OECD/CERI ICT PROGRAMME

A Case Study

of

ICT and School Improvement

at

St. Joans National School

June 2001

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Introduction

The following study for the OECD qualitative research ICT and the Quality of Learning was carried out during November / December 2000 and January/February 2001 at St Joans National School, 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

St. Joans National School, founded by the Mercy Order in 1854, is situated in the centre of a large provincial town with a population of fifteen thousand people. The school caters for boys and girls from second class to sixth class. With a long and varied history, this school has played an important role in the education of the children of the town. The present school was built in 1965. A change occurred in 1996 with the appointment of a lay principal following a national change of direction by the Mercy Order in Ireland. The Mercy Order is still represented in the school by four teaching sisters. With a downturn in pupil numbers the school, in line with all schools in the town, became a co-ed school in 1992. Some interviewees believe that this change resulted in some minor problems with discipline and bullying in the schoolyard. One interviewee felt the girls in the school suffered as a result of the co-ed policy. Today the school has 320 children on roll, including 70 boys and 17 teachers. The school has 13 class teachers, (teaching 2nd class to 6th class), one special class for children with reading difficulties and three learning support teachers. The learning support teachers also called resource teachers, work with children from the Travelling Community, children of ethnic minorities and children with special needs throughout the school. The school also employs a full time secretary and three maintenance workers, supplied by the FÁS (local employment) scheme.

The schools Mission Statement outlines the school ethos.

Inspired by the Vision of Catherine McAuley, St. Joans National School, through a holistic approach, aspires to achieve the full potential of each student, with particular concern for those who are disadvantaged or marginalized. Underpinning this is the Catholic ethos based on truth, justice, tolerance, respect, self-worth and a sense of oneness with the entire Cosmos.

The school building is bright and cheerful with many examples of childrens completed computer projects on display. Sport and religion permeate the corridors with photos of the county hurling team displayed alongside a portrait of the Roman Catholic Bishop of the diocese. Past pupils are remembered with class photos on the corridors, dating back to the late sixties. The teachers welcomed the recent improvements to the staff room. These include new carpet, microwave cooker, fridge and seating. The school offers a cafeteria service to the pupils during lunch break, managed by a parent group. This service is very unusual in Irish primary schools. The Principals Office is well equipped with a networked PC and full school telephone system, enabling the principal to contact all teachers directly in their classrooms. The school secretary ensures the smooth running of the day to day activities and is the first staff member all parents or visitors meet on arrival in the school. This office is also equipped with a networked PC, allowing direct contact with the principal at all times. A major building programme to replace all the windows in the school is to begin later in 2001. The school has many extra curricular activities for the children. Language classes for French, German, Drama, Gymnastics, Ballet, and Music, including piano and a special music class for the toddlers and a school band. The national games of hurling and football are also catered for in the school. Coaches are employed on a part-time basis to work with the children during school hours. Parents are encouraged to become active members of school life. The Parents Council helped in providing a new school library. Classes are time-tabled for the library, fostering a love of reading.

In summary the principal, staff and parents all agree that the school is going through a period of change and ICT is viewed as part of this change.

- Change of leadership in 1996
- Introduction of co-education in 1992
- Increasing number of children from the Travelling Community
Increasing number of children from ethnic minorities arriving in the town
- Falling numbers due to demographic changes in the town
- ICT demands from the community
- Revised National Curriculum 1999

ICT in the school

Following a national competition, sponsored by the Government of Ireland and Telecom Éireann, (now called Eircom) the national communication company, St. Joans National School became a pilot school, along with all the schools in the community, for the use of ICT in education. Dell Corporation was also involved in this competition and supplied computers at a reduced rate for all the teachers in the town. All the school computers were given free of charge. The Principal, was a member of the Task Force that succeeded in winning this national award for the town. St. Joans National School has a fully equipped computer room with 26 networked PCs, using an ISDN line to gain access to the WWW. The computer room is also equipped with an LCD projector, laser printer and colour printer. All classrooms are equipped with individual PCs. Householders living within the town were also given the opportunity to purchase a computer at a reduced price. This has ensured over 80% of children attending this school have access to a computer in the home. (More details on this aspect of the school will be discussed later in the report)

Teachers, parents and children all agree that the computer facilities in St. Joans National School are a necessary resource and are of benefit not only to the children but also the wider community. The facilities in the school are used by local community groups for ICT training. The income derived from this is used to fund software and contributes to the maintenance of the computers in the school.

The Reform.

Interviews suggest that ICT is seen as the main reform in this school. While changes to the staff room, the new student canteen, the upgrading of the school library and the promise of new windows for the school are welcomed by staff, all teachers agree that ICT has had the most impact on their teaching career to date in this school.

The Past

History of the Reform

In 1997 St. Joans National School had 5 186 PCs. The computers were constantly giving problems and were very seldom used by the teachers or children. The principal, in consultation with staff and Board of Management, established a committee to seek sponsorship to provide the school with extra computers. The committee succeeded in gaining a further six computers (486s) from a local company. These computers needed to be rebuilt to satisfy the needs of the teachers and children. During 1997, the Principal was nominated to sit on the towns Task Force and represented the primary education community of the town. The Chamber of Commerce were the people who started the Task Force and one of the people in the Chamber of Commerce came to me and said, we need an education person

Principal.

The application was successful and the town became the Model for ICT use in Ireland. Part of the award included equipping all primary and secondary schools, including St. Joans National School with a fully networked computer room, computers in all the classrooms and computers for administration. (The old 486 PCs promised by the local company were given to another school outside the town.) In all St. Joans received 46 PCs, giving the school a ratio of 1 computer: 9 children. 26 computers were placed in the networked lab,
internet access was supplied through an ISDN line installed by Telecom Éireann with three years free telephone access. One computer was added as a result of local competition, giving a total of forty-seven (47).

The computers were allocated as follows.

<table>
<thead>
<tr>
<th>Computers</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Networked Computer Lab</td>
</tr>
<tr>
<td>12</td>
<td>Individual classrooms</td>
</tr>
<tr>
<td>1</td>
<td>Library (open access)</td>
</tr>
<tr>
<td>3</td>
<td>Learning Support Unit</td>
</tr>
<tr>
<td>1</td>
<td>Resource Room</td>
</tr>
<tr>
<td>2</td>
<td>General Administration</td>
</tr>
<tr>
<td>2</td>
<td>Special Dyslexic Unit</td>
</tr>
<tr>
<td>47</td>
<td>Total</td>
</tr>
</tbody>
</table>

Following discussion with the staff it was agreed to opt for a computer room instead of putting all PCs into classrooms. The majority of the staff agreed that the children and teachers would gain more from this format. However it should be noted that one member of staff feels that having computers in the classroom is the ideal way to integrate ICT in teaching and learning. The installation costs were funded by Telecom, but the electrical wiring and benching was supplied by the school. This was only the beginning. How would the staff react given that one third were 60+? Would they get involved in training, would they use the computers? etc. These were the problems facing the principal. She initiated this innovation and wanted to ensure its success.

History of ICT

Staff Development

The Principal teacher initiated staff training, in the basics skills of ICT. The local University provided the training for the teachers. Two teachers from all the schools in the town were trained in the basics over a period of two weekends.

_The first thing I did here was to engage a teacher to come in for a couple of night classes to do the very basics_ Principal

Having overcome the initial problems of training, the staff participated in the National Centre for Technology in Education (NCTE) series of in-service programmes for primary teachers. These courses were funded by the Department of Education and Science and were offered after school hours in the school computer room. The local Education Centre administered these in-service courses. Interviews suggest that initially there was some resistance to these courses regarding teacher time, payment for attending the courses etc., but eventually all staff members completed the programmes. Further to the official in-service programmes, the principal freed up one teacher for one hour a week in the school to act as mentor to all other staff. This teacher supported the class teachers in the computer room. This had the added benefit of ensuring all classes ran smoothly. A resource teacher was assigned to take this teachers class. Again interviewee comments suggest that while in theory this was a good idea it did have problems. The teacher involved felt under pressure to be constantly available for all queries relating to maintenance and software support.
Barriers which were overcome

Resisters & Adopters

Comments from interviews highlight some of the initial problems

\textit{Yeah, everybody came on board. Some people were more enthusiastic than others. Now, there are people who did the courses and who will bring their class to the Lab and they'll do the work, but they won't do anything innovative. But the number of people who have done innovative things, I would imagine, is way above the average in other schools.}

\textbf{Principal.}

\textit{From what I can see, there was very little resistance in our school. People felt that because the town had won the national competition that it became a huge chore for us, they felt that the teachers in the town were bearing the brunt of it. This was all thrown at them and that really they were expected to educate themselves and to upgrade themselves in their own time and in a way at their own expense. We went at night time mainly, two or three nights a week, winter after winter, to upgrade ourselves and there was I think a good bit of resistance and there still is.}

\textbf{Teacher Comment}

\textit{Every teacher here, when I tested last year, completed at least three blocks of training in ICT. The most was seven blocks of training over the past three years, so that's phenomenal training. Certainly people objected, why should we spend our spare time, this was all spare time training, people had gone training at an unprecedented level and given the amount of training they took on, their pay-back is very slight, naturally.}

\textbf{ICT Specialist}

Summary : The above quotes paint a picture of the early days of ICT training in St. Joans National School. Clearly, not all teachers were enthusiastic at the early stages of this innovation. Since then, all teachers have completed the necessary training and in-service. The ICT co-ordinator, having completed her M.St. in ICT in Primary Education, has moved on from the notion of basic training to attempting to ensure that ICT is integrated throughout the school programme.

The staff agrees that the driving force for this innovation was the Principal. Three other members of staff are also seen as being vital to this ICT innovation. While some resistance was evident at the early stages of the innovation, leading to some frustration and a feeling of being pressurised to conform, staff are now willing to participate fully. The help, guidance and support given by a number of staff, is recognised by all as a key factor to maintaining this initiative.

Schools Integration Project

St. Joans National School played a major role in the SIP Project initiated by the National Centre for Technology in Education during 1999/2000. The school was a partner in an eight school partnership that worked together to investigate the challenges that face schools when they have an abundance of ICT equipment. (Full details on \url{http://www.sip.ie/sip058})

Sample Projects:

- Quacksers Diary: An e-mail project linking children from St. Joans National School with children from St. Agnes School, Brisbane, Australia
- Our Local Trees: Project using Hyperstudio (Multimedia Authoring Programme) and the Internet to prepare a presentation on the local trees.
- Electronic Newsletter: Putting a school newsletter on line
- Teachers submitting software evaluations on line to share with all teachers involved in the SIP projects.
Involvement in this SIP project ensured full use and integration of all ICT equipment in the school, scanner, digital camera, www, presentation software and e-mail.

The Present

Description of the reform

Computer Room Time-table

The principal in conjunction with staff approved an agreed timetable for computer use by all teachers within the school.

<table>
<thead>
<tr>
<th>Day</th>
<th>9.00am</th>
<th>9.40am</th>
<th>10.20am</th>
<th>11.20am</th>
<th>12.05pm</th>
<th>1.35pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Room 15</td>
<td>Room 14</td>
<td>Room 2</td>
<td>Room 13</td>
<td>Room 4</td>
<td></td>
</tr>
<tr>
<td>Tues</td>
<td>Room 5</td>
<td></td>
<td>Room 15</td>
<td></td>
<td>Room 10</td>
<td></td>
</tr>
<tr>
<td>Wed</td>
<td>Room 13</td>
<td>Room 12</td>
<td>Room 5</td>
<td>Room 4</td>
<td>Room 7</td>
<td>Room 6</td>
</tr>
<tr>
<td>Thur</td>
<td>Room 13</td>
<td>Room 12</td>
<td>Room 5</td>
<td>Room 4</td>
<td>Room 7</td>
<td>Room 6</td>
</tr>
<tr>
<td>Fri</td>
<td>Room 13</td>
<td>Room 12</td>
<td>Room 5</td>
<td>Room 4</td>
<td>Room 7</td>
<td>Room 6</td>
</tr>
</tbody>
</table>

Room 15 6th Class (Two 45 min. periods)
Room 14 6th Class (Two 45 min. periods)
Room 13 4th Class (Two 45 min. periods)
Room 12 4th Class (Two 45 min. periods)
Room 11 5th Class (One 45 min. period)
Room 10 5th Class (One 45 min. period)
Room 6 3rd Class (One 45 min. period)
Room 5 3rd Class (Two 45 min. periods)
Room 4 3rd Class (Two 45 min. periods)
Room 3 2nd Class (One 45 min. period)
Room 2 2nd Class (One 45 min. period)
Room 1 2nd Class (One 45 min. period)

The early adopters of this ICT innovation have taken two class periods during the week. The Wednesday morning slot is devoted to maintenance. St Joans, in co-operation with all the schools in the town, the NCTE and the competition committee, agreed a contract with an outside agency to maintain the computers in their respective schools. This format is welcomed by all staff members but is not totally satisfactory. All major faults are dealt with but the ICT co-ordinator is left with the day to day running of the computer lab. This can and does cause problems in that the co-ordinator is a class teacher and has to leave her classroom to deal with minor issues.

.....the voluntary support cant be sustained, you cant expect anyone you know, I go up to lunch and theres a chance someone will say to me will you go into the lab and look at that for me, you know, before you leave, before I go home in the evenings there a chance ....someone will ring me at quarter to three and say will you go up and look at that for me, or will you call down to the room and look at that for me.

ICT Co-ordinator

http://intradev.oecd.org/els/ict/IE/IE01.htm (7 of 26) [06-12-2001 2:41:24 PM]
Description of ICT in the school

ICT Practices in the school

As shown by the timetable all children have access to the computer room. The children in senior classes and the children in the classes of the main adopters to this ICT innovation have the
ICT and Teaching Style

Many examples of innovative work using ICT were observed at this site. These included:

- **Animal Habitats**: This lesson involved all the children researching the habitats of various animals and creating a presentation to share with the class. The teacher downloaded a complete set of pictures and sounds from the WWW. Images were also prepared using the school scanner. This data was left on the class folder and children accessed the material needed for their presentation. The children were very comfortable using this software. They had a clear understanding of the use of text V images. The material presented ranged from wild birds, garden birds to killer whales. The children were given freedom to talk and collaborate during this lesson. As a reward the class were given some free time on the WWW. Here the class teacher directed the children to a site offering Valentine Cards. The children were free to send cards to friends through the WWW. However, the site required the childrens home addresses. The teacher did not allow the children input personal details and terminated the exercise.

- **Nature Study**: This class worked in-groups of three. The teacher outlined the tasks prior to the class going to the computer room. Children extracted main points from the CD-Rom, Kids Multimedia Encyclopaedia and made notes in their notebooks. They also used headphones to listen to various sounds on the CD-Rom associated with the lesson. During the lesson the teacher moved from group to group directing students towards the key points on the CD-Rom. As in any normal classroom some children extracted more information than others did. *(It's interesting to note that this teacher favours computers in the classroom rather than the computer lab. During the lesson the children used seven PCs even though they had access to twenty six if needed.)*

- **Book Reviews**: The children in the senior class were expert on all aspects of ICT skills. They freely used a digital camera, scanner, printer, (mono & colour) to prepare material for their book review. They had a choice re. word-processing software. Some of the children opted for Word while other used MS Creative Writer and Story Maker. One group used MS Photo Editor to manipulate images taken by the camera. These images were later inserted into the text and printed out. Plenty of movement, discussion and collaboration occurred during this lesson. The class teacher acted as facilitator giving freedom of choice re. design, layout and content of material. Five weaker children were actively involved in material appropriate to their ability. This included Maths and English exercises.

- **Special Needs**: This small group of seven children was given an exercise on simple drawing. This was presented in a very informal way with the teacher talking to each child individually, encouraging and praising as needed. The children were practising moving from left to right with lines and shapes. This exercise helped in preparing the children for reading.

- **Other topics**: All remaining classes related to some form of word-processing and using educational software. Younger children needed help with keyboard skills.

However computer lab observations also suggest that many teachers in St. Joans National School are using a didactic style of teaching. Some classes observed, show that the class was teacher led with little or no input from students.
Summary: During the team visits very little use was made of the WWW. The lack of WWW use is as a result of an incident where a child had strayed on to an unsuitable site owing to unreliable software for safe internet use. The staff agreed that the use of the WWW would be suspended until a proper AUP (Acceptable User Policy) was put in place. All the primary schools in the town agreed a document that was circulated to all parents. Once all parents sign this agreement, the WWW will be used again.

The team did not witness any use of e-mail. However from interviews with teachers, evidence is available to show that the school did use e-mail as part of an international project. (see 3.4)

*Interviewer:* In relation to students and e-mail accounts, do they have them?

*Teacher:* Yes, we set up every student in the school with an e-mail account, we haven't kept it running that way, however the three sixth classes have e-mail accounts

The school web-site [http://www.ennis.ie/schools/hfss](http://www.ennis.ie/schools/hfss) has numerous examples of WWW projects. One example shows the electronic newsletter. This was produced last year. One young teacher has been assigned to update the school site. However no new projects are ready. Overall there seems to be a move away from using the WWW and e-mail facilities. One teacher commented on the need for more interactions with parents through the web. Again this finding is surprising given the fact that over 80% of parents/children have internet access at home.

Figures produced from the ICT Teacher survey show 80% of teachers are comfortable with the WWW and over 60% feel it is necessary for teaching. 0% of teachers see creating a web-site as important. While there seems to be a willingness to use the WWW the reality at this site at present is very different.

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)

<table>
<thead>
<tr>
<th>How comfortable are you with using a computer to do each of the following?</th>
<th>very comfortable %</th>
<th>comfortable %</th>
<th>somewhat comfortable %</th>
<th>not at all comfortable %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. search for information on the World Wide Web</td>
<td>62</td>
<td>20</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>3. create and maintain web pages</td>
<td>20</td>
<td>6</td>
<td>6</td>
<td>68</td>
</tr>
</tbody>
</table>

How important is each of the following computer-related skills for your teaching? Choices are (very important, important, so-so, not important at all)
The team found no evidence of ICT and homework. This again is surprising as over 80% of the children in the school have access to home computers. Parents and teachers reported that the children don’t use the home computers for schoolwork. However one parent did mention that her daughter in secondary school uses it for research work on school projects.

### ICT Maintenance:

As already discussed the school has a contract with an outside agency to manage the major faults, the day today problems must be managed by the ICT co-ordinators. The ICT co-ordinator also involved children from senior classes as helpers with minor technical problems. *When I had a bigger class I sent the children from my own class to help and you could see how they got really confident. Every time I fixed something I told the children how to do it and they went and did it*  

ICT Co-ordinator

A logbook is kept in the computer lab. Teachers are asked to keep an account of faults and note them in the logbook. All teachers agree that this is not a very satisfactory option. With such a major network in the school there is a need for a full time teacher/technician to manage the system.

Summary: All the children have access to ICT on a weekly basis. All the teachers are trained up to and including Phase Two NCTE (Inservice ICT Training Programme). Three of the teachers are beyond this level with one teacher having an M.St in ICT in Primary Education. The children in the senior and middle classes (3rd to 6th classes) have mastered the basic skills of word-processing and use of the computers. Children in the senior classes have a working knowledge of multimedia authoring and the use of digital equipment. Teaching styles vary from didactic to constructivist. All teachers agree that ICT is a tool to be used to enhance teaching and learning. Teachers agreed that there is a need for more use of the technology in relation to the WWW and e-mail both as a classroom resource and administration tool, particularly given that 80% of parents have access to computers and the WWW in the home.

### 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 the introduction of ICT at St. Joans on a phased basis was planned early in 1997, the arrival of the new equipment as a result of the national competition ensured ICT became the main focus of change and
improvement in the school. Teachers and children worked together in integrating ICT across the curriculum. The World Wide Web was used to promote the school through its involvement in the SIP (Schools Integration Project), in publishing an electronic magazine and in producing a school based web site. Through e-mail, the school linked with a school from Brisbane, Australia. Teachers collaborated with colleagues through the internet on software evaluation. Their comments and suggestions for use were published on the SIP project web site.

Evidence from interviews and classroom observations show that ICT has not radically changed teaching styles. Many interviews clearly show that a percentage of teachers only adopted ICT to fit in with the school plan and not for any pedagogical reasons. ICT and homework are still not linked even though 80% of pupils have access to computers at home and the use of the WWW and e-mail has declined over the last year.

Summary: While the early adopters at St. Joans use technology to enhance their teaching the majority has not. ICT has not acted as a catalyst for whole school improvement and the use of the WWW has yet to be tested fully.

Neither hypothesis holds up at this site.

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 innovation at St. Joans was promoted by the principal and supported by three enthusiastic teachers. The majority of staff participated willingly in all in-service ICT programmes. A minority of staff continued with further training for both personal and professional reasons. One very energetic staff member completed an M.St. in ICT in Primary Education. The Principal allowed the ICT specialist free time (one hour per week) to assist, encourage and promote the use of ICT with less ICT experienced teachers. The ICT specialist prepared lesson plans and assisted the teachers with their classes. Software purchases was agreed with all staff.

The ICT innovation was part of a community initiative to equip St. Joans National School with a number of PCs. The innovation was driven by external forces and the staff had no option but to accept ICT as a major part of school policy. The Principal was a member of the community initiative and strongly promoted the innovation. The National Centre for Technology in Education (NCTE) provided in-service for all teachers in the school. All the teachers felt under pressure to participate in this training or be left behind. The community and parents expected ICT to be part of school life. The Department of Education and Science was monitoring this initiative with a view to using it as an exemplar for future programmes. All teachers are involved and utilise the computer facilities on a weekly basis. However, as is clear from the computer room timetable some teachers are more enthusiastic than others are.

Summary: While there is evidence to show that the school was initiating an ICT programme early in 1997, the national award created an environment whereby the teachers in the school had no option but to conform. In this environment there was no time for the natural diffusion cycle to occur.

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 ICTs 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.

Access to up to date technology, a generous supply of appropriate software, a fully competent staff, a maintenance contract, access by 80% of children to home computers, support of the principal and a number of very enthusiastic staff members, ensures implementation of ICT at St. Joans National School.

The entire staff is trained in the use of ICT up to Phase-Two NCTE. Three staff members have been involved in further training, both skills based and pedagogical. The staff is now considering the most appropriate way to integrate technology into all aspects of the curriculum. Classroom observations suggests a high percentage of teacher competence in ICT skill use and a lower percentage in successful ICT integration. The staff is very co-operative and collaborate to promote ICT by sharing ideas, lesson plans, discussing problems and solutions and encourage each other at all times. Children in the middle and senior classes (age 8 to 12) displayed a very thorough knowledge and use of ICT skills.

This site has a fully equipped networked computer room plus single units in all classrooms. This facility alone ensures the use of the equipment. The school timetable ensures the computer room is used by all classes. Parental and community pressure demands use of this computer facility.

Summary: Having access to computers does not guarantee curriculum integration. Staff need to be competent in ICT use and integration. The staff need the support of the principal and colleagues interested in integrating ICT into their teaching and their pupils learning. In-service needs to combine both skills and integration. Pupils should be encouraged to use home PCs as part of homework assignments. In conclusion, there is ample evidence to support both hypotheses at St. Joans.

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.

St. Joans National School is unique in that over 80% of pupils attending the school have access to home computers. However, children from the Travelling Community and children from low-income families do not. While all pupils attending St. Joans School have equal access at school the evidence gathered from teacher interviews suggests that the rival hypothesis holds in this site. The team did not have access to student reports, inspectors reports or class exam results. Students attending the learning support unit have more access to ICT and resource teachers ensure software is appropriate for children with special learning needs. Educational software has been purchased by parents for low poverty students for use in the home thus increasing their use and confidence in using ICT. Parental interest is higher in low poverty homes. High poverty children lack the self-confidence to work with ICT. I have four Travellers in my class this year, now they dont have a computer and its very obvious, one in particular who is very brave otherwise, is very fearful in the lab, she prefers someone else to do it for her, given a choice because she feels shes too slow at the typing, some of them are very fast at the typing, but she feels that the others are so much faster than her that I think she feels its showing her up.

Teacher Comment

In summary, while equal access to ICT is available to all students in this school, teachers agree that high
poverty students are not keeping pace with low poverty students. Traveller children do not enjoy equal access at home. Data gathered at St. Joans favours the rival hypothesis.

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.

There was a mixed reaction to this hypothesis at St. Joans National School. All teachers agree that ICT is a tool to be used to integrate into the curriculum and that academic standards are a function of the teacher and school. High quality ICT equipment and software alone will not improve teaching or learning.

Teachers did agree that ICT plays a major role in supporting children with learning difficulties. Resource and learning support teachers use ICT regularly with all students attending special classes. Children in all classes interviewed commented on the effectiveness of visual and interactive material as an aid to learning. In support of the rival hypothesis, many teachers have not integrated ICTs into their lessons because of concerns that ICTs will have a negative affect on spelling and reading standards. While there has been use of the web in the past, no significant evidence of the children or teachers, using the WWW as a learning or teaching tool was observed at this site.

ICT on its own will not replace the teacher, it absolutely wont replace the teacher. Very few children will learn on their own, so you're back again to how the teacher is using ICT.

Teacher Comment

I suppose the Internet one is the one Id be most concerned about. You know, there are children there and they can become dog lead from computers. I wouldn't like to see them be addicted to it and it can become an addiction to the detriment of sport, or, you know, physical activities or reading.

Teacher Comment

I do think children can learn an awful lot from technology, but I do think they have to be taught the basics. I honestly believe that you'll never dispense with the teacher, because children for a lot of things do need one to one, one to one attention, they need to be shown how to do things. And I don't think the Internet or the worldwide web will ever teach it the basics.

Teacher Comment.

In summary there is evidence to support both hypotheses at this site.

Projection to the Future

Sustainability

Evidence suggests that ICT will remain part of teaching and learning at St. Joans National School. This is due to several factors:-

- The interest of the principal, staff, parents, children and community
- The school networked computer room with high speed internet access
The agreed timetable for all classes
Software agreement with all primary schools in the town
The maintenance contract that is in place to ensure the smooth running of the system within the school.

All staff members have completed the ICT inservice programmes provided by the Department of Education and Science through the National Centre for Technology in Education. A number of staff have completed further training up to and including an M.St. in ICT in Primary Education. The parents have signed the Acceptable User Policy (AUP) re. the use of the WWW within the school. This ensures that the WWW will once again form part of classroom activities within the school. The principal and staff, while agreeing that they could continue without ICT in the school, would find it extremely difficult to do so.

*I suppose if it were turned off in the morning, personally I couldn't manage the administration without it now. That was one side effect of the information age that was brilliant from the administration point. We've got so used to it. It has become an integral part of the school.*

Principal

Further Issues

Data from interviews with teachers and principal suggests that

- Inservice needs to concentrate more on ICT integration into classroom practice
- Department of Education and Science Inspectors need to look more at process and not product. The Inspectors need to recognise that ICT gives an opportunity for teaching problem solving skills and that this form of teaching and learning is difficult to assess.

*If you were focusing on the processes of it, retrieving information and selecting appropriate information, and editing it and suiting it to a specific task, this is all higher-order skills and ICT really facilitates that, and our system won't reward a teacher who has spent a month working that way in chaos, besides a teacher that has gorgeous notes and copies with nice writing, the inspector will come in and look at that, and bingo!*

ICT Co-ordinator

- A number of teachers expressed a desire to continue with further in-service, in particular training on web design and curriculum integration. Plans are also in place to network all PCs in individual classrooms.
- Computer Lab V Computer Clusters in the Classroom. This issue may need to be addressed at a future date.

Transferability to Other Schools

St. Joans National School is unique in that all PCs were supplied free of charge. The school was and is expected to make full use of the ICT facilities. Parents and the community have a vested interest in this school, as the town is a centre for ICT use. Therefore teachers in this school are under external pressures, not felt by teachers in most primary schools. The school is very involved in the School Integration Project (SIP) initiated by the NCTE and promotes itself as a highly efficient ICT school. Whether other schools could sustain this momentum and interest is uncertain. The time and effort devoted by the teachers in St Joans National School would be hard to maintain without sustained support from the DES and the local community.
Appendix A

Computer Lab Observations, Interviews, St. Joans National School, Ireland, Classes, Teachers and lessons observed

Appendix A

Teacher Interviews

Principal interview (Dr. Jim Gleeson) (90 minutes approx.)
ICT Specialist interview (David O Grady) (1hr approx.)
Teacher A (David OGrady) (45 minutes approx.)
Teacher B ( Oliver McGarr) (45 minutes approx.)
Teacher C (Oliver McGarr) (45 minutes approx.)
Teacher D (Keith Johnson) (45 minutes approx.)
Teacher E (Keith Johnson) (45 minutes approx.)

Parent Interviews

Parent interview 1 (Oliver Mc Garr) (30 minutes approx.)
Parent interview 2 (Oliver McGarr) (30 minutes approx.)

Student interviews

Student interview 1: Middle Class ( David O Grady) (40 minutes approx.)
Student interview 2: Senior Class ( Dr. Jim Gleeson) (40 minutes approx.)
### Classroom Observations

<table>
<thead>
<tr>
<th>Date</th>
<th>No.</th>
<th>Class</th>
<th>Lesson</th>
<th>Software</th>
<th>Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.11.00</td>
<td>23</td>
<td>3rd Class</td>
<td>Language</td>
<td>Story Maker &amp; Word</td>
<td>Oliver Mc Garr</td>
</tr>
<tr>
<td>16.11.00</td>
<td>24</td>
<td>4th Class</td>
<td>Language</td>
<td>Story Maker</td>
<td>Oliver Mc Garr</td>
</tr>
<tr>
<td>24.11.00</td>
<td>22</td>
<td>2nd Class</td>
<td>Language</td>
<td>Word</td>
<td>Oliver Mc Garr</td>
</tr>
<tr>
<td>27.11.00</td>
<td>32</td>
<td>6th Class</td>
<td>Maths</td>
<td>Excel</td>
<td>Oliver Mc Garr</td>
</tr>
<tr>
<td>24.11.00</td>
<td>22</td>
<td>5th Class</td>
<td>Local History</td>
<td>Hyperstudio</td>
<td>Oliver Mc Garr</td>
</tr>
<tr>
<td>6.02.01</td>
<td>28</td>
<td>5th Class</td>
<td>En. Studies</td>
<td>Hyperstudio + Internet</td>
<td>David O Grady</td>
</tr>
<tr>
<td>15.11.00</td>
<td>21</td>
<td>4th Class</td>
<td>Nature Study</td>
<td>CD Multimedia Encyclopedia</td>
<td>Keith Johnston</td>
</tr>
<tr>
<td>16.11.00</td>
<td>24</td>
<td>3rd Class</td>
<td>Language</td>
<td>Story maker</td>
<td>Keith Johnston</td>
</tr>
<tr>
<td>29.11.00</td>
<td>28</td>
<td>6th Class</td>
<td>Project Work</td>
<td>Story Maker</td>
<td>David O Grady</td>
</tr>
<tr>
<td>29.11.00</td>
<td>7</td>
<td>Sp. Reading Class</td>
<td>PC Skills</td>
<td>Paint</td>
<td>David O Grady</td>
</tr>
<tr>
<td>24.11.00</td>
<td>17</td>
<td>2nd class</td>
<td>Maths</td>
<td>Maths Workshop</td>
<td>Keith Johnston</td>
</tr>
</tbody>
</table>

Eleven classes observed ranging from 2nd to 6th. Time spent in each class: 50 minutes. Subjects varied from language lessons to maths, creative writing, and book reviews, Hyperstudio presentations based on nature study. Much evidence of children working independently and in-groups. Teacher directed and child directed work. Children also collaborating and tutoring when needed. One example of using the WWW during observations. E-mail was not in use.

**Software in use**

- Hyperstudio
- Maths Workshop
- MS Creative Writer
- WWW
- MS Paint
- Story Book Weaver
- MS Photo Editor
- Multimedia CDs Ro
- MS Excel
- MS Word

A variety of teaching styles used during observations. Teacher led and based on classroom work. Evidence of remote and immediate preparation. Teacher led discussion on material presented. Special software in use for children with Sp. Needs.
Appendix B
ICT Use Survey for Teachers

St. Joans National School, Ireland

15 teachers filled out this questionnaire (n = 15). The results are represented in percentage (100%).

- 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)

<table>
<thead>
<tr>
<th>Activity</th>
<th>very comfortable</th>
<th>comfortable</th>
<th>somewhat comfortable</th>
<th>not at all comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very important</td>
<td>important</td>
<td>So-so</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>----------------</td>
<td>-----------</td>
<td>------</td>
</tr>
<tr>
<td>10</td>
<td>Write a paper with a word processor</td>
<td>26.3</td>
<td>33.3</td>
<td>13.6</td>
</tr>
<tr>
<td>11</td>
<td>Search for information on the WWW</td>
<td>46.6</td>
<td>20</td>
<td>6.3</td>
</tr>
<tr>
<td>12</td>
<td>Create web pages</td>
<td>0</td>
<td>6.3</td>
<td>40</td>
</tr>
<tr>
<td>13</td>
<td>Use a database</td>
<td>6.3</td>
<td>26.6</td>
<td>33.3</td>
</tr>
<tr>
<td>14</td>
<td>Develop a database</td>
<td>6.3</td>
<td>12.6</td>
<td>26.6</td>
</tr>
<tr>
<td>15</td>
<td>Send and receive e-mail</td>
<td>40</td>
<td>33.3</td>
<td>6.3</td>
</tr>
<tr>
<td>16</td>
<td>Write a programme</td>
<td>0</td>
<td>20</td>
<td>33.3</td>
</tr>
<tr>
<td>17</td>
<td>Draw a picture or diagram with a graphing/drawing application</td>
<td>20</td>
<td>26.6</td>
<td>26.6</td>
</tr>
<tr>
<td>18</td>
<td>Present information (e.g. using PowerPoint or equivalent)</td>
<td>26.6</td>
<td>12.6</td>
<td>20</td>
</tr>
</tbody>
</table>

"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)"
29. Other computer uses (specify)  6   0   6   88

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

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>fair</th>
<th>poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>53.3</td>
<td>33.3</td>
<td>13.3</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

31. 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)

<table>
<thead>
<tr>
<th></th>
<th>no restrictions</th>
<th>some restrictions</th>
<th>designated sites only</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>82</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>all</th>
<th>most</th>
<th>some</th>
<th>very little</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>26</td>
<td>22</td>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>all</th>
<th>most</th>
<th>some</th>
<th>very little</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>34</td>
<td>26</td>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>
36. If you have a computer at home how often do you use it at home for preparing for teaching?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Several times a week</td>
</tr>
<tr>
<td>14</td>
<td>Several times a month</td>
</tr>
<tr>
<td>40</td>
<td>A few times</td>
</tr>
<tr>
<td>24</td>
<td>Never</td>
</tr>
<tr>
<td>0</td>
<td>No computer</td>
</tr>
</tbody>
</table>

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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>33.3</td>
<td>yes</td>
</tr>
<tr>
<td>66.6</td>
<td>no</td>
</tr>
</tbody>
</table>

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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>yes</td>
</tr>
<tr>
<td>88</td>
<td>no</td>
</tr>
</tbody>
</table>

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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>33.3</td>
<td>yes</td>
</tr>
<tr>
<td>66.6</td>
<td>no</td>
</tr>
</tbody>
</table>

40. How many e-mail messages do you send each week on average (more than 12, 6-11, 1-5, none).

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>more than 12</td>
</tr>
<tr>
<td>20</td>
<td>6-11</td>
</tr>
<tr>
<td>33</td>
<td>1-5</td>
</tr>
<tr>
<td>33.3</td>
<td>none</td>
</tr>
</tbody>
</table>

" Have you ever done any of the following? (Choices are: yes, no)
<table>
<thead>
<tr>
<th></th>
<th>Activity</th>
<th>Percentage of 5-15 year-olds</th>
<th>Percentage of 16-24 year-olds</th>
</tr>
</thead>
<tbody>
<tr>
<td>41.</td>
<td>made changes to a computer's hardware</td>
<td>26.6</td>
<td>73.4</td>
</tr>
<tr>
<td>42.</td>
<td>installed an update to an application program (word processor, graphics program, etc.)</td>
<td>33.3</td>
<td>66.6</td>
</tr>
<tr>
<td>43.</td>
<td>recovered a damaged file</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>44.</td>
<td>created a website</td>
<td>13</td>
<td>87</td>
</tr>
<tr>
<td>45.</td>
<td>developed a database</td>
<td>40</td>
<td>60</td>
</tr>
</tbody>
</table>

Appendix C

Images from St. Joan's National School
1. Broadening Horizons

Communications with a Canadian school with interest in culture and social issues. Third class pupils are exploring e-mail communication and are dealing with social, cultural and local study issues. Information is exchanged as Word attachments, but PowerPoint is being considered for the future. Further information: Marycuana Ryan

2. Quacker's Diary

An e-mail project with Brisbane (6th classes). Larry, the leprechaun, came to Brisbane in September and the children kept a diary of his exploits. This was
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Use our Conversion Table

Bette Ahern & Allie Kane
launching the Information Age Project

Calculators & Units

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