting answers right it like motivates you to put up your hand and answer questions as well... I think using the CD you feel more successful like the activities and quizzes and at the end of it when you get a high score you feel you've done well in the CD.

#### **5.2.3.1 Style and Pace of Learning**

All participants progressed successfully using this interactive medium at their own pace and were stimulated to learn Irish, as students took responsibility for their own learning. “It was enjoyable, it was fun and it helped with the pronunciation and to spell the words” (Student C).

This study found that students' preferred learning method is strongly influenced by their style of learning.

Going through the questions again and being able to read over things again without the whole class going on, doing it at my own pace

(Student B).

Multimedia tools can provide “focal points for different audiences” accommodating different learning styles (Brunner and Tally, 1999, p.18). Various levels of difficulty motivate students to progress at a suitable pace, ensuring progress and achievement.

It is vital that vocabulary and language use is appropriate to the students’ needs and abilities. The presentation of colourful images aided memorisation of vocabulary. The quiz at the end measured progress with immediate results; which is a key component of effective learning.

### **5.2.3.2 Feedback**

Tomei (2008, [online]) revealed that immediate computer feedback increases confidence and improves performance, compared to feedback given by the teacher.

Online evaluation incorporates immediate feedback which is more beneficial to students. Student B enjoyed the assessment exercise

When you click a wrong answer it might cheer or boo or whatever if you got it wrong or right and then you would kinda remember it.

“Technologies in education have been seen and used as providing the answer to all educational problems” and ICT is no exception, “often being promoted by politicians as a solution to efficient learning” (Unwin, 2007, p.300).

Introducing technology has proven to make learning more individualized and student-centered, to encourage cooperative learning and stimulate increased teacher-student interaction. Technology supports constructivist inquiry-based and project-based instructional methods

(SIIA, 2000, p.7).

However, ICT can only be as good as the person using it and can only be successful if it is integrated appropriately and successfully. Feedback and assessment is vital to encourage students and teachers to adopt this methodology and enhance pedagogical practices accordingly.

### **5.2.3.3 Skill Acquisition**

Technology can be a “patient, non-threatening tutor for basic skill acquisition.... offering students infinite opportunity to repeat problems until process or content is mastered” (Dwyer, 1996, p.18). This study found that interaction on a personal level enabled students to concentrate on challenging areas. Student B in this study stated that:

If you don't have the right answer it might tell you it's the wrong answer so then you kinda remember it, and you will keep trying until you get the right answer.

Educational software is obliged to support learning and embrace how students learn, (Squires and Preece, 1996). Ninety-five percent of students agreed that they were more motivated and enjoyed working with computers in class, while five percent were undecided. On analysis of interview data this view is further discussed.

Computers are more interesting, and if you're more interested you would learn more, yeah definitely computers. Because if you are not interested like it's not going to stay in your head or anything, it's better to learn whatever way keeps you interested

(Student E).

Kuittinen (1998) argues that CAI should focus on what users need and want to achieve. The Internet and technology is a “fertile ground” for instructors and learners to develop “an assisting relationship, depending on instructors' teaching styles and learners' learning styles” (Wang, 2008 [online]).

### **5.2.3.4 Conclusion**

Wishart and Blease (1999) affirm that ICT enables teachers to create differentiated tasks for all types of learners. This study found that ICT caters for all learners; visual auditory and kinaesthetic. Appropriate pedagogical software facilitates students to progress at their own pace and ability. All students agreed that the pronunciation element, PowerPoint presentations and variety of exercises made the software interactive. Student B found it was “different and more interesting than the book”.

## **5.2.4 Computer Technology and the Teaching of Irish**

ICT ought to be integrated correctly for it to be beneficial to students, it should not be used for the sake of using it, therefore pronunciation, pictures, and sound are paramount to its adoption. Student E interview said “yeah like the spelling and the pictures and sound like was useful”.

Honey et al. (1999) purports that “technology creates circumstances which have a positive effect on student achievement.” Increased performance in this study can be attributed to students’ preferred learning methods and their opportunity to learn Irish through the integration of ICT. Student C claimed,

It was just enjoyable like and you’d want to keep going like in the book you’d get sick of it ‘cause like you just keep going on and on and on.

Student E agreed

Because it was fun to do and if you got it wrong you just do it over again until you get it right, it was cool like if you didn’t have the right answer like it would return to the start like it wouldn’t go in to the box unless it was the right answer.

#### **5.2.4.1 Enjoyment of Learning**

Empirical evidence illustrates that, students who have difficulties with reading, can be motivated and engaged with ICT (Lynch et al 2000; Ó Murchú 2000; Segers and Verhoeven 2002). In analysing findings from this research students viewed learning with the aid of ICT as being fun and not like work. Student B pointed out.

It’s pretty much the same as the book except you might try harder using the Cd as it feels easier with all the games and stuff.

Wilson (1992) believes that the continuous enhancement of technology is capable of reaching superior levels of interactivity. Rogers (2002) concurs with this view stating technology encourages the student to construct knowledge using various thinking and learning tools.

Student E enjoyed using the interactive software to learn Irish.

Yeah and more funner like, a slideshow and click on exercises and type in the answers on the computer like is better. If it’s not attractive, you won’t look at it or learn from it.

This concurs with Kirkwood and Price (2005), who advise that the objectives and teaching enhance learning and not the technology.

#### **5.2.4.2 Motivation**

Wang (2008 [online]) affirms that “Learning does not take place in a vacuum”, humans learn actively in the interaction with others. Students in this research enjoyed collaborative learning. Interviews illustrated that students enjoyed concentrating on their difficulties without fear of being judged by their peers.

Students using C.A.I. show higher motivation due to the novelty of technology (Young, 1991). All respondents in this study concur with Young that learning Irish using ICT is motivating and helps them to realise their potential.

Van't Hooft et al., (2008, [online]) believe that the key to learning is the notion of interaction with content, instructors, and learners. Mayer (2003, p.125-140), states that learning is more meaningful when information is stored via auditory and visual channels. The interactive software used in this study focused mainly on these two channels to motivate learners. Indeed, students in this study felt that ICT plays an integral role in modern society.

Yeah, because like you might have to, need to be able to use a computer later on in life so you would need to know how to type Irish like or anything

(Student E).

#### **5.2.4.3 Active Learning**

Means and Olson (1997) highlight that constructivist pedagogy is capable of transforming teacher student relationships thus enabling learners to be more active, motivated and interactive in the classroom. Wang (2008 [online]) agrees, citing Gagne's theory from 2005: "All activity is purposeful, and by participating in activities, learning occurs".

Students' motivation to learn is extraordinary.

Students are largely their own teachers, and in a right learning environment they will teach themselves more than all the schools can teach them

(Mee, 1953, p.2).

#### **5.2.4.4 Conclusion**

Sakamoto, Zhao and Sakamoto (1993) reported that ninety three percent of computer users looked forward to lessons in which computers were used due to the fun element. The students in this research group also expressed a desire to embed ICT into the curriculum to enhance learning,

It's different and more interesting than the book because we've been using that all the time, we're used to doing the book all the time and it just seems different,

(Student B).

Students in this study realize the benefits of learning using ICT, even though they are not accustomed to it.

Well, it's just in class you could get distracted easily enough and that with the computers you can use the speakers and listen yourself so it's just easier to use and to keep focused

(Interview, Student C).

Some students fear they will be isolated or bored if ICT is used on a continual basis. This study concluded that students seemed to prefer blended learning to enhance performance.

# Conclusion

## 6.1 Introduction

This study has concluded from its findings that students regarded ICT as playing a positive and influential role within their learning environment. Students believed that ICT enhanced their enjoyment of Irish and improved their knowledge and commitment to tasks. Students agreed that the use of colour, animation, and aural components helped them to learn more effectively, made Irish easier to understand and contributed to remembering and recalling vocabulary. All students believed the interactive software appealed to different learning styles as it motivated them and held their attention for longer. Students became active learners. These factors support findings from the literature review which state that ICT can enhance motivation if it is adopted effectively in the learning experience.

ICT is pivotal in preparing students for the world of work. The constructivist approach facilitates student centered learning and believes students learn more from what they do rather than from what they are told.

## 6.2 Educational Practices and Methodologies are Enhanced Through Technology?

This study found that interactive multimedia use in education has enormous potential. ICT integration in education is increasing rapidly and ought to complement traditional approaches to maximise its potential. Kumpulainen and Mutanen (1998) indicated that CAI, can create a motivating and flexible learning environment that intensifies learner engagement.

It is pivotal that educators design instruction that learners enjoy and learn from, and investigate what can improve learner achievement (Lai, 2001). The primary conclusion arising from this research was that incorporating CAI into teaching methodologies is beneficial to students. However, like teachers some students were apprehensive of

change due to a lack of ICT resources and usage in this school. It is imperative that teachers and students are confident, willing and enthusiastic to adopt ICT and enhance their IT skills for it to reach its potential. From student observation the researcher noted that students became more accustomed to and at ease with using ICT as the study progressed. The fear element disappeared.

Students viewed the software as a valuable and important learning resource for Irish due to its innovativeness in comparison to traditional “chalk and talk” methods. The enjoyment and fun element of the software motivated students to improve performance.

### **6.2.1 Recommendations**

ICT should be an integral part of the teaching and learning process to cater for 21<sup>st</sup> century student needs. However, teachers ought to be convinced of the educational benefits of technology usage before they modify their tried and tested traditional methods and adopt ICT.

To keep abreast with current student and societal needs an investment in the creation of appropriate content rich software and ICT resources needs to be implemented. Appropriate teacher training, planning and up-skilling is imperative.

## **6.3 Impediments to Technology Integration**

The study found that impediments to integrating technology effectively, do exist. This supports current literature which outlines that time, lack of resources, planning, and teachers’ attitudes and experiences can impede the adoption of technology.

### **6.3.1 Lack of Resources**

There is a lack of appropriate software available to learners of Irish. Teachers need adequate support and encouragement to abandon old practices and adopt innovative ICT methodologies. Management ought to integrate ICT regularly and encourage teachers to do the same. Effective ICT integration will only occur if and when management and teachers acknowledge the benefits of learning with technology as opposed to using it as an optional add-on tool.

### **6.3.1.1 Recommendations**

Management in this research school ought to appoint a dedicated ICT co-ordinator to ensure teachers are supported and encouraged to adopt ICT into teaching methodologies. An ICT plan is paramount in all schools. It also helps make teachers aware of appropriate software and resources that are available within the school. Teachers should be afforded opportunities to participate in ICT training to develop or equip themselves with relevant ICT skills on an on-going basis. All classrooms should be equipped with ICT resources and consistent broadband access.

## **6.4 Computer Technology and Learning Style**

Content appropriate software facilitates different styles and paces of learning. It facilitates students to practice exercises and tasks as the fear of being wrong is removed and the pressure of teachers or friends observing is also removed. Tasks can be attempted repeatedly until mastered. Students' sense of achievement and motivation increases dramatically.

The software was a valuable and effective resource. Students really enjoyed the flexibility, usability, interactivity and self-assessment activities. Presentation, layout and navigation of the topic assisted students to increase their understanding. The aural components aided comprehension and vocabulary.

All students in this study believed that the software created motivational opportunities for them to attain their own individual learning needs and control their own pace of learning. Students enjoyed the animation and interactivity; some stated that it was better than writing notes. The computer laboratory environment was a change from the classroom. Increased learning found in this research study is compatible with current research.

### **6.4.1 Recommendations**

Teachers and management need to take an active role in the integration of technology to ensure that they meet the needs and expectations of students and “engage” learners. Software must be interactive to gain and maintain students' attention. This research found that some students are apprehensive of using ICT as they lack experience. Therefore students must be praised, supported and motivated to acknowledge that ICT is an essential component of modern society. Management must realise the importance of designing and adopting software based on students' requirements and needs.

## **6.5 Computer Technology and Irish**

Motivation is vital to ensure success in teaching Irish as many students have a negative attitude towards the language from a young age. High achievement is essential, but teachers ought to realise that interactive and challenging environments stimulate students to learn and increase intrinsic motivation. The literature review indicates that some students disengage from the learning process and lack motivation to learn. On observation, this study found that students enjoyed working with the software and often asked peers for assistance as opposed to the teacher. Students were more competitive checking scores on assessment tasks. Some students had poor keyboarding skills, while others lacked knowledge of the Irish language so they assisted each other in order to fulfill tasks. Students were encouraged to develop self-directed learning techniques and a constructivist approach was adopted, but this proved more difficult for some weaker students.

### **6.5.1 Recommendations**

Prior to this research study, students' interaction with ICT as a learning tool in Irish was minimal. While students felt ICT would contribute to their learning and improve self-esteem, the researcher felt ICT enhanced her teaching; as she adopted better teaching strategies. There was also a more engaging atmosphere and enhanced results from the group who worked with the software.

## **6.6 Limitations**

Pre and post testing found that some students may have completed the tests without fully reading the content. The researcher felt that the fun element and novelty factor of learning Irish using software as opposed to using a book or getting handouts may have affected the results obtained. Davis (1995) associated increased achievement, motivation, collaborative peer interaction and self-directed thinking with increased performance. This theory of motivation highlights that a student's motivation depends on his/her ability to complete tasks successfully.

Absenteeism was a limitation as some students were less exposed to the software due to missing classes. Students brought home the software by night but sometimes they forgot to bring it to class the following day and this created problems. Another limitation of the research study was that headphones were required to listen to the aural components. Some students would forget to bring headphones to class and consequently this

hindered the smooth running of the lesson. It was also difficult to gauge if students were listening to the aural components and this required constant observation and questioning. In spite of these limitations the researcher believes that the software facilitated a student-centered independent approach to learning.

## **6.7 Future Research and Practice**

The assessment within the software and post-test results indicate that student learning was increased after using the CAL program. However, incorporating more animated objects on the screen, more crosswords and quizzes would further enhance the learning.

A bigger sample group would be better if available as this was a limited sample. More participants would have given a more reliable understanding of students' behaviour and understanding of the software. In a larger sample students could be more randomly selected to generalise findings and get more accurate results.

Effective CAL software should be adopted by language teachers to motivate and encourage students to be more responsible for their learning, creating more student-centered, autonomous learning environments. Collaborative and discovery learning environments facilitate the effective development of life-long learning skills.

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## **List of Appendices**

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# **Appendix 1**

## **Letter of Consent to Board of Management**

# Appendix 1

Letter of consent to board of management

[REDACTED]  
[REDACTED]  
[REDACTED]

09/12/ 2010

Secretary of the Board of Management,  
[REDACTED]

Dear Principal

I am writing to ask for permission to conduct a Research Study within this school. The Research Study is being submitted in part fulfilment of the requirements for the M.A in Digital Media in Education qualification at the University of Limerick.

I believe that the study will be of benefit to the school in that it will examine the use of ICT within our teaching practice and as such can be used in future planning with respect to ICT.

In order to carry out the survey I plan to teach one group of first year students using ICT and the other First year group using traditional methods and explore its benefits and constraints. I also plan to distribute questionnaires.

The anonymity of the school and all the staff members will remain confidential and either the school or any of the participants will be identified in the final report.

I would truly appreciate it if the school can assist me in this study.

Regards,

Agnes Hehir

# **Appendix 2**

## **Letter of Consent to Parents**

## Appendix 2

### Letter of consent to Parents

Boloughera,  
Lissycasey,  
Ennis,  
Co. Clare  
09/02/ 2011

Dear Parents/Guardians,

I am writing a thesis for my Masters in Digital Media in Education qualification at the University of Limerick. For research purposes I need to work with pupils in First Year. The pupils will be using a Computer Aided Learning Resource to learn the topic “Mo Scoil” in Irish.

This research will require information from the pupils and will entail a questionnaire based on the benefits or disadvantages of using computers to teach Irish.

All information is confidential and your child’s name will remain anonymous in my thesis.

I would truly appreciate it if you would assist me in this study by completing the attached form and returning it to me.

Yours Sincerely,

---

Agnes Hehir.

Please return by 24/02/11

I give / do not give permission for my child \_\_\_\_\_ to take part in this research project.

Signed

---

# **Appendix 3**

## **Pre Test Questions**

## Appendix 3

Réamh Scrudú bunaithe ar an  
gcaibidil “Ar Scoil”

Freagair gach ceist más mian  
leat.

An Chéad Bhliain

# 1. Amclár

Lá	Dé Luain	Dé Máirt	Dé Ceadaoin	Dé Deardaoin	Dé Aoine
9.15	Staidéar Gnó	Fraincís	Eacnamaíocht bhaile	Adhmadóireacht	Miotalóireacht
9.55	Creideamh	Gaeilge	Eacnamaíocht bhaile	Adhmadóireacht	Miotalóireacht
10.35	Fraincís	Staidéar Gnó	Stair	Tíreolaíocht	Matamaitic
11.15	Sos beag				
11.30	Liníocht	O.S.S.P	Eolaíocht	Liníocht	Stair
12.10	Matamaitic	Stair	Ealaín	Gaeilge	O.S.S.P
12.50	An Lón				
1.30	Corpoideachas	Matamaitic	Ealaín	Matamaitic	Fraincís
2.10	Gaeilge	Béarla	Tíreolaíocht	Eolaíocht	Ríomhairí
2.50	Béarla	Tíreolaíocht	Creideamh	Eolaíocht	Béarla
3.30	Críochnaíonn an scoil				

## Fíor nó Bréagach

Bíonn naoi rang gach lá

Bíonn Fraincís ar siúl gach lá

Tosaíonn an lón ar leathuair taréis a haon gach lá

Ní bhíonn Matamaitic ar siúl gach lá

Scríobh amach An Clár Ama don chéad bhliain

Scríobh isteach an fhoirm cuí den réamhfhocail.

1. An maith (tú) Gaeilge.

2. Is fearr (sinn) Ealaín.

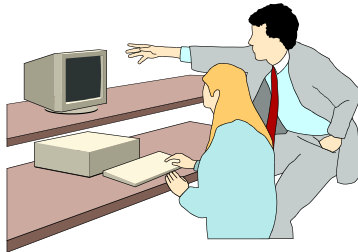
3. Is maith (mé) Béarla ach is fearr (mé) Gaeilge.

4. Ní thaitníonn Eacnamaíocht Bhaile (sibh)

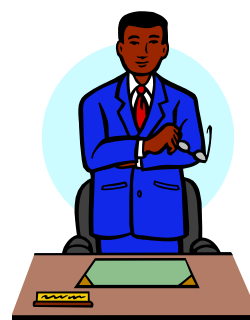
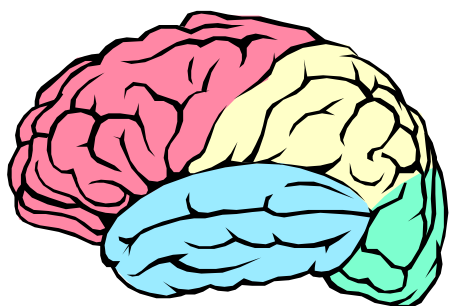
5. Is aoibheann (sé) Tíreolaíocht.

## 2. Aistrigh go Gaeilge

Déanaim...



### 3. Na seomraí ar scoil



## 4.

## Mo Scoil

x s a j q d k j h p y p c i d l v f u f d w o e j  
z a x v m a u m w c r g h z i f p n y t y s v r y  
a o u q m z n c o í m u c o í a n ú r d f t f i e  
j t s h n t l q o w s y c h u q c i l o u x b a d  
h h b x q s d m s l b s e v r z t c a m y w z h d  
q a z l e e h b l z n l l z m t e b q l z c m m h  
l r w z i o n u g u x a x d s f p s j o c v n o w  
v l r v i á o m b y s d e t a f a p k x j c t í o  
p a f d i q c j z x l l n h p o w j z l d z f r a  
x n e l x w u s w r v l j x d r q i k u x e g f u  
f n a l w s m g r c q d r j w p e q u z o c s l b  
g n ó q m i e e p a a e g a e w p h l i s t y h q  
a e s k w k z z e l é o r r h y b v n s c e k u b  
v v h g g i n b t t n l u w v b f m z d n a z o d  
s r g n b k m a p h f t w i q u á v c e y s v h r  
s t d a l o s u e o p v f g d k c z b a t h f l r  
f i q r r l s s b v m b j h a q b b r k r a o w s  
r e u v o x h h e t d r k b q k d i k j m b b m w  
b g b e o q b h d h c r c l o c h a r r q l h n t  
l v c t h c o í a l o e r r a f n m t s z p j a l  
i l f k o l q p g c s i d k d d u l i x q t d o t  
a y h i x g h s x x p h y v e r l r z u w b s y w  
i j i t m h l a b b e z v t b q k x j r u h o c k  
n a g x p t z y d o p e i m u f u r t w i v j f b  
p h t u q p v t l m l h w i c g o w a e w u r b z

léarscáil

príomhoide

eolaíocht

ríomhaire

saotharlann

bliain

bunscoil

carbhat

rúnaí

clochar

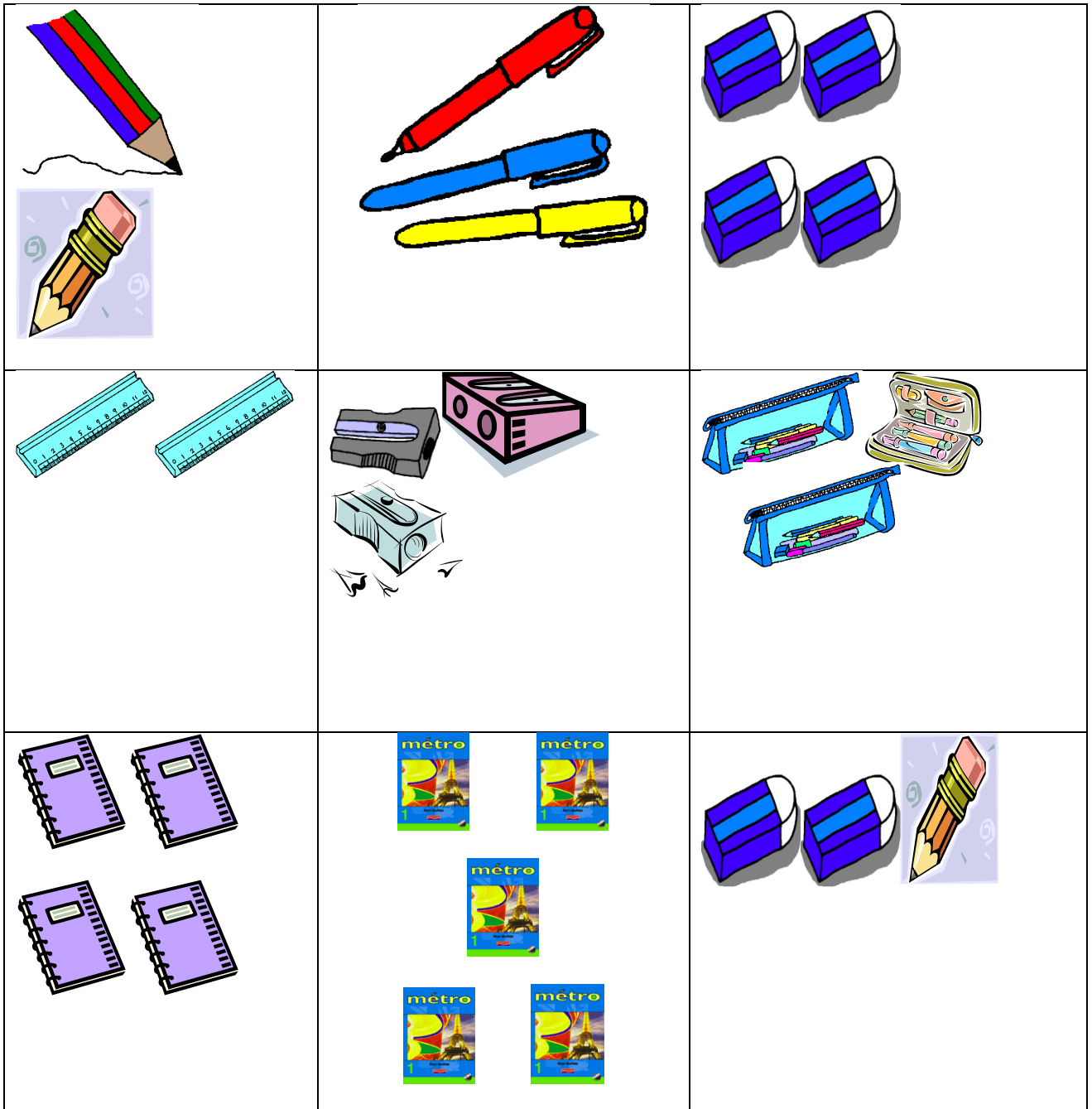
gnó

ábhar

dalta

ceol

rang



# **Appendix 4**

## **Post Test Questions**

## Appendix 4

Iar Scrudú bunaithe ar an  
gcaibidil “Ar Scoil”

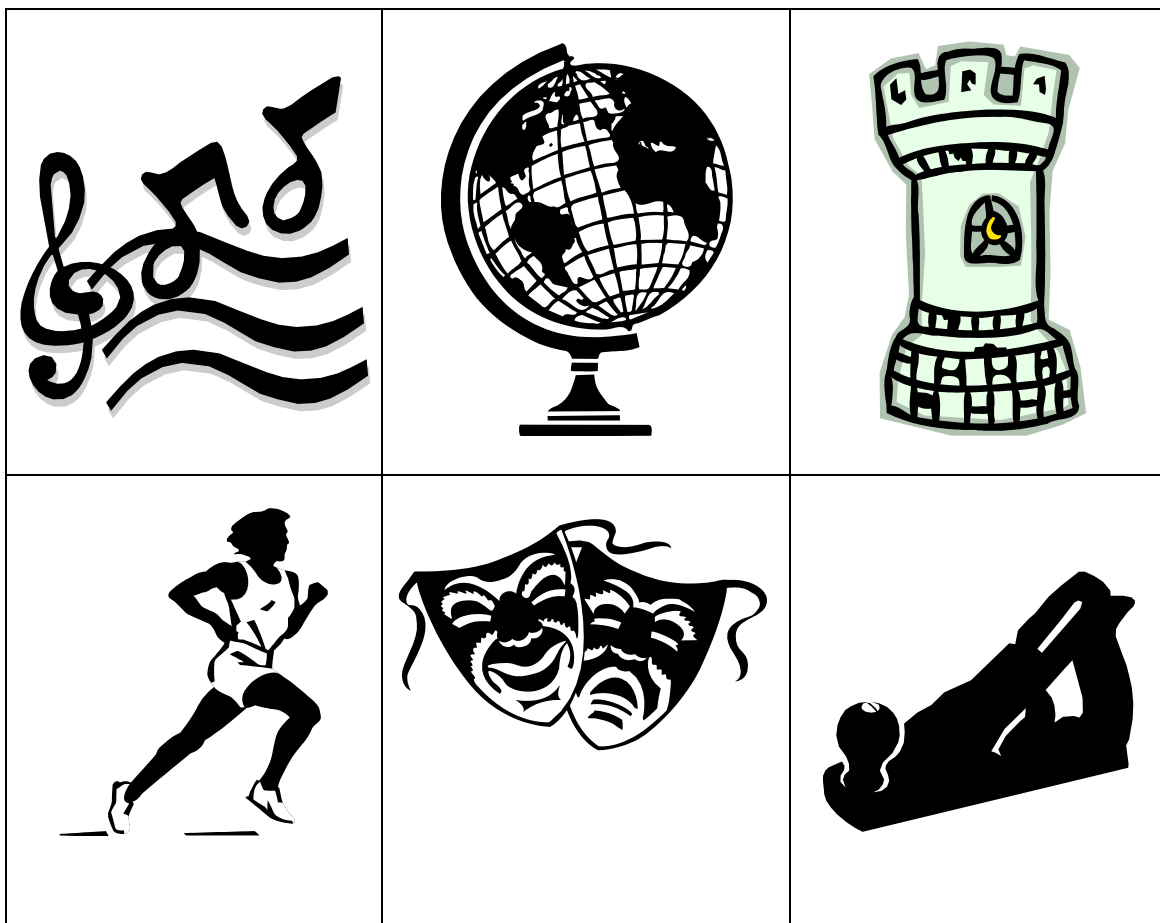
Freagair gach ceist más mian  
leat.

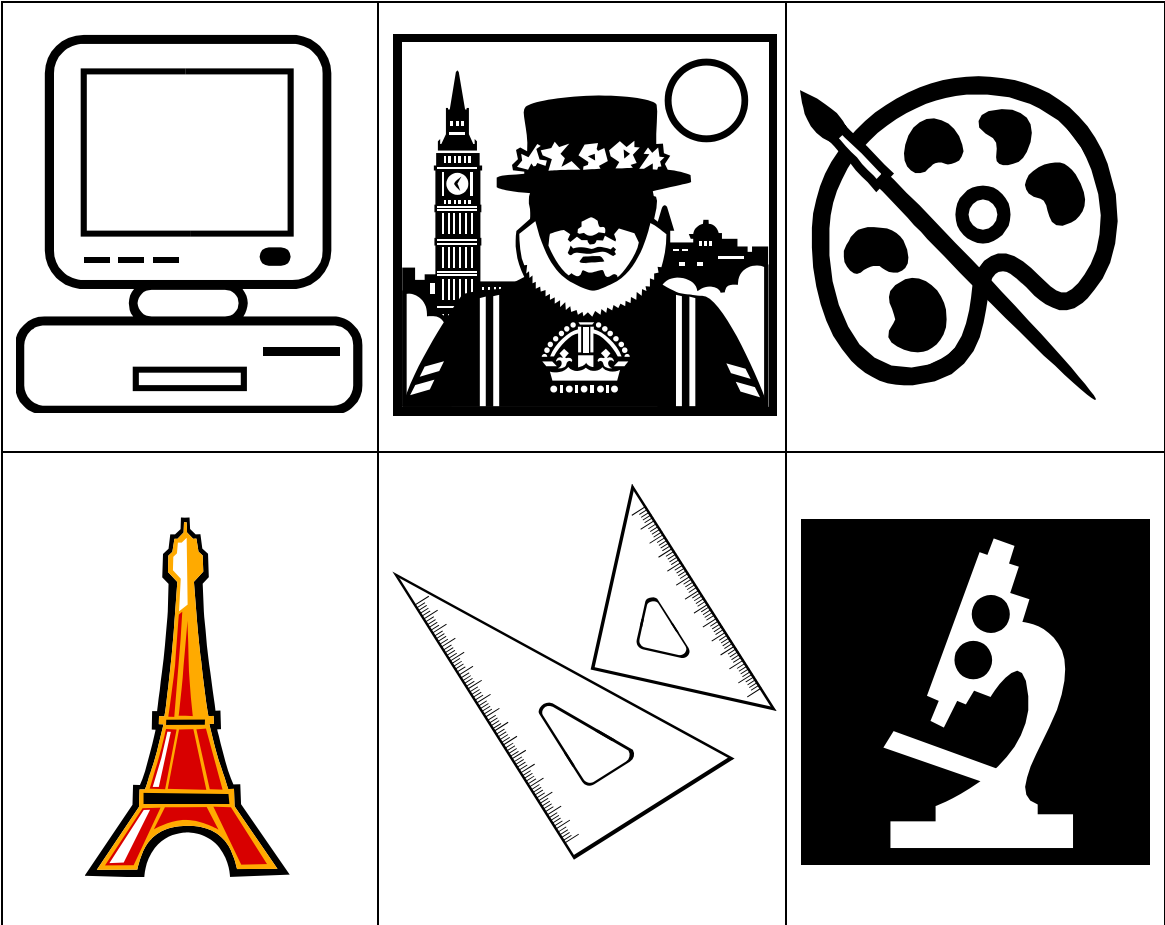
An Chéad Bhliain

## 1. Aistrigh go gaeilge

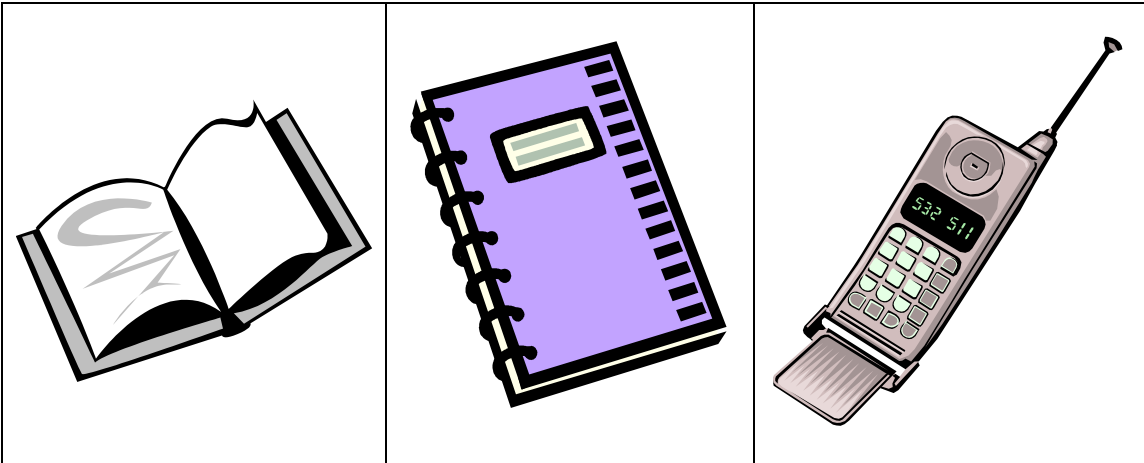
English =  
French =  
Maths =  
Science =  
Biology =  
Chemistry =  
Physics =  
History =  
Geography =  
Technology =  
Computers =  
Art =  
Music =

2.

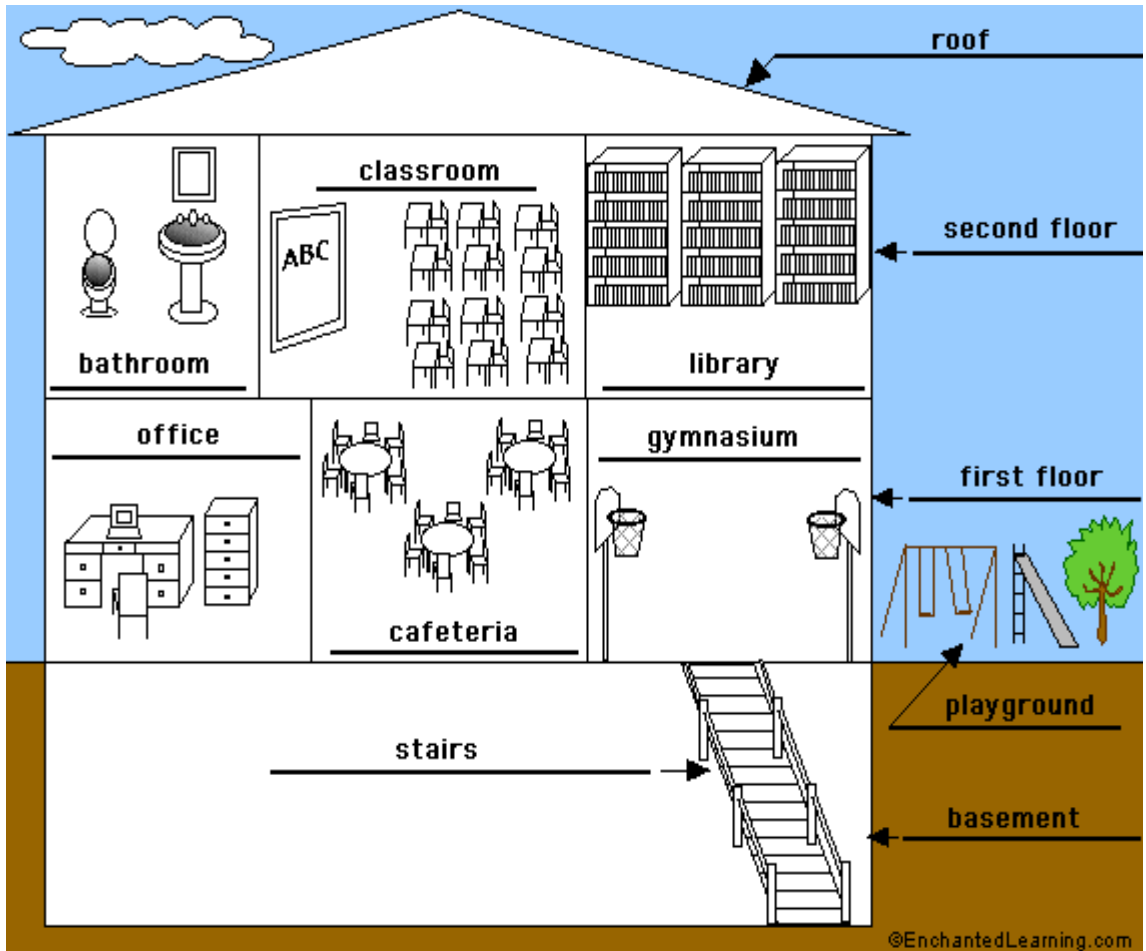




3.



#### 4. Scríobh isteach an focal ceart as Gaeilge



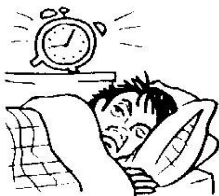
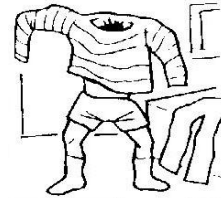
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

- 7.
- 8.
- 9.
- 10.
- 11.
- 12.

## 5. Cén t-am é

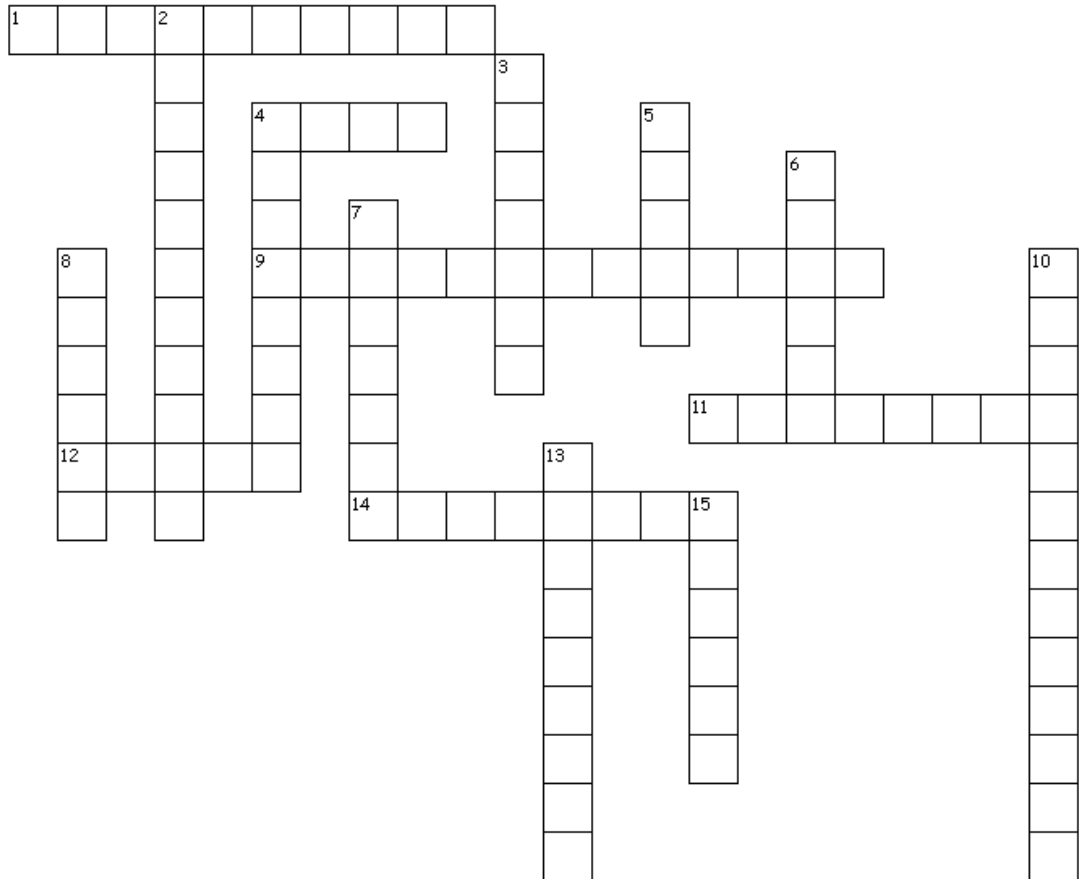
EnchantedLearning.com

## 6. An aimsir chaite- Gramadach



- |           |           |           |
|-----------|-----------|-----------|
| 1. _____  | 2. _____  | 3. _____  |
| 4. _____  | 5. _____  | 6. _____  |
| 7. _____  | 8. _____  | 9. _____  |
| 10. _____ | 11. _____ | 12. _____ |
| 13. _____ | 14. _____ | 15. _____ |

## 7. Mo Scoil



### Trasna

- 1. Principal
- 4. Class
- 9. Librarian
- 11. Facilities
- 12. Pupil
- 14. Leaving cert

### Síos

- 2. Homework
- 3. Timetable
- 4. Rules
- 5. Subject
- 6. Equipment
- 7. Playschool
- 8. Exam
- 10. School uniform
- 13. Secondaryschool
- 15. Assembly

## 8. Aistrigh go Béarla

bunscoil	méanscoil
pobalscoil	ollscoil
ranganna	múinteoir
éirigh	téip
scrudú	scrúdaithe
seomra gleacaíochta	páirc imeartha
seomra feistis	obair bhaile
saotharlann	athdhéanamh
clár ama	teanglann
grád	foghlaim
ardteist	teastas sóisearach
ag staidéar	seomra ranga
seomra ríomhairí	seomra ealaíne
éide scoile	scrudú a dhéanamh
príomhoide	leabharlann
seomra na múinteoireachta	halla

# **Appendix 5**

## **Pre/Post Test Results**

## Computer Instruction

Students	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Mean
Pre-test	88	33	30	70	74	77	74	84	65	62	54	35	89	95	78	72	70	81	80	52	65.35
Post-test	99	44	39	74	88	86	80	95	77	88	60	54	98	98	83	99	94	75	90	60	79.05

## Chalk and Talk Instruction

Students	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	Mean
Pre-test	80	79	84	73	60	49	49	57	86	93	89	87	90	48	86	54	83	75	43	72	71.85
Post-test	86	89	89	78	85	66	44	63	88	93	97	89	93	55	98	59	88	100	50	79	79.45

# **Appendix 6**

## **Observation List for Control Group**

Appendix 6

Observation Schedule Control Group

Date	Observer/Teacher's Name																			
Pupil's Initials	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Minutes																				
Attention to task																				
Off task																				
Interacts/collaborates with resource/ lesson																				
Interacts with class Members																				
Interacts with class Members																				
Helps/encourages a class member																				
Ability to understand Task																				
Asks for assistance of teacher																				
Enjoyment level of tasks																				
Asks a project related question of teacher																				
Asks a non project related question of teacher																				
Motivated and enthusiastic to learn																				
Unmotivated and disinterested to learn																				

# **Appendix 7**

## **Observation List for Experimental Group**



# **Appendix 8**

## **Questionnaire On Educational And Technological Aspects Of Cd-Rom**

## Questionnaire on educational aspects of CD-ROM

### 1. Gender

- Male
- Female

### 2. How long have you been learning Irish?

- 0-1 Years
- 2-5 Years
- 6-10 Years

### 3a. Have you used an educational CD-ROM before?

- YES
- NO

### 3b. If YES, PLEASE GIVE DETAILS

1.
2.

### 4. Did you enjoy the topic 'Ar Scoil'?

- Yes
- No

### 4b. If so, what did you enjoy the most? Please give details.

### 5. Was there any part you did not like? If so, please give details.

1.
2.
3.

**6. Did you think the topic was**

- Very interesting
- Interesting
- Not interesting

**7. Do you understand the topic better now?**

- YES
- NO

**8. What part helped you the most to understand the topic?**

**9. Is the content in digital format more motivating than the content in the book format?**

**If yes, please give details**

**10. What is your preferred method of learning?**

- Chalk and Talk
- Computers

**11. Do you think that the instant feedback in the quiz on the Cd-Rom would help you remember the correct answers in the future?**

- YES
- NO

**12. Do you think the CD-ROM makes Irish easier to understand? Why?**

1.
2.
3.

**13. Do you think the CD-ROM makes Irish easier to learn? Why?**

1.
2.
3.

**14. Do you think the CD-ROM makes Irish more interesting? Why?**

**15. Does the software facilitate the student to control the pace of learning?**

**Please, give details.**

1.
2.
3.

**16. Had you adequate time to complete all tasks? If yes, please give details**

- Yes
- No

**17. Do you enjoy using computers at school?**

- YES
- NO

**17b. Please give details**

- 1.
- 2.
- 3.

**18. Would you like to use computers to learn all subjects? Why?**

- 1.
- 2.
- 3.

**19. What impact has ICT had on your learning?**

- Positive
- Negative
- No effect

**20. Indicate the level of agreement with the following statements**

	Disagree	Undecided	Agree
I enjoy working with computers in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy assisting classmates to learn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learn more by discovering things for myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel ICT enhances the learning process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learn well when working with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer to learn from the teacher using the blackboard rather than from Powerpoints or Dvds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**21. Indicate the level of agreement with the following statements**

	Disagree	Undecided	Agree
I enjoy learning new skills from the computer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy learning independently from the computer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer when teachers do not use ICT in class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am more motivated in Irish when ICT is used.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer learning using pictures and video.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I prefer learning by listening to the teacher explain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer use in the classroom encourages collaboration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more confident using computers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel more successful using computers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to continue learning with computers in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Questionnaire on Technological aspects of CD-ROM

**1a. Did you find the CD-ROM easy to navigate?**

- Yes
- No

**1b. If no, what did you find difficult**

1.
2.
3.

**2. Did the use of colour add to your enjoyment of the lessons?**

- YES
- NO

**3. Did the use of pictures help you understand the information better?**

- YES
- NO

**4. Did the use of sound help with pronunciation?**

- YES
- NO

**4b. Was the use of sound annoying? Please give details**

1.
2.
3.

**5. Was the information presented clearly?**

- YES
- NO

**6. Was the information presented concisely?**

- YES
- NO

**7a. Were you eager to continue to the following page to complete the tasks?**

- YES
- NO

**7b. If yes please specify**

1.
2.
3.

**8. Should we learn using computers alone or should we use books and computers? Please give reasons.**

1.
2.
3.
4.

**9a. Did you find the vocabulary and language use**

- Difficult
- Just right
- Too easy

**9b. Please give details.**

- 1.
- 2.
- 3.

**10. What would you do to make the CD-ROM better to help you learn?  
Please give details.**

1.
2.
3.
4.

**11. How do you feel about using ICT in learning Irish?**

1.
2.
3.

**12. Did the use of the software motivate you to learn? If yes, please give details.**

1.
2.
3.

**13 A. Do you think students would be more interested in learning Irish if ICT was regularly integrated into learning tasks?**

- YES  
 NO

**13B. Give details**

1.
2.
3.

**14. Do you think it is important that teachers use ICT in their teaching,  
Please give details**

1.
2.
3.

**15. Please indicate below if you are willing to participate in an interview to further discuss these issues?**

YES

NO

**Thank you for taking the time to fill in this Questionnaire.**

# **Appendix 9**

## **Student Interviews**

## Appendix 9

### Interview with Student A

Interviewer: I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student A.

Interviewer: Firstly, can I ask you for how long have you been learning Irish.

Interviewee: 6 -10 years.

Interviewer: Have you ever used an educational CD ROM before?

Interviewee: Yes.

Interviewer: Ok, can you elaborate on that. Can you tell me what you used it for?

Interviewee: We used it for different subjects including Irish. It was different from the book and it helped us to learn.

Interviewer: How do you mean it helped you to learn?

Interviewee: There was lots of pictures compared to in the book there were'nt as many pictures. You could listen to the words and there were more activities.

Interviewer: More activities. What type of activities?

Interviewee: Like matching the words with pictures. Crossword and word searches and things like that.

Interviewer: Ok. Was that in primary school?

Interviewee: Yes.

Interviewer: What are the advantages or disadvantages associated with computers?

Interviewee: If you miss out you can go back easier on a computer than if you are on a book. You can't really ask a teacher to go back, but on a computer you can go back yourself. You can listen to words over and over again if you missed them the first time. I think with books it is easier because you can ask a teacher more questions than if you were using a computer.

Interviewer: So would you feel you are more motivated using a book or computer then?

Interviewee: Probably book.

Interviewer: Why?

Interviewee: I prefer using a book because you can like talk to the teacher. And the teacher writes stuff on the black board and explains it.

Interviewer: OK. And if you were using a CD, could you not ask the teacher questions then?

Interviewee: Ah, yeah. But I just think it is easier to ask like. You are always talking with the teacher when it's using the book. But when it's the computer, you are using the computer more.

Interviewer: So you feel more isolated with the computer?

Interviewee: Yeah.

Interviewer: Ok. Do you feel you would have an improved knowledge of the topic if you were using the book or the computers?

Interviewee: I think the same with both.

Interviewer: Why?

Interviewee: I found the book as easy, not harder or easier than the cd.

Interviewer: And do you think that including computers in school work or lessons could be of benefit to the students in the curriculum?

Interviewee: Yes.

Interviewer: Why?

Interviewee: Because some students prefer the cd and it motivates and encourages them to learn more because it's more fun than using the book, there is more activities and pictures and everything.

Interviewer: Why do you think it would be more fun?

Interviewee: Am because like, there are pictures and games more fun.

Interviewer: OK, so it is more interactive?

Interviewee: Yes.

Interviewer: Do you feel there was enough support from the teacher do you think it would be better to use a cd on your own or for a teacher to help you to assist with the learning?

Interviewee: The teacher to help as well in case you need to ask them questions.

Interviewer: Would you like to do this again using computers to learn Irish?

Interviewee: I would like to use the computers but not all the time, a mixture of both.

Interviewer: And why not all the time?

Interviewee: Um 'coz like I think it's nicer to be able to use both and just not to use computers all the time. The books like you can talk to the teacher more and its harder to use CDs.

Interviewer: OK, so you feel that a mixture would be better?

Interviewee: Yes

Interviewer: OK, and as regards the questionnaire that we done you said that you enjoyed the topic and what you enjoyed the most was the questions and activities, why was that, can you explain please?

Interviewee: I liked the questions and activities because they were challenging and you could do them in your own time and you could go over them and if you got some questions wrong you can keep doing them until you get them right.

Interviewer: OK

Interviewee: And in a copy like you can't keep writing it out again its easier on a computer to go over it.

Interviewer: So it's more motivating, you will keep doing it until you learn it. OK, and what part helped you the most to understand the topic

Interviewee: Um I think it was that we could listen to the pronunciation of the words and the spellings over and over again if we didn't hear it the first time.

Interviewer: Ok and that was important as regards pronunciation?

Interviewee: Yes.

Interviewer: OK and do you feel is the content in the CD more motivating than the content in the book.

Interviewee: Um I think they're both equal.

Interviewer: OK, why?

Interviewee: Um because it, the CD motivates you to do more because there's a lot of activities and you can do them over and over again but the book like you're in a whole class you're not just on your own and the teachers there as well so like when other people are getting answers right it like motivates you to put up your hand and answer questions as well.

Interviewer: OK so would you say that your preferred method of learning then is chalk and talk or computers?

Interviewee: Chalk and talk.

Interviewer: Would that be just because of the teacher element or would you prefer learning on your own or as part of a group?

Interviewee: As part of a group.

Interviewer: OK and why would you prefer that?

Interviewee: Um because like when you're on your own its harder like if you don't understand something you can't ask someone about it, it's easier when your with a group someone will probably know what it is.

Interviewer: OK and the computers?

Interviewee: Um I enjoyed the computers as well it was nice like to be on your own and you could go on a bit further than you aren't always waiting for everyone else.

Interviewer: OK so if you felt the topic was easy you could continue on more. Do you think that a CD Rom makes Irish easier to learn?

Interviewee: Um I think it makes it easy but I think the book was just as easy as the CD.

Interviewer: OK and why do you think that?

Interviewee: Um I think the book was like easy because you can talk to the teacher about it and the CD was easy too because the activities and the audio was very helpful in it as well.

Interviewer: OK so the audio and the pictures helped you but is it because you're more used to using a book that that's why you preferred the book. How often would you have spent using educational Cd-roms before?

Interviewee: Not much at all.

Interviewer: Not long, OK, and would you like to use the computers to learn all subjects?

Interviewee: No.

Interviewer: Why?

Interviewee: I think that if we use computers then were just going to like begin to be on our own learning everything like but when you do a mix you can be on your own for some subjects but if like then other times you would be with a group and like and its easier when you're doing both rather than using computers all the time

Interviewer: OK so it depends on the subject really. So what impact do you think that computers and ICT had on your learning in this topic?

Interviewee: Um I think that it had a motivating and encouraging impact, a positive impact cos it encouraged children to go on to the next page because there were fun activities rather than in the book where there's just questions.

Interviewer: OK so it's more motivating. In the questionnaire, "I prefer to learn from the teacher using the blackboard rather than from PowerPoint's or DVDs, you were undecided". Could you explain that please?

Interviewee: Um I, I enjoy using CDs and the blackboard and the teachers but like I'd rather using a mix than just use one of them.

Interviewer: OK and would you prefer when teachers do not use ICT in class or if they used ICT in class?

Interviewee: Um I don't mind really whatever subject I don't mind if they use it but if they use it too much then I'd rather use a mixture of the book and the CD.

Interviewer: OK what would happen if they used it too much, why would you not like it?

Interviewee: Because then they'd start doing all the work on your own rather than with a group or with a teacher you would just be on your own for all the work and if you didn't understand something then you couldn't ask someone.

Interviewer: OK perfect and do you feel it would lose effect then?

Interviewee: Yeah, it wouldn't be as much fun as much of a novelty if you kept doing it like.

Interviewer: OK that's perfect and as regards motivation in Irish do you feel that you are motivated in Irish when ICT is used or do you feel that it's pretty much the same?

Interviewee: I think it's the same really I don't mind which we use.

Interviewer: OK and why would you feel that way?

Interviewee: Um like I like using CDs and using chalk and talk because you can ask the teacher more questions in chalk and talk but the CD is 'funner' and like it's more motivating.

Interviewer: OK and would you prefer learning by pictures or by listening to the teacher explain or which would you prefer?

Interviewee: Um listening to the teacher explain.

Interviewer: Why would you feel that?

Interviewee: Um 'coz you can ask a lot more questions to the teacher and you can ask her to explain things.

Interviewer: OK and as a result of using computers and using the CD would you feel more successful using computers now or would it be the same?

Interviewee: Yes I think using the CD you feel more successful like the activities and quizzes and at the end of it when you get like a high score you feel like you've done well in the CD.

Interviewer: That's excellent thank you very much for your time and thank you for taking the time to be interviewed today I really appreciate it thanks very much.

## **Interview with Student B**

Interviewer: I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student B.

Interviewer: Firstly, can I ask you for how long have you been learning Irish?

Interviewee: Two to five years.

Interviewer: About five years, ok and have you ever used an educational CD ROM before?

Interviewee: Am, no.

Interviewer: No, ok did you think that the cd that we used was good or that it motivated you to learn

Interviewee: Am, it motivated you to learn, because of the different ways to learn how to do the questions

Interviewer: Ok, in what way?

Interviewee: Am, by doing different games to be able to learn and help with the spellings and stuff like that.

Interviewer: Ok, can you explain the games?

Interviewee: There like matching up words, and am matching the words with the pictures and different stuff.

Interviewer: Ok so matching words with pictures and that motivated you to learn, is there any disadvantages to learning from a cd-rom do you think?

Interviewee: Am, not really.

Interviewer: Ok, and do you think that including ICT or computers in school work or lessons could be of benefit to students?

Interviewee: Yeah, because am it's easier to navigate it than the book

Interviewer: Ok.

Interviewee: And you can go through it faster and it doesn't take as long to learn things.

Interviewer: Ok and why do you think it doesn't take as long to learn things?

Interviewee: Am because you don't really, because of the different stuff you do doesn't really feel like you're doing work and you just learn it without noticing it.

Interviewer: Ok, so you're learning without noticing so therefore do you think that it's an effective teaching method?

Interviewee: Yeah.

Interviewer: Ok, and would you prefer to learn using the cd with the help of the teacher or would you prefer to use the cd and navigate it yourself?

Interviewee: Am, I would prefer to use the cd myself because then you can go through it as much as you can and as much as you want to do it, and you don't have to like if you haven't learned it you don't the teacher might go on and you mightn't have learned it in class.

Interviewer: Ok, so you prefer that you can control the pace of learning yourself.

Interviewee: Yeah.

Interviewer: Ok and why do you think that would be an advantage?

Interviewee: Well, say if you were missing or anything like that you can go through it again and the teacher might have already gone on and you could go through it.

Interviewer: Ok so if you were using a book and you were missing, what might happen?

Interviewee: Am, if you were using a book and you were missing the teacher probably wouldn't go back on it and you'd have to just try and keep up.

Interviewer: Ok and did you feel that you were challenged to learn and to think for yourself when you were using the cd-rom.

Interviewee: Am yeah because like you didn't really you couldn't ask you couldn't check the thing to find out the questions you had to try and kinda think of it yourself.

Interviewer: How do you mean you couldn't check the thing?

Interviewee: Well, you could go back like but it wouldn't have all the answers written on it you would have to try and think of it yourself.

Interviewer: Ok, is this on the quiz?

Interviewee: Yeah.

Interviewer: Ok so you couldn't turn back to the last page to check answers and do you feel that that was a good idea or would you prefer if you could go back to check?

Interviewee: Am, I'd say it was a better idea that you weren't able to go back but you should have been able to change answers if you put in a wrong one.

Interviewer: Ok, that you would get the chance to change it again instead of doing the quiz a second time?

Interviewee: Yeah.

Interviewer: Would you like to do this type of project again?

Interviewee: Yeah, because it was easier than the book it seems easier than the book and it doesn't feel as much work you're doing and it's more fun.

Interviewer: Ok and do you feel that you learned more from the cd than you would have if you were using the book?

Interviewee: Yeah, because like you can control how fast you want to learn it and as for the book you wouldn't really because the teacher would go on.

Interviewer: Ok and if the teacher went on, why would that be a disadvantage?

Interviewee: Because like you mightn't have been learning as fast and you could have gone on and you wouldn't really have learned it.

Interviewer: Ok, do you think that it is important to have ICT or computer skills today?

Interviewee: Am, yeah because it's am it's a lot faster than the books and its more fun.

Interviewer: How do you mean it's faster?

Interviewee: Because am you can am control how fast you want to go.

Interviewer: As regards the topic 'Ar scoil' what did you enjoy the most about the cd?

Interviewee: Am the games and like matching up the different words to the pictures like

Interviewer: Why did you enjoy that exercise?

Interviewee: Because it was an interesting way to learn how to do it and it helps you with the spellings of the words and it improved my vocabulary too.

Interviewer: Was there any part that you didn't like on the cd?

Interviewee: Am, not really.

Interviewer: What part helped you most to understand the topic

Interviewee: Am well going through the questions again and being able to read over things again without the whole class going on, doing it at my own pace.

Interviewer: Do you feel that the content on the cd-rom was more motivating than the book

Interviewee: Yeah, because like if you got a question wrong like they'd tell you like all the games and the different pictures and everything was better and it was easier to do.

Interviewer: When you say the pictures why would that make it better?

Interviewee: Because it explains them easier.

Interviewer: Ok so you prefer the visual aspect?

Interviewee: Yeah.

Interviewer: Therefore, what would your preferred method of learning be is it chalk and talk or computers?

Interviewee: Computers.

Interviewer: Why would you choose computers?

Interviewee: Because it's a different way to learn and we have been doing chalk and talk for the rest for most of our other subjects so it's different and interesting.

Interviewer: So it was new and it was an experiment?

Interviewee: Yeah.

Interviewer: Do you think that the cd-rom makes Irish easier to understand and to learn?

Interviewee: Am, yeah because it corrects the wrong answers and you can go through it in your own time.

Interviewer: How do you mean it corrects the wrong answers?

Interviewee: When you click a wrong answer it might cheer or boo or whatever if you got it wrong or right and then you would kinda remember it.

Interviewer: Do you feel that it motivated you to keep going with the exercise?

Interviewee: Yeah

Interviewer: Why did you think that was motivating?

Interviewee: Because it was interesting and it was different.

Interviewer: Do you think the cd makes Irish easier to learn?

Interviewee: Yeah, because you can go through it as much as you need to, to understand it.

Interviewer: If you got the choice to use computers to learn all subjects, would you prefer to use computers or chalk and talk?

Interviewee: Am computers because it explains more and it's easier.

Interviewer: How do you mean it explains it more, can you elaborate on that please?

Interviewee: Because like if you don't have the right answer it might tell you it's the wrong answer so then you kinda remember it, and you will keep trying until you get the right answer.

Interviewer: What impact do you feel ICT has on your learning?

Interviewee: A good impact.

Interviewer: Just referring to the questionnaire as regards I learn more by discovering things for myself, you were undecided can you explain that please?

Interviewee: Well, sometimes you need to figure out what the answer is by yourself but if you don't know the answer there isn't much point just sitting there and doing nothing.

Interviewer: Do you feel that computers would help you as regards discovery learning?

Interviewee: Am, a bit but it's pretty much the same as the book except you might try harder using the cd as it feels easier with all the games and stuff.

Interviewer: Which would you prefer to learn from the teacher using the Blackboard or from PowerPoint's and / or DVD's?

Interviewee: The PowerPoint's and DVD's because it's a different way to learn and it doesn't seem as hard.

Interviewer: What difference would that make?

Interviewee: Well, when you're watching a DVD like, your learning the words without realising it and going along with the story but you don't really realise that you're learning the words.

Interviewer: Excellent, perfect that's great thanks. Do you enjoy learning independently from the computer do you prefer learning on your own or would you prefer to learn with a group?

Interviewee: Well learning with a group would be alright like, because if you didn't know an answer they could help you with it

Interviewer: And would you prefer if teachers use ICT in class or would you prefer to stay with the book?

Interviewee: Am, the am I would prefer if we used ICT more than we do but it doesn't really matter if you use books sometimes.

Interviewer: Ok and why would you prefer if we use more ICT?

Interviewee: Because it's am different and more interesting than the book because we've been using that all the time.

Interviewer: Would you prefer learning by listening to the teacher explain or by learning by doing exercises for yourself?

Interviewee: Well a bit of both like, the teacher would have to explain stuff and then you'd have to see if you can do it by doing the questions.

Interviewer: Ok, and as regards the cd and the sound, you have referred to the sound a few different times did you find that the use of sound was annoying at times?

Interviewee: Am not really, but it would be better if you could turn it off sometimes when you're not using it or you could go back on it and turn it on and off different times.

Interviewer: Can you elaborate on that please?

Interviewee: Well if you were going through the story and you were doing the questions when you could put on the sound if you were doing a question and they had called out the question in the story you mightn't have enough time to write it down and it would be gone on already so you would have to wait until the story was over and start it again.

Interviewer: Ok, I understand, and did you feel that you were more eager to complete tasks using the cd or would you be more eager to do them in the book?

Interviewee: Am, well like, the cd seems a bit different so you wouldn't really know what's coming next so you like to see what's on the next page.

Interviewer: Ok, and should we learn using computers alone or should we use books and computers do you think?

Interviewee: Well, you should use books for a different chapter because the two different types of learning are different, so you might get confused a bit.

Interviewer: How do you mean confused?

Interviewee: Because when you're using the computers they might be teaching it a different way and then the teacher might teach it a different way than the computers and then you might get confused.

Interviewer: Is there anything you would do to make the cd-rom better to help you learn?

Interviewee: Am, not really, just more different word-searches like to help with spelling.

Interviewer: How do you feel about using ICT and learning Irish, do you feel it improves the learning of Irish or that it's pretty much the same?

Interviewee: Am, it's pretty much the same but it's just more fun than the book.

Interviewer: Why?

Interviewee: Because, we're used to doing the book all the time and it just seems different.

Interviewer: So, because it was new it motivated you to learn, is it?

Interviewee: Yeah.

Interviewer: Finally can I ask you do you think that it's important that teachers use ICT in their teaching?

Interviewee: Yeah, because it's like different and it's more exciting and it's like a break from just writing all the time.

Interviewer: How do you mean it's a break from writing?

Interviewee: Because on the computer you don't really have to write as much, you just like match up things and you just do a bit of, you don't have to write all the time and it's just pretty much learning it instead of writing it.

Interviewer: Excellent. Thanks very much. I would like to thank you for taking the time to be interviewed today and I really appreciate it.

## **Interview with Student C**

Interviewer: I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student C.

Interviewer: Can I start by asking you for how long have you been learning Irish?

Interviewee: About maybe ten years.

Interviewer: About ten years, ok and have you ever used an educational CD ROM before?

Interviewee: No.

Interviewer: No, ok how did you find the cd did you enjoy the topic 'Ar scoil'?

Interviewee: Am, yeah it was enjoyable, it was fun and it helped with the pronunciation and to spell the words

Interviewer: The pronunciation ok and do you find is there any other advantages or disadvantages of using a cd-rom?

Interviewee: Well there's not a huge amount of disadvantages like.

Interviewer: Ok, you feel there are more advantages?

Interviewee: Yeah.

Interviewer: And what are the advantages?

Interviewee: The pronunciation and spelling the words and that sort of stuff like.

Interviewer: Did you find that the cd motivated you to learn?

Interviewee: Yes.

Interviewer: And, why was that?

Interviewee: It was just enjoyable like and you'd want to keep going like in the book you'd get sick of it 'cause like you just keep going on and on and on.

Interviewer: Can you elaborate on why would you want to keep going?

Interviewee: Am, not really am, aah.

Interviewer: Was it motivating, and if so why was it motivating? Why did you want to go on as opposed to you said that in the book you wouldn't be as eager to continue?

Interviewee: Well it's just easier to learn like when you're using the computer you want to keep going and going like whereas like the book you would get sick of it like.

Interviewer: And why do you find it's easier using the computers?

Interviewee: For pronunciation of the words and stuff like that like. Like in the book you'd have to learn certain stuff off like and you'd have to go over the words a million times but when you're using the computer you can just hear it like over and over again.

Interviewer: Ok, so you find it easier and it's faster to learn?

Interviewee: Yeah.

Interviewer: Ok and do you find that you have a better knowledge of the topic from using the cd-rom or do you think you would have better knowledge from using the book?

Interviewee: I'd say I learned more off the computer.

Interviewer: Why do you think that?

Interviewee: Just, like I said it really helps with the spelling and pronunciation and that type of stuff is just way easier when you're learning it off the computer, when you're listening to it instead of using the book.

Interviewer: Do you think that including ICT or computers in school work or lessons could be of benefit to students?

Interviewee: Yes, I'd say it would be a very good help for people starting off learning Irish like to hear the words and that type of stuff.

Interviewer: The pronunciation. Do you feel that it's a more effective teaching method?

Interviewee: Well, the book is aah you'd learn in all fairness I'd say in some chapters you'd want to use the book but in some places you'd really want to use ICT as well.

Interviewer: Why do you feel for some chapters that you would need to use the book?

Interviewee: Like just say chapters like food and that type of stuff to hear the words like instead of reading about it the whole time just like hear it and do exercises and that type of stuff.

Interviewer: So the computers are nice for a change?

Interviewee: Yeah.

Interviewer: Do you feel that you are more challenged to learn and to think for yourself using computers or the book?

Interviewee: Well it's a bit easier in the book if you're doing chapters and that type of stuff but in the computer it's easy like in places like.

Interviewer: Would you feel you got enough support from the teacher or would you prefer to use the cd on your own or would you prefer the teacher to be assisting you all the time?

Interviewee: Am, well you'd want a bit of space like to learn it off yourself but sometimes you'd need the teachers support like.

Interviewer: Ok for the teacher to help if needed. Would you like to do this type of project again?

Interviewee: Yes.

Interviewer: Why?

Interviewee: Because it's just better to get out of the classroom.

Interviewer; Can you elaborate on that please?

Interviewee: Am, well in the cd-rom it's a nice method like to use it to learn the pronunciation and instead of just using the book all the time.

Interviewer: Ok so it's different than listening to the teacher all the time. Do you think it's important for students today to have ICT and computer skills?

Interviewee: Yes, well it just helps a lot like and for the pronunciation and stuff it's handy to have like.

Interviewer: Did you find anything else useful as opposed to the pronunciation? What did you enjoy the most about the cd-rom?

Interviewee: The exercises were quite enjoyable like.

Interviewer: Can you explain about the exercises or why you felt they were enjoyable?

Interviewee: Instead of writing them down you can just listen to them and type them down like and there was more variety.

Interviewer: Was there anything on the cd that you didn't like?

Interviewee: Well some of the pictures weren't very clear and in places like if you were listening to the reading and you wanted to write down an answer you couldn't stop the sound like.

Interviewer: So, if you had a pause button, maybe?

Interviewee: Yeah.

Interviewer: What do you feel helped you the most to understand the topic using the cd

Interviewee: Am, like hearing the words and eh the stories to help you along like instead of reading it down by yourself 'cause you mightn't understand the words like.

Interviewer: Ok, so the fact it's read out for you that it helps you. Do you feel that the content on the cd is more motivating than the content in the book or are they both the same?

Interviewee: Well they're pretty much the same but I'd say the book is a bit handier to learn like if you're studying for a test and that type of stuff.

Interviewer: The book is easier and why do you find that?

Interviewee: Well sometimes likes you'd really have to keep reading and reading it to try and learn it off instead of just hearing it 'cause in some places the spelling and stuff like you need to learn it off.

Interviewer: So, do you find that you would learn the spelling more from using the book?

Interviewee: Yeah.

Interviewer: Can you tell me how do you find using ICT in learning Irish?

Interviewee: Well it's enjoyable it's a nice way to learn for a change instead of using the book all the time, 'cause you'd kinda get sick of the book like.

Interviewer: Do you feel that it motivates you to learn more or would it be the same?

Interviewee: I'd say, am if you were, am the book would be slightly handier to use, aah but the computer is roughly around the same.

Interviewer: The computer is the same. Ok you said in the questionnaire that it helps you to concentrate can you elaborate on that please?

Interviewee: Well, it's just in class you could get distracted easily enough and that with the computers you can use the speakers and listen yourself so it's just easier to use and to keep focused.

Interviewer: Ok, so you think the cd is easier? And do you think that it is important that teachers use ICT in their teaching.

Interviewee: Well, I suppose it would be very handy for most years to keep learning off the book and use ICT as well.

Interviewer: Ok, so use a mixture, why do you feel a mixture would be good?

Interviewee: Well, we'd say like in places for pronunciation you'd need both and sometimes for to learn grammar like I think you'd need the book first.

Interviewer: Do you feel that the cd makes you more eager to complete the tasks?

Interviewee: Yes, it's more enjoyable than using the book and more fun like.

Interviewer: As regards the questionnaire you said you were undecided if you prefer to learn from the teacher using the blackboard rather than PowerPoint or DVD's, can you elaborate on that please.

Interviewee: Well, am you'd really need both to learn it completely but just the book is easier for grammar and stuff and for the pronunciation you need the cd.

Interviewer: So you think both methodologies are useful but it depends on the topic?

Interviewee: Yeah.

Interviewer: Do you feel that you would prefer learning using pictures or a video or by listening to the teacher explain?

Interviewee: Ah, I'd say seeing the pictures and stuff 'cause it helps you aah to understand what they are, the words like and what they mean.

Interviewer: Can you elaborate on that please?

Interviewee: Well it's just that when you're using it that you need both like and the pictures and video are handy, but you'd need both.

Interviewer: Why, do you feel you need a bit of both?

Interviewee: The computer and the pictures are handy to learn off words.

Interviewer: Do you feel you would be more confident using computers if you were using a cd-rom more often?

Interviewee: Yes, I'd say it would help you to speak it more fluently and it just helps pronunciation but if you were doing past tense like you'd really need the book.

Interviewer: Do you feel that the computers would not be enough?

Interviewee: Yeah.

Interviewer: Do you feel that the software facilitates the student to control the pace of learning?

Interviewee: Yeah, 'cause just say you miss a day you'd like fall behind and you'd have to keep studying and studying to try and catch up with the class but in this like you can learn it as you go instead of like learning like one page one day and then if you miss the next day you fall behind.

Interviewer: Do you find that the cd is better then?

Interviewee: Yeah, definitely.

Interviewer: Would you like to use computers to learn all subjects?

Interviewee: Well, I'd say in a lot of subjects you'd need it, like in languages like English and Irish and French and them but I wouldn't say you need them in a couple of other subjects like geography and maths and that type of stuff.

Interviewer: Why do you feel that?

Interviewee: Well, it's just for maths you grasp it more when you're reading it out of the book like.

Interviewer: Ok as opposed to languages?

Interviewee: To just hear the words and that type of stuff.

Interviewer: Which would be your preferred method of learning, chalk and talk or computers?

Interviewee: I'd say computers in all fairness, the book is good but you need the computers for the pronunciation.

Interviewer: Ok, the pronunciation helps as regards languages. Finally do you think the cd-rom makes Irish easier to understand or to learn, be it more interesting?

Interviewee: It does make it more interesting than the book because you can get sick of the book when you have to keep learning it and learning it, but the cd makes it more enjoyable.

Interviewer: OK you have said pronunciation, is there anything else on the cd that isn't in the book or makes it more enjoyable?

Interviewee: Well aah some of the pictures are unclear. But all the pictures are needed and useful I think.

Interviewer: Are you saying there are more pictures on the book or on the cd?

Interviewee: Well, in the computer they are easier to learn.

Interviewer: And do you think there is more exercises on the book or on the cd?

Interviewee: Around the same I'd say there is slightly more on the cd and it's more enjoyable on the computer.

Interviewer: Perfect. Thank you very much for your time and thanks for agreeing to be interviewed today. I really appreciate it.

## **Interview with Student D**

Interviewer: Good afternoon, I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student D.

Interviewer: Firstly can I ask you do you use a computer at home for educational purposes?

Interviewee: Yeah.

Interviewer: Ok, can you tell me what do you do?

Interviewee: I use Scoilnet to look for words, Microsoft Word for stuff for schoolwork and typing.

Interviewer: When you say stuff for schoolwork can you elaborate on that please?

Interviewee: On Microsoft word you would be am writing or typing out if you do Essays or anything like that.

Interviewer: Essays for what subjects?

Interviewee: English or Irish or other subjects.

Interviewer: Do you feel that using computers is motivating or good?

Interviewee: Yeah.

Interviewer: Why do you think that? Would you prefer to use computers in class or use a book to learn Irish?

Interviewee: Computers.

Interviewer: Why do you think you would prefer to use computers?

Interviewee: It would be better like when you are on the computer you don't instead of sitting inside in a classroom trying to look at a book you could be on the computer looking at questions and clicking on different answers.

Interviewer: Do you feel it would be more motivating?

Interviewee: Yeah.

Interviewer: Why do you think you get sick of looking at a book?

Interviewee: Because we have been doing it for too long and we haven't been using computers, it's all books we've been using.

Interviewer: Have you ever used an educational cd-rom before?

Interviewee: No.

Interviewer: Do you think is there any advantages or disadvantages to using a cd-rom?

Interviewee: No, not really.

Interviewer: Would you prefer to use a book rather than a computer?

Interviewee: Am, I would prefer to use a computer.

Interviewer: Why, would you prefer a computer?

Interviewee: Because in the book you would be like getting bored?

Interviewer: Why is this do you think? Would computers be more motivating?

Interviewee: Yeah and more funner like if you were doing like 'Ar Scoil' you could do a slideshow and like click on exercises maybe and type in the answers on the computer like is better if it's not attractive, you won't look at it or learn from it.

Interviewer: Would you prefer when it's more interactive, then?

Interviewee: Yeah.

Interviewer: Did you enjoy learning the topic 'Ar Scoil' from the book?

Interviewee: Yeah.

Interviewer: What did you enjoy the most?

Interviewee: Am, errh, aah... learning all the different names for the Irish subjects.

Interviewer: Do you understand the topic better now?

Interviewee: Yeah.

Interviewer: What would you say helped you the most to learn or understand the topic?

Interviewee: Am going through the chapter and learning all the different words.

Interviewer: Ok, so the vocabulary. Do you feel you got enough support from the teacher when you were learning the topic?

Interviewee: Yeah 'cause when we were doing some of the subjects that were not in the book we got help and preparing for the test like what we needed to learn for it.

Interviewer: Do you use computers often at school?

Interviewee: Not really, no only for a computer class like we usually use the book as opposed to computers.

Interviewer: Do you enjoy the computer class?

Interviewee: Yeah.

Interviewer: Why?

Interviewee: Because you get to look up aah, you get to learn more stuff about computers, what's on Microsoft and how to look up stuff.

Interviewer: Would you be doing internet searches and looking on websites?

Interviewee: Yeah.

Interviewer: Would you like to use computers or the book to learn all subjects?

Interviewee: The book probably.

Interviewer: Why do you think that?

Interviewee: Because there would be more stuff in the book like, you could just take out the book and sit down and revise it like, but you would have to have a computer at home and set it all up instead of just taking out the book and looking at it.

Interviewer: The book is easier to access rather than the computer, is that it?

Interviewee: Yeah.

Interviewer: Would it be easier to learn from the blackboard or would you prefer to use PowerPoint's and DVD's to learn?

Interviewee: The blackboard, I suppose as you can just take it down into the copy and you can take it out handier than trying to look up or find all the PowerPoint's you were doing on the computer.

Interviewer: As regards information do you think it's easier to learn from the blackboard than from a PowerPoint or a DVD? Would you learn more from any of these methods?

Interviewee: Am, maybe the blackboard.

Interviewer: Why?

Interviewee: You could just like study it easier from notes on a particular page rather than trying to flick through PowerPoint's and the computer.

Interviewer: Do you find it is more organised learning from the blackboard, is it?

Interviewee: Yeah and I am more used to it.

Interviewer: What would you do to improve the teaching of Irish, to motivate students to learn Irish? .....What do you feel would help?

Interviewee: Am not using the book the whole time like, using the computer every so often and then going back to the book like. So it would be fun like on the computer and then do the book and you know when you have the next chapter done you will get back on the computer again for a while.

Interviewer: What would you do on the computers?

Interviewee: Am, the PowerPoint's using all the different words to learn all the subjects like. If the teacher shows you how to do it the first time and then the students do PowerPoint's themselves.

Interviewer: How do you prefer to learn, would it be using pictures, listening, do it yourself or by speaking? Which would be your preferred method?

Interviewee: Probably by pictures because if you saw the picture then you could like learn the word and know what picture it would go with.

Interviewer: Why would you prefer learning by pictures?

Interviewee: The pictures would be more fun trying to match them with the correct word.

Interviewer: More interactive, is it? Would you find it easier to learn by using pictures or by listening to the teacher?

Interviewee: By looking at the pictures because if you don't understand you can just look at the picture and you will know it, say if you don't understand a word but with the teacher you will have to keep asking again and again until you do know it.

Interviewer: Do you feel that you prefer using the book for pronunciation in Irish or would you prefer a different method?

Interviewee: Am, yeah the book is fine you can keep looking over it like.

Interviewer: Would the book be easier as opposed to a different method?

Interviewee: Yeah, I think so.

Interviewer: Finally, do you feel I.C.T. is an important skill for the future, and that teachers should use it within their teaching methodologies or do you feel teachers should stay with the books?

Interviewee: I think you should use the computer as well because when you get older you might want to be a secretary or something like that you would need to know how to use a computer, and PowerPoint's and that.

Interviewer: That's great. Thank you very much for your time and thanks for agreeing to be interviewed today. I really appreciate it.

## **Interview with Student E**

Interviewer: I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student E.

Interviewer: How long have you been learning Irish?

Interviewee: Since first class in primary school.

Interviewer: How long is that?

Interviewee: Six years.

Interviewer: Have you ever used an educational cd-rom before?

Interviewee: Yeah, but not for Irish, we used it for Maths and English.

Interviewer: What did you do?

Interviewee: In maths it was for addition and subtraction, and for English it was for writing essays.

Interviewer: Do you think is there any advantages or disadvantages to using a cd-rom?

Interviewee: Well, like when you are using the cd and if you didn't hear something right you can just go back over it and play it again, but in the book you've to read it and you can't get the pronunciation right.

Interviewer: Do you feel that the cd motivates you to learn?

Interviewee: Yeah, it's funner to use than the book you are just flicking through pages and you can do like proper activities on the computer.

Interviewer: How do you mean proper activities?

Interviewee: Like crosswords, matching up words and dragging words over to the boxes and stuff like.

Interviewer: Do you feel you have an improved knowledge after using the cd-rom?

Interviewee: Yeah.

Interviewer: Do you know more in the topic now, or would you think you would have learned more from using the book?

Interviewee: I'd say I learned a bit more from the computer.

Interviewer: Why do you think that?

Interviewee: Because like you would be more interested, like in the book you can't aah you wouldn't be as interested the computers make it more interesting I think.

Interviewer: Do you think that including ICT in lessons or schoolwork could be of benefit to students?

Interviewee: Am.

Interviewer: Do you feel that computers help or encourage students to learn?

Interviewee: Am, yeah it encourages them to learn because they would be way more interested in them.

Interviewer: Why do you think they would be more interested?

Interviewee: They'd get sick of the book like and would rather computers I'd say.

Interviewer: Why would they rather the computers, what's different from them and the book?

Interviewee: There's more variety in computers in the book it's always the same thing kinda.

Interviewer: Do you feel you were challenged to learn and to think for yourself when you were using the cd?

Interviewee: Am, what do you mean like?

Interviewer: Did you feel that you wanted to do it yourself or would you have preferred if the teacher assisted or helped you more?

Interviewee: Ah no I got great help with all activities the teacher showed us first and then we tried to do them ourselves.

Interviewer: Would you like to do this type of project again using a cd?

Interviewee: Ah, yeah definitely.

Interviewer: Why?

Interviewee: Well it was fun like and we got a break from writing it was better to be typing the Irish for a while, it was a nice change and there was loads of different exercises to do like.

Interviewer: Do you think it is important to have ICT skills today?

Interviewee: Yeah, because like you might have to, need to be able to use a computer later on in life so you would need to know how to type Irish like or anything.

Interviewer: What did you enjoy the most on the topic 'Ar scoil'?

Interviewee: Am.... the matching the words to the pictures.

Interviewer: Why did you prefer that?

Interviewee: Because it was fun to do and if you got it wrong you just do it over again until you get it right, it was cool like if you didn't have the right answer like it would return to the start like it wouldn't go in to the box unless it was the right answer.

Interviewer: What do you feel helped you the most to understand the topic?

Interviewee: The person talking in the background doing the pronunciation.

Interviewer: Was there anything else?

Interviewee: Yeah like the spelling and the pictures and sound like was useful.

Interviewer: Why do you think the pictures and the sound helped you?

Interviewee: Aah, you would get a better meaning of the topic.

Interviewer: Do you feel that the content on the cd-rom was more motivating than the content in the book?

Interviewee: There were more activities and there was a better variety like on the cd-rom I think.

Interviewer: Can you elaborate on that please?

Interviewee: Well like there were more like typing in words and pictures and guess the names of the classrooms and stuff like that.

Interviewer: Did you feel that was better?

Interviewee: Yeah, definitely.

Interviewer: What would be your preferred method of learning 'chalk and talk' or computers?

Interviewee: Computers are more interesting like, and if you're more interested like you would learn more, yeah definitely computers.

Interviewer: Why do you feel if you were more interested that you would learn more?

Interviewee: Because like if you are not interested like it's not going to stay in your head or anything like, it's better to learn whatever way keeps you interested.

Interviewer: Can you elaborate on that please?

Interviewee: Aah like there was more variety and more activities on the cd like so it was more interesting.

Interviewer: Do you think the cd-rom makes Irish more interesting or easier to learn?

Interviewee: Yeah, cause like the pronunciation helps you to sound out the words right.

Interviewer: Does the cd facilitate the student to control the pace of learning, do you think?

Interviewee: Yeah, you can go back over it if you didn't pick up something in a sentence, so you would get it right then.

Interviewer: Do you think we should use computers to learn all subjects?

Interviewee: Am, no because you wouldn't get as much practical work done.

Interviewer: How do you mean?

Interviewee: Like if you were in metalwork like if you had to draw out the piece on the computer like it would take longer, you would draw it out faster on paper.

Interviewer: Did you feel the information on the cd was presented clearly?

Interviewee: Sometimes the sound was a bit low.

Interviewer: Were you more eager to complete the tasks than you would have been using the book?

Interviewee: Yeah definitely like 'cause I was eager to see what was on the next page because like every page was interesting so I wanted to see what was next.

Interviewer: Should we learn using computers alone or should we use computers and the book?

Interviewee: Am, both because it's more fun to switch around and like if you did too much of any of them you'd probably get sick of them.

Interviewer: Would you change anything on the cd-rom to make it better?

Interviewee: Am I would put in a crossword and more games maybe hangman or something like that.

Interviewer: Why would they be useful?

Interviewee: To help you spell the words better.

Interviewer: Did you feel the ICT helped you to learn Irish?

Interviewee: Aah, yeah it was good and it was fun like yeah.

Interviewer: Do you feel that students would be more interested in learning Irish if ICT was used regularly?

Interviewee: Yeah.

Interviewer: Why?

Interviewee: Because we have been doing 'chalk and talk' in primary school for years so it would be good to switch it around.

Interviewer: In the questionnaire you said you were undecided as to helping other classmates to learn, can you explain that please?

Interviewee: Am, because like I want to spend the time learning the stuff myself.

Interviewer: Would you learn better working with others or on your own?

Interviewee: Am, working with others I suppose because if you needed help with anything you could ask them.

Interviewer: Would you prefer to learn from the teacher and the blackboard or from PowerPoint's and DVD's?

Interviewee: I'd rather PowerPoint's maybe.

Interviewer: Why?

Interviewee: Because like you're using pictures whereas on the blackboard you have to explain it all in writing.

Interviewer: Can you expand on that please?

Interviewee: The visual is better and easier to understand.

Interviewer: Excellent. I just want to say thanks very much for your time and thanks for agreeing to be interviewed today. I really appreciate it.

## **Interview with Student F**

Interviewer: Good afternoon, I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student F.

Interviewer: Firstly, can I ask you do you use a computer at home for educational purposes?

Interviewee: Am, yeah sometimes.

Interviewer: Ok can you tell me, what you do on the computer.

Interviewee: Am, if there is a question and I can't find it in the book I just go on 'Google' and type it in.

Interviewer: So you use it as a search engine? Would you use it for anything else?

Interviewee: As a pastime playing games and going on Facebook and stuff like that.

Interviewer: Do you feel it would be motivating to use computers at school?

Interviewee: Yeah, it would be better than being at the book the whole time and you could type like and it would be a change really.

Interviewer: Have you ever used an educational cd-rom before?

Interviewee: I think I have in primary school for like educational games in maths like and for spelling.

Interviewer: Did you feel it was useful?

Interviewee: Yeah, it was fun.

Interviewer: Why is that?

Interviewee: Because in a book all the pictures are there but when you are on a computer all the pictures are moving and it's more fun to actually do it than doing it in the book.

Interviewer: Do you prefer to use a book rather than a computer in school?

Interviewee: Am, it depends on what subjects, like subjects like Irish, Geography and English I would like to use a computer like.

Interviewer: Why would you prefer to use a computer for them subjects?

Interviewee: Because they are subjects that you usually use a book for and you get bored of the book. But for Maths and Technical Graphics I would prefer to use a pencil and draw it out as opposed to using a mouse.

Interviewer: Did you enjoy the topic 'Ar scoil' in the book?

Interviewee: Yeah, I enjoyed the chapter.

Interviewer: What did you enjoy the most?

Interviewee: Am, learning the rooms, subjects and feelings.

Interviewer: Do you feel you know the topic better now?

Interviewee: Yeah, definitely, I learned a good bit more.

Interviewer: What helped you most to learn in that chapter?

Interviewee: I like when it is all listed out in the book, I don't like matching up I find it is easier to learn a list.

Interviewer: Did you get enough support from the teacher to help you learn the chapter?

Interviewee: Yeah.

Interviewer: Do you use computers often at school?

Interviewee: Well we have a computer class but I don't really like it because it is all about Microsoft word, I think it would be better if we were learning about the internet and things like that. It is still good like but sometimes it gets a bit boring like when you only using Microsoft word.

Interviewer: Why do you think it would be better if you were learning about the internet?

Interviewee: Because there is a lot more things to do on the internet and there is more things you can do like when I am at home there is loads a things I am wondering what this is about and I would like to learn about them.

Interviewer: Can you give an example of what you would like to learn about?

Interviewee: Am like how to make a website or how the actual internet works like, or say like if you write something on Facebook like how it sends to other computers so that they can see it.

Interviewer: Would you like to use the computer or the book to learn all subjects?

Interviewee: Ah well it depends like for practical subjects I would like to just use my hands and pencils like I said.

Interviewer: Would you prefer to learn from the teacher and the blackboard or from PowerPoint's and DVD's?

Interviewee: Like the electronic aah interactive ones?

Interviewer: Well even the ordinary blackboard.

Interviewee: I would prefer PowerPoint's and DVD's I think you learn more from a DVD like say if you were in geography just for example you are studying a volcano and labelling all the different parts on the blackboard if that was on a DVD even a few minutes long you learn a lot more about it and the way it works.

Interviewer: How could you incorporate a DVD in to a lesson?

Interviewee: For diagrams or stories for English or Irish like remember when we were doing 'Clare sa Spéir' that was fun.

Interviewer: What was 'Clare sa spéir'?

Interviewee: It was just a short movie in Irish of Clare who was sick of her family life and she wanted to be on her own for a while so she decided to go up into a tree-house for a month to beat a world record.

Interviewer: Why did you like that DVD?

Interviewee: I just preferred watching it on the movie as opposed to reading it.

Interviewer: Did you find it easier watching the DVD as opposed to if you had read it in the book?

Interviewee: Yeah, because you're just watching it but on a book you are following others reading or you are reading yourself and you're getting stuck on words maybe, the DVD you have just to listen to it.

Interviewer: You mentioned an interactive whiteboard earlier can you tell me about that please?

Interviewee: We had one in primary school but we never really used it like because our teacher didn't really understand how it worked. But, we had a substitute teacher who came in for about two weeks and she kinda used it and it was good.

Interviewer: Why did you like it?

Interviewee: Well instead of diagrams she could show us pictures like when we were doing maths you could get this protractor and use it, it was just there it was not a real one. It was easier to see because sometimes it can be a bit vague but once you typed a word on it, it was really clear.

Interviewer: Would an interactive whiteboard be better than a blackboard?

Interviewee: Yeah.

Interviewer: What would you do to improve the teaching of Irish or to motivate students to learn Irish?

Interviewee: When I am learning I like to write out things and doing different things so the interactive whiteboard would be good because there is lots of things you can do on it and like aah it's more creative.

Interviewer: Would you prefer to learn using pictures, listening to the teacher, by doing things or by speaking?

Interviewee: I like, am it depends on what you're doing but I like speaking and doing things not really doing things on the board more talking things through and the teacher explaining.

Interviewer: What would be good as regards speaking and doing things to motivate you to learn more Irish?

Interviewee: More pictures, more talking, less things in the book that are kind of pointless.

Interviewer: Can you elaborate on that please?

Interviewee: Sometimes in the book there are stupid things on the page that you don't really need; do you know what I mean like?

Interviewer: Do you mean they do not serve any purpose?

Interviewee: Yeah, sometimes not all the time though.

Interviewer: What would you do instead?

Interviewee: I would make the book clearer and maybe the teacher to explain if needs be.

Interviewer: Would you feel computers would help you improve or stay with using the book and develop it more?

Interviewee: Well on the computer the teacher is still there so you could still ask questions so I would prefer the computer because there are more things to do on it. The teacher can help you but it wouldn't be as much fun as much of a novelty if you kept doing it like, it would become boring like the book maybe.

Interviewer: Excellent. I just want to say thanks very much for your time and thanks for agreeing to be interviewed today. I really appreciate it.

## Interview with Student G

Interviewer: Good afternoon, I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student G.

Interviewer: Firstly, can I ask you do you use a computer at home for educational purposes?

Interviewee: Sometimes, when I'm typing like stories and that.

Interviewer: Can you elaborate on that a bit please?

Interviewee: Essays like for English or Irish and stuff like that.

Interviewer: Would you prefer to learn using computers or using a book, do you think?

Interviewee: A book probably.

Interviewer: Why is that?

Interviewee: Or maybe computers.... computers seems easier.

Interviewer: Why do you think computers would be easier?

Interviewee: I don't know.

Interviewer: Have you used an educational cd-rom before to learn.

Interviewee: No, but in primary school we used to go on a website and they would give us stuff to do at home on the website.

Interviewer: Did you enjoy that?

Interviewee: Yeah, it was good.

Interviewer: Why?

Interviewee: Am it just seemed easier than a book because am... I don't know am computers are more modern like am I don't know I just liked it better.

Interviewer: Ok and did you feel that you learned more from the computer than the book?

Interviewee: I'd say more from the computer.

Interviewer: Why do you think that was the case?

Interviewee: I don't know the things are more laid out properly more organised and stuff

Interviewer: What were you doing on the website on the computer?

Interviewee: Like Maths stuff and English stuff. Like am there was questions and stuff and am...

Interviewer: Ok so it was all questions?

Interviewee: Yeah.

Interviewer: When you were doing the topic "Ar Scoil" in Irish did you enjoy that?

Interviewee: Yeah it was good.

Interviewer: Do you understand the topic better now or what helped you most?

Interviewee: Can you repeat the question please?

Interviewer: Do you understand the topic better now?

Interviewee: Well I didn't use the computer so I don't know I used the book and it was good.

Interviewer: Did you get enough support from the teacher?

Interviewee: Yes.

Interviewer: Do you use computers at school?

Interviewee: Am only in computer class.

Interviewer: Do you enjoy that computer class?

Interviewee: Yeah.

Interviewer: What do you do in that class?

Interviewee: Well am we do exercises from a book.

Interviewer: Do you enjoy that?

Interviewee: It's easier than writing like using the keyboard and I just enjoy it more.

Interviewer: Would you like to use computers or the book to learn all subjects?

Interviewee: I'd like to use computers.

Interviewer: Why would you like to use computers?

Interviewee: I don't really like writing and I like typing. It's easier I think.

Interviewer: Are there any other reasons?

Interviewee: It is better laid out like.

Interviewer: Would you prefer to learn from the teacher using the blackboard or from PowerPoint's and DVD's

Interviewee: The blackboard probably.

Interviewer: Why?

Interviewee: Because if you make a mistake it's easier to fix straight away on the blackboard, but it's not on a DVD.

Interviewer: Do you think you would learn more from the blackboard or a PowerPoint or DVD?

Interviewee: The blackboard.

Interviewer: What would you do to improve the learning of Irish, to motivate and encourage students to learn Irish?

Interviewee: If you used computers more they might be more attracted to it because computers are more modern and stuff?

Interviewer: Can you elaborate on that please?

Interviewee: People are using computers more these days compared to before.

Interviewer: What difference would that make? Do you think it's a necessary skill to have?

Interviewee: Yeah probably like because when we get older like we'll probably see them in our lives a bit more.

Interviewer: How do you prefer to learn, using pictures, listening to the teacher, would you prefer to do things or speak things out to learn them?

Interviewee: Listening to the teacher and doing exercises.

Interviewer: Why would you prefer that?

Interviewee: Well like you wouldn't be under pressure like if you were talking and stuff. Like if you were shy or something like some people are shy to talk in class and stuff.

Interviewer: Okay so you would prefer to listen to the teacher and do various exercises.

Interviewee: Yeah.

Interviewer: Finally what would be your preferred method of learning chalk and talk or computers.

Interviewee: Well, I haven't really used computers in school to learn like so I don't really know. I only use them at home

Interviewer: What do you use them at home for?

Interviewee: Typing essays or going on the Internet on websites for school stuff.

Interviewer: Okay so from the knowledge you have of computers at home which do you think you would prefer?

Interviewee: I'd say computers because it's new, we haven't really done it before like, we're using books all our lives so I'd just like to try using computers.

Interviewer: Excellent, thanks very much for your time and agreeing to do the interview.

## **Interview with Student H**

Interviewer: Good afternoon, I would like to thank you for agreeing to be interviewed today. I would like to assure you that the answers you provide will be treated confidentially and you will not be identified in this study. In the final thesis you will be referred to as Student H.

Interviewer: Firstly, can I ask you how long have you been learning Irish?

Interviewee: Am, six years.

Interviewer: Ok, and do you use Computers much in an educational context?

Interviewee: No.

Interviewer: Have you used an educational Cd-Rom before?

Interviewee: Yeah.

Interviewer: Can you tell me about that please?

Interviewee: We used it to learn about animals in primary.

Interviewer: Did you enjoy it?

Interviewee: Yeah it was great craic.

Interviewer: Why?

Interviewee: It had a load of pictures of the animals and sometimes you could make them move and we went on video.

Interviewer: And why did you enjoy that?

Interviewee: Am... because it was different and fun.

Interviewer: Would you feel there are advantages or disadvantages to using a Cd-Rom?

Interviewee: Well it was easier to use than books and more motivating.

Interviewer: Why was it more motivating?

Interviewee: It was fun and you are more likely to go on computers than pick up a book.

Interviewer: Do you think using ICT in school could be of benefit to students?

Interviewee: Yeah, cause you can look up anything on the internet like.

Interviewer: Were you challenged to learn or to think for yourself when you were using the Cd-Rom for learning Irish?

Interviewee: Yeah definitely like reading the comprehensions you have to understand it to answer the questions.

Interviewer: Would you like to do this type of a project again?

Interviewee: Yeah.

Interviewer: Why?

Interviewee: It was fun and you could go at your own pace.

Interviewer: Do you feel it is important to have ICT or computer skills today?

Interviewee: Yeah, you need it computers and advanced technologies are everywhere now.

Interviewer: What helped you the most to understand the topic “Ar Scoil”?

Interviewee: The pronunciation and the pictures, you can hear the sound of the new words instead of just reading them.

Interviewer: When you say about more pictures how do they help do you think?

Interviewee: Well, you can aah understand it better then like, I think.

Interviewer: What would be your preferred method of learning chalk and talk or computers?

Interviewee: Computers and like they are handier and there is more things on it?

Interviewer: How do you mean there is more things on it?

Interviewee: Well like you can look up the internet like for studying.

Interviewer: Do you think it makes Irish easier to learn?

Interviewee: Yeah, I suppose it does like with all the pronunciations and stuff like.

Interviewer: Do you feel you would prefer to learn all subjects using ICT?

Interviewee: Well, aah most subjects I would but you would need the book for some.

Interviewer: Can you explain please?

Interviewee: There are more exercises on the computers for some subjects I think as opposed to others.

Interviewer: Did you think that ICT had a positive, negative or no effect on your learning.

Interviewee: I'd say positive because I am interested in computers like and I found it good, I'd like to do more topics using computers.

Interviewer: Would you prefer to learn from the teacher using the blackboard or pictures and video.

Interviewee: Pictures and video, but have the teacher talking as well, mixing them in together would be a good idea like the video you see what's going on and then the teacher explain.

Interviewer: Do you feel the software facilitated the student to control the pace of learning?

Interviewee: Yeah it did because like if you were missing a class on computers you can go back yourself but like in class the teacher can't go back all the time.

Interviewer: As regards sound did you feel it helped with pronunciation?

Interviewer: Yeah it did definitely.

Interviewer: Did the cd motivate you to learn more?

Interviewee: I suppose yeah it did like because I paid more attention to the pictures and the stories as I could hear the sound and understand the word like.

Interviewer: Why did you pay more attention do you think?

Interviewee: You follow the pictures and you listen to the story on the Cd instead of just looking around, I was more focused I think.

Interviewer: Do you think students would be more interested in learning Irish if ICT was used regularly in class?

Interviewee: I suppose yeah people prefer using computers and there is always copies of discs but like if you lose your book like you can't do work on that subject. A disc is easier to carry around.

Interviewer: Do you feel it is important that teachers use ICT today?

Interviewee: I suppose it doesn't really matter like but if you use ICT it just gets students more interested instead of using books.

Interviewer: Why do you think it would get students more interested?

Interviewee: Usually on the computer there is more exercises than in the book, there's more games like and you're learning.

Interviewer: Would you prefer to work on your own or in a group?

Interviewee: On my own as there wouldn't be as many distractions like.

Interviewer: Do you think ICT improves the learning process?

Interviewee: It's easier to see things and you understand it better.

Interviewer: Do you feel you would be more motivated to learn Irish using ICT or not?

Interviewee: Yeah you would be as you could be reading things and listening more I think.

Interviewer: Excellent, thanks very much for your time and agreeing to do the interview.

# **Appendix 10**

## **Certificate of Participation**

*Rinne an dalta seo a dhícheall sa  
topaic ar scoil*



Maith thú, Fuair tú grád maith sa scrudú.  
Lean ar aghaidh leis an dea oibre!!!

Bronnaithe Do:  
Data: 10/05/11