OECD/CERI ICT PROGRAMME

A Case Study of ICT and School Improvement

at

Scoil Peadar & Pól

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Introduction

The following study for the OECD qualitative research ICT and the Quality of Learning was carried out during December 2000 and February 2001 at Scoil Peadar & Pól, Ireland. The research focuses upon school innovation and the part that Information and Communication Technology (ICT) has played in that innovation. The data collection was carried out by means of interviews with parents, teachers, children, lesson observation and analysis of survey for teachers, children and school documents.

Overview

Description of School

Scoil Peadar & Pól is a three teacher mixed school in a Gaeltacht area (Irish speaking) of Cork. The school has eighty one (81) pupils on roll, all living locally. The main source of income is farming with the exception of the local factory. This factory produces high quality jewellery and other souvenir items for national and international distribution. The Swedish owner of the factory provides funding and support for the school in matters relating to ICT. He is also a parent of two children attending the school. The present school was built in 1987. Two older schools were amalgamated to form one school. This change was welcomed by parents and

teachers as the new school is fully equipped with all the necessary furnishings to create a proper learning environment for the children. The older schools lacked proper heating and sanitary facilities.

The teachers, two male and one female, live locally, are part of the community and from evidence obtained through interviews and observations, it is clear that they are respected by all the parents. In fact the teachers would have taught most of the parents. This creates a warm and caring atmosphere within the school, where the children feel free to talk to any teacher at anytime. Discipline problems are rare. All subjects are taught through the medium of Irish. However, the children are fluent in both Irish and English.

The school has three classrooms with en-suite facilities, a staff room, an office, store room and an all purpose room, that serves as meeting hall and gymnasium. The school has a full basketball pitch and green area for sports. The school, though small in size, is viewed as a centre of excellence in relation to ICT. Many distinguished guests have visited the school, including two Ministers for Education. Photographs and newspaper cuttings of these visits are displayed in the school corridor. Parents commented favourably on the excitement these visits created in the village when Ministerial cars and police escorts arrived at the school.

The school facilities are used by the National Centre for Technology for in-service ICT courses for teachers from the surrounding districts during the month of July.

The principal has been teaching for forty-four years and thirty two of those years as principal of Scoil Peadar & Pól. He replaced his mother as principal of the school. The two assistants have been teaching for thirty-seven and twenty-eight years. This experienced staff work well together creating a very stable learning environment. The school has a part time secretary and a shared learning support teacher.

Extra curricular activities include games, drama, music and participating in local and national competitions incorporating aspects of Irish language and culture. The school has many trophies for the Slógadh festival. This national festival invites entries from primary and secondary schools, where the children sing, dance, recite poems and perform plays through the medium of Irish.

Classes in Scoil Peadar & Pól	No. of pupils
Junior Class (Infants, Senior Infants and 1st Class) Three classes	29
Middle Class (2nd , 3rd and 4th.) Three classes	28
Senior Class (5th and 6th) Two classes	24

The Reform and ICT in the School

The history of ICT and Scoil Peadar & Pól dates back to 1989. The Principal entered a competition organised through the Connemara Gaeltacht. This curriculum competition invited entries from all Gaeltacht schools. The schools were requested to prepare a project on their own local Gaeltacht area. The prize was a school computer. This competition later led to a curriculum innovation put in place by the principal. After many years of teaching, the principal began to evaluate the national curriculum of 1971 and its effectiveness within his school. He embarked on a Local Based Curriculum. This curriculum was based on the local environment. He decided to base all his teaching around the local area, geography, history, maths, reading, both Irish and English, science, environmental studies etc. Children began reading local folklore, interviewing the elderly within the community, writing their stories, visiting places of interest, working mathematical problems based on distance, time, percentages etc., all dealing with local problems.

The Principal entered a project based on this work and won the computer. Today the school has twenty-eight computers. Nine computers in each classroom with the extra computer used by the learning support teacher. The computers are networked for printing but are not on line for the WWW. The school has a colour printer in each room. The senior class has access to two digital cameras a scanner, and a midi system with keyboard. The junior and middle classes use a variety of content rich software while the senior classes use content free software to produce their own local software.

Classroom observations and interviews with principal suggest the reform/ innovation re. the local based curriculum is successful in the senior classes. No evidence exists of widespread use of this Local Based Curriculum innovation in the remaining two classrooms.

The Past

History of the Reform

As described above the school first introduced computers in 1989 as a result of winning the Gaeltacht competition. The principal soon discovered that this computer could be used to help his innovative Local Based Curriculum. With very little experience in ICT he began to teach himself the basic rudiments of computing. He enlisted the help of a computer engineer working in the local factory. Together they managed to create a programme that would display his project in computer form. This opened up opportunities for further computer use in his teaching. Over the years the principal managed to gather more computers for the school through local sponsorship and parental help. At first the computers were used in the senior class with a single unit in each of the other two classes. Following the publication of the Department of Education s IT2000 Policy and the delivery of a free computer plus an extra phone line for use with the WWW the school embarked on a major drive to equip all classes with computers. This again was achieved through sponsorship, by a local computer manufacturer. The school is a magnet school for the Irish National Teachers Organisation (INTO) attracting other teachers to complete in-service within the school. Since 1998 the Board of Management of the school has installed nine computers in each classroom. This gives the school a ration of 1:3 (one computer for every three children).

History of ICT

The principal is self-taught on the basics but has completed courses on HTML and Dream-weaver (a web authoring package). He was appointed as an National Centre for Technology (NCTE) tutor and has prepared and presented many courses on ICT for primary teachers. The remaining staff members have completed NCTE Phase One and Two while the teacher in the middle classes is completing the ECDL programme on his own time.
Informal training also continues in the school. The principal is always willing to help in any way with minor problems that occur. All teachers agreed that in-service needs to address curriculum more than skills. Teachers need to be shown where ICT can improve teaching and learning. More emphasis needs to be placed on integration rather than technology skills. The principal is guided by his belief that while ICT skills are important for teachers, an enthusiasm for and interest in teaching is more important.

Barriers which were overcome

The principal is the main adopter of this ICT innovation. However it must be remembered that ICT in itself was not the catalyst for change within this school. The principal saw ICT as an opportunity to enhance his main change and improvement ie. The Local Based Curriculum. Fellow teachers were not forced to change but encouraged to use ICT whenever possible. This method has led to a gradual increase in computer usage in all classes. In summary, while the principal was the main adopter there was little or no resistance to ICT as the teachers were not under pressure to conform. Parents, Board of Management and the local community were supportive at all times.

School Integration Project
The NCTE funded a number of SIP Projects throughout the country. Scoil Peadar & Pól is the lead school in one of the NCTE SIP Projects. Five schools in the surrounding area are currently working together producing web sites on local history. The principal in Scoil Peadar & Pól encourages his fellow principals by offering in-service on the use of ICT. The group meets regularly supporting each other in learning new skills re. web

authoring software and web site content.

The Present

Description of the reform

Class	No. of Computers	Peripherals
Junior Classes (3)	9	Printer
Middle Classes(3)	9	Printer
Senior Classes (2)	9	Printer, Scanner, 2 Digital Cameras, Midi + Keyboard, internet access
Learning Support Room	1	

All classes have access to computers in their own classrooms. As frequently found in rural settings this school has multiple classes in each room. This can and does create its own difficulties. The teachers must complete many programmes at many levels. This involves a great variety of texts and teaching styles. Time and organisation skills are needed to complete the programmes. ICT use varies in all classes even within the same classroom. Boys and girls have equal access. However, teachers disagree when it comes to whether boys or girls use the computers more.

I do notice more girls using it, for some reason younger boys prefer construction, working with concrete things more, and girls like writing on the whole a lot more, they seem to go to it, although boys like using the CDs. We have quite a lot, but I think the girls do more writing, creative writing.
Junior Class Teacher

Some girls are very interested and encourage other girls to join in. It really depends on how forceful the boys are. Overall I would say the boys make more use of the computers.
Senior Class Teacher

Observations in the junior classes suggest that girls will devote much time to ensuring their written work is neat, tidy and well prepared while the boys will experiment with all the menu bars in the word-processing package in use. In the senior classes evidence suggests the boys again devote more time to the mechanics of ICT re. camera usage, sound quality and website design. However it should be remembered that there are exceptions in all classes. One particular female student was very keen on HTML and was seen as the class expert by all children in the classroom.

There is no fixed time-table for computer use but many children use the computers during break time, particularly in the junior and middle classes. Use ranges from simple word-processing activities to using encyclopaedia CD Roms and some educational programmes. The children in the senior class have more freedom and use computers throughout the day, everyday, once they follow the strict guidelines set down by the school.

- E-mail : Only while teacher is present
- No games
- Internet: Under supervision and only to designated sites

Description of ICT in the school

The ICT Survey and classroom observations clearly show that all teachers are comfortable with

word-processing and using content rich software in the classroom. However, while the principal has vast experience in using HTML and web authoring packages very little use of the Internet was observed during the school visit. The junior classes use a variety of software to promote reading and writing. The children in this junior class use a phonics programme produced using PowerPoint by the Learning Support Teacher. The middle class again use word-processing, a typing tutor and interactive CDs on History, Geography and Science. However these programmes do not form part of the school day. The children in this class access the computers during break-time or when they have completed their class assignments.

By the time the children reach the senior classes they have mastered the basic skills, ie. loading and running a programme and word-processing. This is a reflection of both the teachers interest and skills. In the senior classes the children are introduced to HTML, PowerPoint, Hyperstudio, Dreamweaver, Excel and the use of sound recording, scanners and digital cameras. These programmes and peripherals form part of the Local Based Curriculum. The children learn from each other and help one another at all times. While they have very little access to the Internet, they produce material to be viewed using an internet browser.

All children in the classroom produce projects on the locality. The class teacher chooses topics and the children are given freedom on content and mode of presentation. The children work in-groups or individually to complete the work. These projects are passed on from child to child and form part of their learning programme. When creating these projects the children are aware that they are creating learning packages for use by other children in the classroom. At times they include quizzes and tests at the end of the project to ensure the lesson is reinforced.

Topics include:-

- Electricity and the ESB
- Brian Boru and the Battle of Clontarf
- The Normans in Ireland
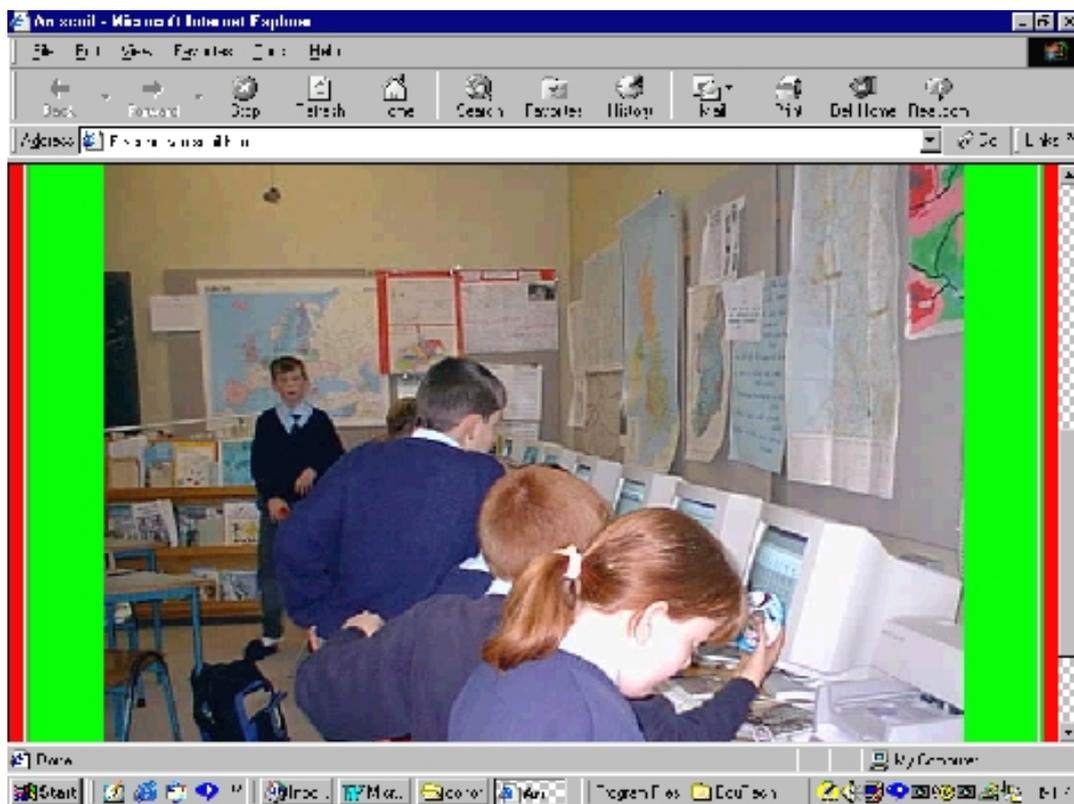
Children working on local project

All school based writing assignments are computer based. Children have free access to two digital cameras. Cameras are taken home and images are produced to enhance their written work. Sound is also included where

needed. The class is extremely relaxed, with the principal seen as the facilitator and guide, while the children produce the material. The principal believes that the children are more interested in working with material produced by themselves rather than using commercially produced software. He also states that using ICT promotes problem solving skills by giving less academically oriented children the opportunity to be part of a team.

Parents interviewed agreed that no aspect of the curriculum suffers or is neglected in this classroom. All expressed the view that children on leaving this school do very well academically at second level*. (view attached CD)*

The principal makes full use of ICT in the day to day administration of the school. All school records are prepared using MSExcel. All school accounts are completed using MSExcel. A complete data base of all school resources has been produced using MSAccess. This document saves staff time and provides details of all videos, books, audio tapes etc. relating to the subjects being taught.

ICT Teaching Styles

Teaching styles vary in this school. Multiple classes demand constant group teaching. Children in the junior classes are accustomed to working on their own from an early age. Observations confirmed that group teaching in the junior classes created independent students willing to help one another throughout the school day. While the teachers in the junior and middle classrooms freely admit to be of the old school , they both manage to use ICT in a less structured approach. The principal s style of teaching is in line with the constructivist approach where the teacher is viewed as facilitator and guide rather than the holder of all knowledge. Observation in the senior class confirmed that ICT is incorporated into all aspects of the curriculum in this classroom.

ICT Problems

Availability of appropriate software is seen as the main problem in this school. While the principal is happy using content free software, the other teachers expressed concern re. the lack of appropriate software for use in Irish schools. They also voiced concern re. the in-service provided by the Department of Education and Science. They have the basic skills and now need direction and guidance on how best to incorporate these skills into their teaching. The internet was also viewed as inappropriate for this age group. Material on the WWW is geared towards a more mature student. The teachers see time spent browsing the WWW as a waste of time, particularly when using a standard phone line. Parents interviewed, while having access to the WWW at home, also expressed that their younger children did not use it for school related work. They did admit that older children used it and one parent used the WWW regularly in matters relating to the family farm business.

Maintenance

Maintenance in not perceived as a major problem at this site. All the computers were donated free of charge and manufactured locally. The principal manages to solve any minor problem and if a major problem occurs, the computer is returned to the factory and repaired without any charge. This arrangement, while ideal could not be duplicated in another site. Maintenance will become a problem when the principal retires. As the computers are relatively new no major mechanical problem has arisen. As the computers are not networked for WWW use, technical support is not needed to service the network.

Hypotheses

Hypothesis 1.

Technology is a strong catalyst for educational innovation and improvement, especially when the World Wide Web is involved. The rival hypothesis is that where true school-wide improvement is found, technology served only as an additional resource and not as a catalyst, that the forces that drove the improvements also drove the application of technology to specific educational problems.

While ICT is now part of the programme in Scoil Peadar & Pól, it was only accepted when it was recognised by the principal as having the necessary facilities to improve and compliment his Local Based Curriculum innovation. Use of the WWW and e-mail is very limited and is not seen as promoting educational objectives throughout the school.
Technology was adopted by the principal and gradually spread throughout the whole school. Technology helped change teaching style, particularly in the senior class. All members of staff have adopted ICT to varying degrees.

ICT is seen by all staff as a tool to enhance learning and teaching. ICT is appreciated by staff as a resource to be used to present material, often of a local nature, in a modern and stimulating way. ICT is viewed as a tool to motivate the children to discover and work with locally generated material. Teaching methods have not changed drastically in two of the three classes and the WWW is not used throughout the school.

Summary: It appears that the rival hypothesis holds at Scoil Peadar & Pól.

Hypothesis 2.

The diffusion of the innovation/improvement (and therefore of ICT) followed the traditional diffusion pattern for innovations, as outlined by Rogers (1995). The rival hypothesis is that technology functions differently from traditional innovations and that therefore different diffusion patterns occur.

The data collected at Scoil Peadar & Pól verifies that the first part of hypothesis two (2) holds at this site. The principal is clearly seen as the innovator. His characteristics fit clearly with Roger s (1995) description of innovators, other than having access to substantial financial resources. He is venturesome, has many years of formal education with an additional degree from NUI Galway in Economics and Education. He has a high social status in the community, is able to cope with high degree of uncertainty, has many contacts outside the teaching profession and is highly regarded by his colleagues. He is viewed by many as an expert in the field of ICT and education. He has prepared and presented courses on ICT for many colleagues in the teaching profession. The DES has honoured the school with visits from two Ministers of Education. His approach to involving his staff in the ICT innovation has led to a harmonious atmosphere without any teacher feeling threatened or unduly pressurised into accepting technology into their classroom. He leads by example and by showing how ICT can enhance the curriculum. The staff also fit neatly with Roger s (1995) description of *Early and Late Majority*. There is no evidence of *Laggards* at this site.

Summary : There is no evidence to support the rival hypothesis at this site.

Hypothesis 3.

Successful implementation of ICT depends mostly upon staff competence in the integration of ICT into instruction and learning. This hypothesis assumes that teachers mediate ICT applications when they are successful, and that ICT s academic value relates positively to teacher competence. The rival hypothesis is that the school technological infrastructure and student ICT competence rather than staff competence determine ICT implementation outcomes

While staff competence in integrating ICT into instruction and learning is clearly evident in the senior class, the children in the middle classes use technology without much assistance from their teacher. During classroom

observations in the junior classes, children were seen helping and coaching each other while working with ICT. The computers are available in the room giving the children the opportunity to use them when time permits.

Students and teacher in the senior classes (5th & 6th) integrate all subjects with technology. The teacher in the senior class is very competent in the use of ICT and views technology as an important and effective educational tool

Summary:- There is evidence to support both hypotheses at Scoil Peadar & Pól.

Hypothesis 4.

Gaps in academic performance between high and low poverty students will not increase when all students have equal access to ICT. The rival hypothesis is that equal access to ICT will lead to more advantaged students increasing the performance gap with disadvantaged (high poverty) students.

All teachers in Scoil Peadar & Pól agreed that children from high poverty backgrounds are less inclined to use ICT on their own initiative. Without access to home computers these children are at a disadvantage in the classroom. Parent interviews confirm this finding. All parents interviewed had home computers and outlined the use their children made of the home PC. This ranged from playing games to completing simple word-processing exercises. However, no evidence of a direct link with homework and computers was found.

As the majority of children at this site were from a low poverty background it is difficult to show by means of evidence the case for and against this hypothesis.

Summary:- Within these constraints the rival hypothesis holds.

Hypothesis 5

Successful implementation of ICT will lead to the same or higher academic standards in spite of the low quality of many ICT materials. Academic standards are a function of teacher and school expectations and not of the standards of textbooks, ICT materials, and the like. The alternative hypothesis is that ICT use will lead to a lowering of academic standards as students spend more time on marginally beneficial searches and in browsing poor quality Web and courseware content.

The principal and staff of Scoil Peadar & Pól agree that it s the function of the teachers and schools to ensure academic standards are maintained. The principal uses only content free software. This allows him to engage the children in producing their own software. These programmes, produced through PowerPoint and by HTML, are used by other children in the class as reinforcement and revision tools. Maths, Gaeilge, English, Geography, History are all taught using this home produced software. The WWW is used rarely and when it is, the children have only access to sites chosen in advance by the teacher.

All teachers are very dissatisfied with quality and range of appropriate software available. Computer use in all classes is based on the national and local based curriculum. Students must obey strict rules regarding computer usage in this school. Games are not allowed on school computers other than games with an educational content. These games are mostly used in the junior classes. Software is always evaluated by staff, prior to children using it in the classroom.

There is support for the alternative hypothesis in that teachers have chosen not to integrate the internet into their lessons as they fear that it will have a negative affect on academic standards.

In summary all teachers agree that ICT is an excellent motivational tool and when properly used will benefit the

children, however no real evidence, ie. examination results, exists to prove the success of ICT regarding academic standards.

Summary:- There is evidence to support both hypothesis at this site.

We do not use the WWW as we are fearful of undesirable sites and as a staff we consider the WWW is not needed in primary school
Principal Teacher

Projection to the Future

Sustainability

Will the Local Based Curriculum and ICT innovations survive in this school? The evidence from this site would probably suggest yes. The driving force for both innovations is the principal. He readily admits that he has very little time left in the school as principal and he cannot guarantee the next principal will have his vision and enthusiasm. However he will leave the school fully equipped with up to date computers and a tradition of innovation. This in itself will be difficult to change. The children, parents and the local community have become accustomed to having this facility in the school. They worked hard to ensure their school is a centre of excellence and may not let the innovation move on when this principal retires. The principal is still planning for the future. The school will invest in a digital video camera and editing equipment. This will be used to record the lives of the elderly in the community. More time will be spent on digital sound recording. Plans are in place to make international / European school contacts to promote the use of ICT in education. However, interviews with staff shed some doubts re. their interest and commitment to both innovations even though both teachers have completed in-service courses on ICT.

Transferability

Could this ICT innovation/reform be replicated in another school? Evidence from this site would suggest no. The personal interest and commitment of the present principal in the school would be difficult to achieve at another site. In general, schools find it very difficult to raise funds to equip the school with computer hardware and software. Funding at this site was not a major problem as the principal had close contacts with a local industry willing to supply and maintain all equipment free of charge.

Further Issues

Interviews with parents did raise some issues that should be noted

- Parents felt there was an over emphasis on academic standards in the school
- Parents felt there is a need for more extra curricular activities, especially in relation to sport.

Teachers also commented on

- ICT in-service and the need to provide exemplars in relation to more material on ICT and integration in the classroom
- ICT and English
- ICT and Maths
- ICT and Science
- ICT and Environmental Studies
- More appropriate software for classroom use

- Software with Irish content and supportive of the Irish School Curriculum
- More support from the DES Inspectors
- Inspectors should encourage more use of ICT and value the work of teachers using ICT in the classroom

The principal felt justified in introducing his Local Based Curriculum as the Curriculum of 1999 emphasises the role of the locality in all aspects of the school programme. He also agreed that the Curriculum promotes the use of ICT and gives teachers the opportunity to integrate ICT into their teaching and children s learning.

Appendix A
ICT Use Survey for Teachers
Scoil Peadar & Pól, Ireland

3 teachers filled out this questionnaire (n = 3).

- How comfortable are you with using a computer to do each of the following? (Choices are:, very comfortable, comfortable, somewhat comfortable, not at all comfortable)

		very com-fortable	com-fortable	somewhat com-fortable	not at all com-fortable
1.	write a paper	3			
2.	search for information on the World Wide Web	1			2
3.	create and maintain web pages	1			2
4.	use a data base	1	1		1
5.	develop a data base	1	1		1
6.	send or receive e-mail	1	1		1
7.	Write a programme)	1		1	1
8.	draw a picture or diagram	2	1		

" How important is each of the following computer-related skills for your teaching? Choices are (very important, important, so-so, not important at all)

		Very important	important	So-so	Not important at all
10	Write a paper with a word processor	3			
11	Search for information on the WWW		1	1	1
12	Create web pages	1		1	1
13	Use a data base	2			1
14	Develop a data base	2			1
15	Send and receive e-mail		2		1
16	Write a programme				3
17	Draw a picture or diagram with a graphing/drawing application	2	1		
18	Present information (e.g. using PowerPoint or equivalent)	2			1

" During the past school year, how often do your students on average do the following for the work you

assigned? (Choices are: several times each week, several times each month, a few times, never)

		Several times each week	Several times each month	A few times	never
19.	use the World Wide Web			1	2
20.	create web pages	1			2
21.	send or receive e-mail		1		2
22.	use a word processing program	2	1		
23.	use a computer to play games	1		1	1
24.	use a spreadsheet	1		1	1
25.	use a graphics program	2		1	
26.	join in an on-line forum or chat room				3
27.	use a presentation programme	2			1
28.	use an instructional programme (including simulations)	2	1		
29.	Other computer uses (specify)				

30. How would you rate your ability to use a computer? (Choices are: good, fair, poor)

2	good
1	fair
0	poor

31. Was student computer use ever evaluated for grading? (yes-no)

0	yes
3	no

32. If you assign World Wide Web searching, how much freedom do you allow students in locating sites to visit? (no restrictions, some restrictions, designated sites only)

0	no restrictions
0	some restrictions
3	designated sites only

33. Do you create or modify a Web site with any of the classes that you taught? (yes-no)

1	yes
2	no

34. What portion of the computer use in your classes was directly related to the course content (all, most, some, very little)

1	all
1	most
1	some
0	very little

35. What portion of the computer use that you assign is done by students individually? (all, most, some, very little)

2	all
1	most
0	some
0	very little

36. If you have a computer at home how often do you it at home for preparing for teaching?

1	Several times a week
0	Several times a month
1	A few times
	Never
1	No computer

37. Did you participate as a student or instructor in a virtual course through the Internet/World Wide Web? (yes-no)

0	yes
3	no

38. Have you ever involved your students in collaborative learning over the Internet/World Wide Web with students from other classes? (yes-no)

0	yes
3	no

39. Are you currently using technology to collaborate with other teachers (professional chat rooms, forums, or the like?) (yes-no)

0	yes
3	no

40. How many e-mail messages do you send each week on average (more than 12, 6-11, 1-5,

none).

1	more than 12
0	6-11
0	1-5
2	none

" Have you ever done any of the following? (Choices are: yes, no)

		yes	no
41.	made changes to a computer s hardware	1	2
42.	installed an update to an application program (word processor, graphics program, etc.)	1	2
43.	recovered a damaged file	1	2
44.	created a web site	1	2
45.	developed a data base	2	1

Appendix B

Classroom Observations, Interviews,

Scoil Peadar & Pól, Ireland,
Classes, Teachers and lessons observed

Interviews:

Teachers	2	40 mins	David O Grady & Oliver Mc Garr	11.12.00
Principal & ICT Co-ordinator	1	90 mins	Dr. Jim Gleeson	15.02.01
Board of Management	1	50 Mins	David O Grady	9.02.01
Parents	2	30 mins each	David O Grady & Keith Johnson	12.12.00
Children (Group)	2	30 mins each	David O Grady & Oliver McGarr	11.12.00

Outside-of-Classroom Observations

Keith Johnston , Oliver McGarr and David O Grady

Classroom Observations

Date	No.	Class	Lesson	Software	Observer
11.12.00	29	Junior Class	Language	MS Creative Writer Multimedia Cd Roms Phonics Game	David O Grady
11.12.00	28	Middle Class	Language	MSWord Multimedia Cd Roms	Oliver Mc Garr
11.12.00	24	Senior Class	Language ICT Skills	HTML, PowerPoint, MSWord, MSExcel, DreamWeaver Hyperstudio Photo Editor	David O Grady & Oliver Mc Garr

Three classes observed ranging from Infants to 6th. (Three classes in two rooms and two classes in another room)Time spent in each classroom: 50 minutes. Subjects varied from language lessons to maths and creative writing. PowerPoint and HTML presentations based on the local environment and the national curriculum. Much evidence of children working independently and in-groups. Teacher directed and child directed work. Children also collaborating and tutoring when needed. No evidence of e-mail or the WWW

Software in use

MSPowerPoint	MSExcel	MSCreative Writer	Hyperstudio
DreamWeaver	MSAccess (Teacher use)	MS Photo Editor	Multimedia CD Roms
MS FrontPage	MS Word	HTML (Explorer)	

Appendix C
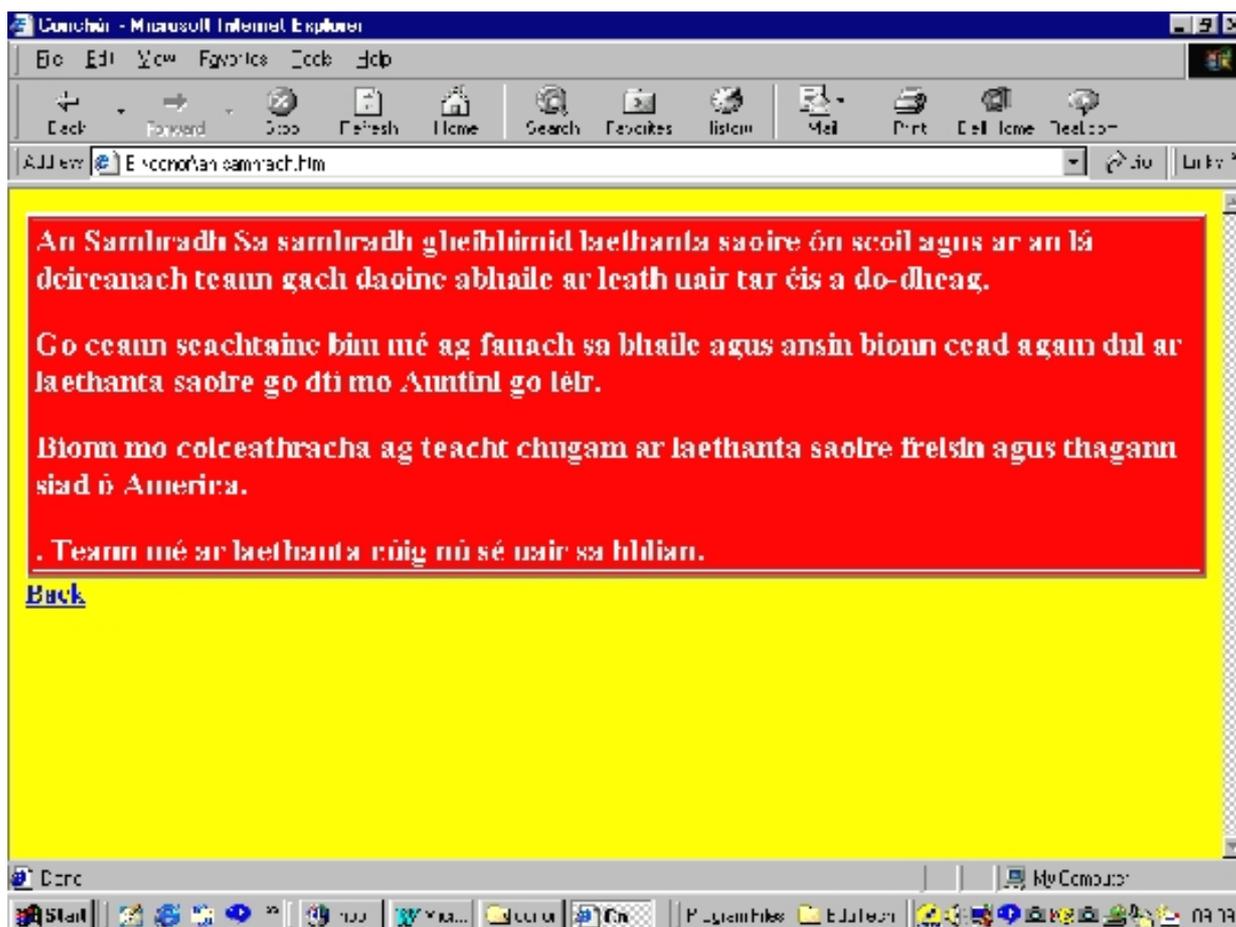
Examples of ICT related work

Above: A Case tractor with a mower in tow.

A John Deere silage harvester in action

A Fiat tractor with a silage trailer

This standing stone is in ballyvoige.This standing stone is said to be in line with other standing stones.Sometimes I stand on top of it and look at the scenary around.In Irish standing stones are galláns.