

Reflections on the Kilkenny Schools IT 2000 Projects

A Report Commissioned by
Kilkenny Information Age Schools Steering Committee

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*“Even Ballet dancers who practice their art to perfection,
have mirrors to see for themselves how they are doing.”*
(Eisner, 1993)

Introduction

This publication is an evaluation of the Kilkenny Schools IT 2000 Projects, which focused on the integration of ICT into the classroom through the piloting of a series of schools integration projects. The projects were undertaken under the auspices of the Kilkenny Information Age (KIA) initiative¹ and the National Centre for Technology in Education (NCTE)² and are at the forefront in the use of Information Communication Technologies (ICTs) in Irish classrooms.

This document reports on the findings of the CRITE³ team who were commissioned by the Kilkenny Information Age Schools Steering Committee to help the teachers involved in the Kilkenny Schools IT 2000 projects to reflect upon both the process in which they were involved and the learning outcomes of that process. The report outlines the experiences of the teachers involved, the barriers they encountered, the lessons they learnt, the merits of ICT in the classroom and recommendations for the future. It is therefore of utmost importance to highlight the fact that this report is not a comprehensive account of the initiative but the teachers’ reflection of the same.

The layout of the document is as follows. It begins with some brief background information on the Kilkenny Schools IT 2000 projects. This is followed by a description of the approach adopted by the CRITE team in collecting the views of the participating teachers and ICT co-ordinators. The main instruments used were log diaries filled in by the teachers and a number of school visits and interviews carried out by the research team. The report concludes with a discussion of the main issues that emerged during the process. Additional pieces of information are provided in the appendices.

Throughout the report extensive use is made of quotations from the stakeholders and unless otherwise stated all quotations come from the teachers’ log diaries or videotaped discussions and interviews. All attempts were made to keep the report as anonymous as possible, however within the small community of the Kilkenny schools anonymity cannot of course be guaranteed.

This written report is only one output of the research process. A richer way of exploring the information collected, and the views expressed, is provided in an accompanying spreadsheet and website⁴. The spreadsheet contains the raw data collected from the logs and the views expressed by various teachers, either through the logs or in discussions. On top of this central information we have attempted to add a layer of interpretation. This is done in two ways: firstly, by inserting our comments in various places and secondly, by (hyper) linking together views from different teachers on the same broad topic. Thus, it is possible to navigate through the spreadsheet under different headings, such as “Time Issues”, “Training” and “Integration in the Curriculum”. The spreadsheet also contains links to selected video clips of discussions with teachers.

Although CRITE’s involvement was initially described as an evaluation exercise the philosophy adopted was one of enabling the teachers to reflect upon their own experiences. The authors would like to stress that the report and accompanying spreadsheet can only reflect some of the interesting practices taking place in Kilkenny City schools. There are obviously other interesting experiences happening in Kilkenny classrooms which do not appear in this report as it would be impossible to reflect on every single activity undertaken and experience lived by the teachers over the duration of the initiative.

Finally the authors would like to thank every single teacher in Kilkenny who took time out of their already far too busy schedules to fill out the dreaded logs, to invite us into their schools and classrooms and to openly discuss their views in different settings. And of course extra special thanks are due to the three indomitable Kilkenny Musketeers, Fiona Phelan, Marion O’Neill and Seamus Knox.

¹ www.kilkenny.ie

² www.ncte.ie

³ www.cs.tcd.ie/crite/home.htm

⁴ www.cs.tcd.ie/crite/research/kia

Background Information

In 1997 Kilkenny City received an award of £1,000,000 after successfully competing in the Eircom Information Age towns competition, the primary focus of which was the development and the promotion of the use of ICT amongst all sectors of society in the city.

The main objective of the Kilkenny Information Age initiative is to position Kilkenny at the forefront of ICT developments in the region, to create awareness of the benefits of ICT and to foster greater use and competency of ICT in developing the region both socially and economically. In implementing this initiative, separate strategies were proposed for the different sectors: Business, Community, Education and Local Agencies. Through the use of ICT, Kilkenny Information Age has aspired to create a culture, where the various sectors would engage in greater collaboration and in increased levels of interaction through the medium of ICT, empowering all social groupings to benefit from the aims and goals of the information society.

From this fund, £300,000 was allocated to the education sector and these monies were dispersed as follows: Kilkenny Education Centre received £30,000 to equip the computer training rooms for the purpose of developing their teacher-training program; Each school received £5,000 towards the purchase of additional computer hardware in 1999. However, the greater proportion of the education grant was invested in the Kilkenny Schools IT 2000 projects. The total investment in the initiative was £180,000, the monies were allocated to schools on the presentation of a project plan that outlined the aims and objectives, the ICT resources required and the expected outcomes. Essential to the success of these projects was the need to invest substantial monies in upgrading existing computer equipment facilities in the schools.

An average grant of £14,000 was given to each of the participating post primary schools by Kilkenny Information Age. The NCTE contributed additional funding to each school in the form of software grants, operational grants, teacher release time and also facilitated the appointment of a projects' co-ordinator. This initial grant motivated further investment by the schools and it is estimated that the schools themselves spent an additional £200,000 on ICT equipment.

This endeavour has resulted in fully equipped networked computer labs in all post primary schools in the city. The total investment in the Kilkenny Initiative by all the partners is estimated at £700,000, which is a sizeable investment in the development and promotion of ICT and gives an indication of what can be achieved through public/private partnerships. Additional support should be provided for this initiative to guarantee the continuity of these projects in the classroom, to future proof the existing investment and to encourage greater use of technology in the classroom.

A key objective of each project was to determine the pedagogical benefits of the use of ICTs in the classroom and the impact of this intervention on the participants. Collaboration amongst the schools ensured that each school focused on a different subject matter and aided to minimise competitiveness. The participation of nineteen schools, comprising of 10 primary, 6 post primary and three special schools, is indicative of the level of commitment and enthusiasm shown by both teachers and pupils in adopting ICT into the curriculum.

This initiative was achieved through a partnership between the Kilkenny City schools the National Centre for Technology in Education and the Kilkenny Information Age initiative. The projects have provided the necessary hands-on experience to acquire a much-needed understanding of the present applications, and future pedagogically sound developments of ICTs in education. The initiative and the reflection process have greatly contributed to single out areas where ICT interventions have benefited the curriculum, to identify its effectiveness as an aid to learning and to highlight the technical issues experienced in incorporating ICT into schools.

The project was managed by the Kilkenny Information Age Education Steering Committee and a full-time project co-ordinator. The Kilkenny Schools IT 2000 projects encapsulated a wide range of subjects on the existing curriculum, and over the eighteen-month period these projects produced valuable resource material and data, available in various formats on the individual schools websites.

The following table shows a complete list of projects. Further information can be found in [www.sip.ie/sip055, Brophy 2001].

School	Project Title
A	The use of ICTs as a method for Interactive Language Learning
B	The Development of an ICT Resource Centre for Educationally Disadvantaged Children
C	The production of a training video for Leaving Technical Subjects
D	The use of Data logging in the Science subjects
E	The Practical Use of ICT in a Transition Year Programme
F	The integration of multimedia software with curriculum subjects through innovative projects.
H	The Investigation of the usefulness of integrated Learning systems in Special Education
Primary and Special Schools	Each school developed a website, featuring aspects of their school's life in the community

Within these eight projects 44 teachers and over 600 students from 19 schools were involved.

External Factors

A major external factor, that affected the implementation and development of the Kilkenny Initiative, and one common to many ICT dependent projects, was problems with equipment, and software, and other logistics matters such as delays in service and equipment delivery, equipment malfunction and breakage. This topic is returned to in more detail in the body of the report but the following quotations, to be interpreted in the context of schools and teachers who were first time users of ICT related equipment, such as digital scanners and cameras, give some insight to the severity of the difficulties encountered by the participants. "Camera giving trouble again, had to send off for repairs (second time since July)", "Camera out of action, so no progress possible", "Computer in classroom being replaced...", "There is a definite need for greater availability of Dreamweaver, one computer is not enough", "I need the Internet in my classroom", "Not enough sensors/computers for all", "Internet connection to class set up this week", (reported in week 10), "Dispute between *two suppliers* regarding who should fix problem with computer. Hours spent on phone with both".

During the course of the study there were another two external factors, in fact once-off national occurrences, and hence not common to any previous ICT intervention, that greatly affected the implementation and development of the projects, namely nation-wide industrial action by secondary teacher and the outbreak of the Foot and Mouth Disease. Together they made the period during which this study took place one of the most difficult in Irish Schools for a very long time. The teachers' concern for the above-mentioned issues is patent in their reflections. "No transition year this week due to the strike", "Strike", "Due to strike action only 1 single class this week", "Strike action has disrupted the fluency of the work considerably", "Foot & Mouth situation has necessitated changing our schedule".

Objectives and Outcomes

Both the NCTE and the KIA steering committee had their own stated aims and objectives.

The aims of NCTE/IT2000 were:

- To connect every classroom to the Internet with high-speed access.
- To reduce the ratio of computers to pupils significantly.
- To provide the most comprehensive on-going training programme in the world to Irish teachers.
- To use technology in Ireland to implement the most advanced curriculum support programme in the world.

The particular aims of the Schools Integration projects (SIP) strand within IT2000 were:

- To provide the educational community with an increased opportunity to access and participate in the information society.
- To identify the skills required and provide the necessary training to teachers.
- To support a culture of openness and sharing among the teaching community.
- To provide students with alternative ways of learning.
- To increase student motivation and self-esteem.

The specific aims of the KIA Steering Committee were:

- To increase the level of access to ICT for students and improve computer literacy levels.
- To examine processes for greater collaboration with the other sectors of the Information Age Town initiative and within the teaching community itself.
- To provide appropriate ICT infrastructure to facilitate more teacher training programs.
- To provide technical assistance in procuring hardware and software solutions.
- To identify and select school integration projects aimed at accelerating the introduction of ICTs into the curriculum.
- To ensure that each post primary school has a well-equipped computer lab and that all primary school classrooms are equipped with a PC.
- To increase the level of ICT expertise within the schools.
- To assist schools to devise and implement an IT plan.
- To ensure the availability of a satisfactory level of first line maintenance expertise.
- To support schools in the development of a school's website.

By national standards the KIA Schools initiative is a major exercise and the findings reported here, on the extent to which these leading goals are met on the ground, are therefore of national and indeed international interest.

Evaluation Process

This section briefly outlines the process used by the researchers, the research questions posed, and the instruments used together with other issues intrinsically link to the evaluation process. A more detailed description of the research methodology and the design decisions made can be found in [Brophy 2001, Arnedillo Sánchez 2001].

From the objectives outlined earlier the following were the main research questions that emerged:

- Teacher training: to what extent and to what standard are the project teachers trained?
- Usage of technology: how much time do teachers spend using ICTs for administration, preparation in class, private use or pupil use for learning?
- Content - planning for curriculum delivery: how are the Project Content and IT skills prioritised?
- Infrastructure - hardware installation and access: are the resources, which were awarded, in use and available?
- Technical issues: is technical help needed and available? How much time is spent by teachers *giving* technical help, or on network administration-outside of class time or even school time.
- Student learning: what are the teachers' perceptions of student reactions/responses to learning with ICTs; what do the students themselves think?

- Internet access and usage: for research or for contact in class or in school staff room? Was the Internet used privately at home in preparation for class?
- Contact or collaboration: with other teachers in the school and in the city. To what extent did this occur?

The prime way in which these criteria were analysed was via the teachers' own self-observation and reflection. By the nature of this type of study it is not possible to give definitive answers to these questions but it is hoped that the study will shed some light on these questions.

The data collection tools were designed to support and validate each other and provide more confidence in the findings. The data gathering took place from September 2000 to May 2001. The tools identified, designed and developed in the data collection effort included the following:

- Initial teacher's questionnaire.
- Teacher and Schools ICTs co-ordinators' Log Diary.
- School visits.
- Individual/group interview with ICTs co-ordinators and teachers.
- Feed-back seminar, a forum for ICTs co-ordinators and teachers to discuss and analyse the preliminary findings of the log diaries, pinpointing those that in their view were the main issues in the intervention programme, and proposing strategies to address the main barriers encountered.
- Schools' ICTs co-ordinators and teachers final questionnaire/survey.
- "Listening day", a collaborative and democratic forum where all parties involved in the evaluation assessed the preliminary report.

The log diaries were designed in collaboration with the schools' ICTs co-ordinators and teachers involved in the evaluation process so as to enable and empower them to capture and reflect on the day-to-day process of the intervention. They are a weekly account of the programme over a six-month period, October 2000 to March 2001. In the attempt to design and present an inclusive and teacher friendly data-gathering artefact, the logs were delivered to schools in the format of two hardcopy booklets with eleven one-page weekly diaries. The logs were completed by ICTs co-ordinators and teachers directly involved in the intervention in their own school. The first set covered the period October – December 2000 and the second January – March 2001.

An on-line digital log diary was decided against taking into consideration the risk of it becoming a non-inclusive tool, endangering its effectiveness and the entire data collection approach. Time, especially in primary schools where teachers are always in direct contact with their classes, access to technology after schools hours, and the teachers own confidence when dealing with technology were the main reasons behind the decision not to use on-line data gathering tools.

Use of the logs

As was to be expected in a data collection exercise such as this the responses to completing the logs was variable. (Given that one of the main findings of the study is the degree to which teachers felt under enormous time pressures it is a tribute to their commitment that so much data was in fact returned).

At primary school level, three out of the thirteen schools involved in the initiative did not returned the completed data collection tool for either period. Two schools returned one of the two log diaries, and one school provided logs from each individual teacher involved in the initiative.

At secondary level, two schools out of the seven involved in the intervention did not return log diaries, and three stakeholders completed just one set of logs. In terms of teachers' participation, two schools involved two members of the staff in log diary completion, and one engaged a high number of staff members, seven. Four secondary schools completed both diaries.

On the arrival of the first set of completed logs a completion pattern was immediately identified. Teachers were, to a large extent, disregarding the completion of the sections related to quantitative data and were much more availing of sections regarding qualitative data to reflect on the progress of the programme. As expressed by one of the teachers, "The log is not a full reflection at all of what we are doing in the school with the computers". The richness of the individual logs was a reflection of the extent to which individual teachers made use of the open-ended sections to give their insights into what was happening on the ground.

Nonetheless, the logs were not the only source of data and a wealth of useful information was collected from the school visits, the views expressed in interviews and discussions, as well as discussion groups and other attempts of data gathering and interpretation. This data, together with quantitative data collected throughout the duration of the initiative provided ample information for analysis.

As previously mentioned this report is accompanied by a spreadsheet which seeks to embody the incredibly rich amalgamation of raw quantitative and qualitative data, together with physical and conceptual nets and graphical representations in the form of graphs of the analysis, in order to provide an inviting environment for collaborative feedback and ongoing research.

Issues

This section contains the main findings of the report. The issues that arose are discussed under five main headings. First and foremost, the question of integration of ICTs into learning is examined. This is the crucial question, if ICTs are not showing some improvements in learning then the whole pedagogical motivation for ICT intervention is invalidated. (How one measures improvement is of course a very difficult question, but if ICTs are to be used in a beneficial way then, it is to be expected that some integration into the curriculum would take place.) Under this heading a number of sub-themes are explored. These include models for the use of ICTs within the curriculum, whole school integration and cases which were less than successful. The other main themes which are explored in the report are training, technical issues, (lack of) time and ownership. Finally, the role of the dedicated ICT coordinator for the whole initiative deserves special mention.

Not surprisingly the issues that arose in KIA are not dissimilar to those that have arisen elsewhere around the world when attempts have been made to use ICTs in the classroom. In our findings there are examples of the creative use of ICTs to support pedagogically sound enriched learning experiences in these projects. Indeed one of the main outcomes of the KIA initiative may be in the wealth of experience built up by the participants. If this experience can be disseminated and shared then many other schools around the country can be spared some of the painful learning curve that the Kilkenny participants went through.

Throughout the analysis that follows an attempt is made to firstly, portray a picture that remains faithful to the experience reported by the teachers involved in the intervention, secondly, identify and highlight examples of good practice and lastly, enlighten possible paths leading to further improvement.

Integration of ICTs into Learning

The integration of ICTs in teaching, in this study, refers to novel, innovative and creative methods used by teachers when incorporating technology to their own teaching methodology to enhance the learning experience. Even though the amount and complexity of ICTs used could vary, according to factors such as the teacher's own level of ICT literacy, the availability and accessibility of resources among others, the envisaged outcomes should always remain added value in terms of posing challenges and motivation to improve learning.

Role Models

In terms of relatively successful integration of ICTs into learning a number of different models have been identified and these are now described. However, it must be acknowledged that these models are not independent of the approaches to the issues raised later such as training, technical knowledge and support, time, ownership etc.

The following two examples intend to portray different slants of technology incorporation in schools but both have been equally successful in their own way. The common theme is the belief that ICTs' integration is made possible by people and ideas with technology being a "mere assistant".

Example 1

This project took place in a primary school and it is an example of cross-curricular integration of ICTs enriched by a very well balanced and fruitful use of the technology and generic software available in the school. In this regard this project reiterates the idea of ICTs integration being successful in the presence of people with novel and innovative ideas, aimed at enriching learning making the most of the resources available, that do not necessarily have to be highly technological, but rather sufficient to support and trigger the development of new ICTs enhanced teaching methodology.

The objective of this primary school was to contribute to the development of the schools' archival website covering areas such as great sporting/academic achievements and history of the local area. The project also aimed at providing the opportunity to complement the curriculum through the use of ICTs. In this respect this school not only approached the project as an ICTs skill development scheme, with the objective of developing the website, but it also integrated technology in English, History, Geography, Religion and SPHE.

In the area of English the topics covered included letter, essay and report writing, skills development, poetry analysis and discussion and poetic license. The activities performed took a variety of forms blending traditional and ICTs teaching methodology, "English letters to pen pals" "Email letters to school; writing and sending emails", "Write poem and add suitable clipart; print it", "Emailing each other and creating an address book", "Writing competition. Emailing in essays", "English writing. Report written for the website on school activities". The technology applied to perform the above mentioned tasks are real world, commonly used application such as word processing and email.

The web, PowerPoint and word processing were the technological tools used to enhance learning in the areas of history, geography, religion and SPHE. Once more the activities carried out took a variety of forms, "Quiz on countries in Europe/ Presentation of work as PowerPoint", "Project-The village pump Local history, initiative displayed on website", "World War II project", "Website useful for research", "Fun day of researching St. Patrick", "Presentation of page as web. Uploading of Healthy Lunch page to website".

The successful integration of ICTs is best embodied in the teacher's reflections that clearly portray the beneficial effects of technology to enhance learning, "Enhanced poetry greatly", "Retention of knowledge by students is very good using ICT", "Letters very successful. Children enthusiastic", "Very successful project. Teacher, students and local community all participated to a great extent", "Enthusiastic response from students to research this topic", "Web very useful as research device".

However, it is important to point out that in this school time was consistently allocated to the project and the students only missed three weeks out of the 24 that were reported. Another factor to consider is the teacher's own ICTs literacy and confidence that can be understood by the fact that there were no mentions at all to problems that derive from these characteristics.

Example 2

The innovative and novel idea of a multimedia drama production was the framework for a project carried out by transition year students in a secondary school. This initiative revealed an extremely integrative venture that has merged and enhanced the teaching and learning processes of research methods, set design, acting, music, filming and editing skills by means of an ICTs based drama production on the life of Henry Flood, a member of Grattan's Parliament and native of Kilkenny. The novelty of a drama production in a school setting is further enhanced by a simulation activity that becomes real, "students were divided into permanent groups: video recording, video editing, sound recording and editing, props and costumes, location, story board, script. Students were highly motivated as they had hands on experience".

Integration takes place from the offset of the project, even in the design phase when students are asked to undertake a "Historical research" in order to find the information needed. It further progresses into the instruction and use of generic software "Their research results were written up on PC, which required instruction on word processing", to subsequently amalgamate all the other subjects, with more demanding ICTs in terms of technological skills and literacy, "Some groups writing up on PC. Others on fieldwork, photographing possible location. Researching costumes in library and local museum. Sound sampling - for experience. Storyboard commenced, script begun". The development phase proves to be highly technical as well as integrative, "The video recording group visited the burial site of James Flood and got some very good footage. During the single class these clips were downloaded to the G3. Further sound recording was carried out. Story and storyboard continuing. Costume and props groups researching on Internet". Finally, the most integrative phase of all was the filming itself when all the knowledge and skills acquired during the learning process come together to make the filming possible, "First day on location. Three scenes to be filmed, two individual bedroom scenes and one in library", "Minor problems with lighting solved by improvisation", "First day with sound using mini disk recorder. Some background noise caused delays but eventually all scenes were filmed, recorded successfully. Costumes for next week being organised", "A good days filming, perfect conditions. Over 3 hours on location filming cottage scene where the attack takes place"

It is important to highlight the fact that this was the second multimedia project embraced by the school what provided from the offset two essential keys to successful integration of ICTs in learning: expertise and infrastructure. The teachers involved seemed to have developed a sound methodology, vast knowledge and technical

skills in the integration of ICTs. This suggestion is further supported by the fact that none of the participants reported to have received formal training in the form of IT phase 1, phase 2 or web authoring. In terms of infrastructure, the school had a fully functioning computer room in almost exclusive dedication to the project, avoiding teachers the distress of technical problems associated to newly equipped computer rooms, however not avoiding them completely, "Major problem- Technical difficulty of importing sound to video. Many extra hours trying to solve the problem. New lead may solve the problem".

Community Involvement

The next theme emerging under the broad heading of "integration" is community involvement.

In terms of community involvement in the projects the log diaries suggest two kinds of models, these being the school reaching out into the community and the community reaching into the school. These testimonies may be tentative attempts to lay the foundations of a school – community culture but they are also striking from the point of view of success for novices in ICTs integration interventions. For example one school developed links with a local hospital to carry out their project while another required access to archive material from a local government agency.

Primary schools were more pro-active than secondary schools in community involvement, opening the school's doors to the community and inviting its members to be part of the projects. "Children excited about interviewing grandparents", "Put up a report about the Brazilian soccer players who came to the school". One secondary school intended to share the outcomes of the project with the parents. "On their transition evening ... their slide shows will run, they will be able to show them to their parents".

The reflections reported on the logs suggest that schools are more inclined to promote the relation with the community by taking the school to it rather than by letting the community into the school, this is inferred by the much higher number of initiatives with this inclination. Once more all the actions come from primary schools and only one link was generated by a secondary school. The type of activities engaged in were diverse, "The scrolls were laminated ... These were displayed on the glass doors of the Cathedral", "Costume group meeting with local theatrical costume supplier", "Filming took place in Kytellers's Inn", "Use of digital camera this week on an outing to the indoor games", "Class trip for World Book Day, took photos for use on Web in newsletter".

A most interesting reflection was made by a primary school teacher who refers to the web site as an "Easy way of presenting information about school activities to parents".

Whole School Integration

When examining the question of integration of ICTs into the curriculum the question arises as to the extent which the school as a whole has integrated ICTs into its overall function.

On the whole, the participation of those teachers, students and assistants directly involved in the projects was very high. An interesting exception was transition year students who were often reported absent or engaged in other activities. "Transition year students were away on work experience this week", "Transition year had a lecture on the environment...so were not available", "...in transition and are often absent".

In contrast, the involvement of teachers and assistants who were not officially drawn in the intervention seemed to be particularly low, resulting in equally low levels of involvement in students not associated with the projects. Reasons that would generate this kind of tendency were suggested by the parties, ICT co-ordinators, teachers and assistants, reporting progress in the log diaries, "Staff do not have technical knowledge to do much on Internet site", "All have very full schedules and totally committed to other aspects of school at present", "Teachers can use digital camera, but are not taking time to learn how to download", "The teachers are busy...".

Models in which other members of the staff, not related to the schemes, were involved were very rare but yet present, "The classroom assistant and secretary laminated the pages for display", "Classroom assistant learned how to use the scanner for future use for other classrooms", "Another class using Netd@ys. Lesson on Internet, "All teachers are anxious to improve their computer skills", "Children playing Badminton in the hall, photos taken...The involvement of another class in the web site project", "Helped other teacher during the days (informally) this week", "Taking pictures at school, St Patrick's Day concert. Showed colleagues how to use camera".

An interesting example of whole school involvement occurred in a primary school that changed its ICTs policy, as a result of this intervention, to involve the whole school community. "Since January 2001 we have decided to shift our focus from the development of the website to other aspects of ICTs activities in our school, namely the use of computer room by each class and participation in the Challenge 2000 project".

The logs do not provide any kind of evidence of management involvement in the projects, however there are constant remarks to ICTs lesson being missed without possibility to be rescheduled due to the priority that seems to be attached to other school activities and obligations. "Too busy with confirmation preparation", "School-Inspector's visit on 12th & 13th March", "This week we had our annual "Art for all Day" which took place on my major IT day", "School concert involving all classes. Every spare minute used for that!", "No time available, Christmas concerts, Christmas test etc. Have taken priority!", "We had to cancel on this Thursday due to in-service day for staff. Could not be re-timetabled", "No time as every afternoon was devoted to preparation for confirmation ceremony", "When you don't have a full week it is difficult to get time to do the project". This recurrent practice may be explained by the fact that ICT is not a formal component of the curriculum and hence is not given priority on the timetable. Nonetheless, these teachers' comments suggest that ICTs are still not regarded as an important area of study. They are seen as an isolated subject/project and not as a cross-curricular tool inherent to learning.

Less Successful Cases

The success stories outlined above do not comprise the totality of experiences. In many cases a sufficient number of the factors which made for successful learning outcomes did not come together. Just as the participants, and others, have much to learn from the more successful cases so too do they have much to learn from the less successful ones.

Because this was the first major ICT intervention in most schools much time was spent on teaching the technology itself. Quotations which reflect this type of activity were plentiful in the data collected. "All of the class got their question typed in", "Group of 4 children typed in prepared text - learned how to change font, colour, size, how to use break space, capitals, insert picture from clipart and how to save the text" "Spent 2 hrs in computer room teaching basic word processing skills", "Organising groups for computer room. Word processing skills, basic instruction, keys & keyboard, saving to a floppy, inserting pictures", "Lots of word processing done and some printing", "Had an excellent transition year this week. Completed word processing". "I showed group 3 how to use digital camera. They photographed artwork for possible web use and display", "Children were very interested in learning how the camera worked. They enjoyed using it and seeing their pictures on the screen and in print", "Divided 6th class into three groups to work on scanner", "We did a lot of printing - each child printed out material to make sure she knew how to do it". While many of these comments are quite rightly upbeat in nature such activities are merely stepping stones towards higher-level learning and are not an end in themselves.

The "edutainment" factor and inability of certain pieces of software to fully engage students was reported by a number of teachers, particularly at second level. Typical comments reflecting this phenomena include: "Software doesn't hold the attention of brighter students for long. They tend to "wander off" and go into other stuff in their own files especially music", "These brighter students (also a large class) are more difficult to monitor. They get bored quickly and you have to be on their toes to ensure they aren't off doing other stuff", "This was the first time using the CD. The group found it different and too demanding. Did not show much interest on it", "Students were less attentive as the class progressed as the program did not hold their attention. It was too basic for most of them. The quiz element worked for the first 20 minutes, then the better students became restless". "They loved the quiz element especially when they paired up and competed against each other. A lot of the time they were guessing at the answers, but at least they were willing to try", "Students wanted to return to the language games, particularly the quiz game against the computer. Their interest is predominantly in the entertainment value. This quiz provides the most entertainment".

Another factor found in the teachers' reflection was the fact that the packages were being used to perform traditional activities with the only difference being that they were computer based. In general this kind of approach did not provide added value and did not encourage the participants to exercise higher thinking skills, "I'm going to try the other CD-rom, which has more reading comprehension and work sheets", "Used previous games on this CD to learn phrases", "Students were less motivated today, the enjoyment of the quiz etc has worn off, it was difficult to keep a few of them working on the program. The novelty has worn off". "They feel more comfortable with this level of language use. Difficult to get beyond the basic".

It is interesting to note that Jane Healy recounts many similar negative experiences, in a wide range of schools in the USA, in her book [Healy 1998].

Training

Details of the training programs undertaken by the teachers outlined in the following paragraphs refer specifically to the period of this evaluation and prior to that time, many of the teachers attended training courses for which detailed statistics were not kept. In the technical area KIA organised a number of short term technical training courses on behalf of the schools, these included a four day course on IT networking attended by twelve teachers and customised IT networking courses given in individual schools by a trained technician. The Kilkenny Schools also participated in an online PC helpdesk support pilot project. Nonetheless, this experience has shown that technical support in the schools is an essential ongoing requirement.

The logs suggest that primary school teachers involved in the intervention were only provided with basic computer skills training. Out of the thirteen teachers who reported progress through the diaries six stated to have completed the NCTE's IT Phase One training program, only three phase two, four ECDL and eight a five-day summer course on Dreamweaver (a web authoring package). On-going training throughout the intervention was provided on the operation of the hardware and software provided for the same.

"ICT co-ordinator visited and updated four more teachers on their IT skills", "Meeting ICT co-ordinator again tomorrow to go through uploading of data and alter some pages currently up on site. We're getting there. Tutorial on Dreamweaver from ICT co-ordinator", "Training given on camera by ICT co-ordinator was encouraging and helpful", "Training session education Centre two hours (camera & Dreamweaver)", "The refresher course one hour per week, very good idea. Brushing up on what we learned in the summer course".

At the secondary level teachers did not report, on the log diaries, any formal computer skills training aimed at the operation of the hardware and software provided for the intervention. Out of the thirteen secondary school teachers reporting progress by means of the diaries, only four transition year teachers stated to have received formal computer skills training. Only one teacher reported to have completed both IT phase 1 and 2. Two teachers had completed phase 1 and the fourth teacher had taken a web-authoring course. An additional two transition year teachers had received training in the form of Intel Teacher of the Future training course.

The figures provided by the log diaries manifest the need for a greater effort in terms of teacher training, in order to avoid situations in which teachers are required to use and integrate tools that are completely unknown to them. However, while computer skills training is extremely important, the less effective integration models reported in the previous section suggest that there is an imperative need for extensive teacher training in ICTs integration methodology to best exploit the potential of technology in enhancing learning. In this regard, it is important to highlight that without the delivery of such training it will be very difficult to engage teachers in the integration process as they do not see the beneficial effects of ICTs and therefore they would be reluctant to use ICTs in their classes.

Technical Things

The insufficient technical support provided to schools involved in the intervention is well documented by the teachers' reflections and was one of the major bugbears of the project. The severe lack of technical support negatively interfered in the implementation of the programs in terms of time misuse, teachers' confidence and frustration, delays in projects' conclusion and change of teachers' roles and duties. Lack of technical support is a well documented problem in the use of ICTs in the classroom and the provision of a number of short IT networking courses and a trial on-line help desk meant that the teachers in this initiative were better supported than most.

Nevertheless, the large amount of time devoted to technical support issues was seen by many teachers as a waste. "Trouble with printers and wasted time sorting them out", "lot of technical glitches to overcome before real work can start", "A lot of time spent sorting out anti-virus software and loading on various machines", "Great need for technical support, had a lot of problems with computers fixing", "There is a great need for technical support. I lost a lot of time one morning trying to get a printer to work", "A lot of time spent trying to work out how CD writer functions, still not going smoothly", "Technical problem taking a lot of my time and getting no-where".

A jeopardising effect on teachers' confidence and a great feeling of frustration often occurred in overcoming technical problems, which was exacerbated by the lack of technical support. "I felt somewhat apprehensive, expecting something to go wrong and it did! Computer picture Breaking up. Would need to feel more confident about the hardware", "Cannot connect through DreamWeaver to upload site alterations, very frustrating. Will leave till next week as more work required on site. Spent two hours trying various options", "Back in computer room.

Although folders were saved on desktop, the presentations were not in them. I was not able to help. Found this frustrating”.

The constant encounter with technical problems and inability to solve them further endangered the projects by creating delays and disturbances at classroom organizational level, “Camera out of action, so no progress possible”, “Major problem - Technical difficulty of importing sound to video. Many extra hours trying to solve problem”, “We had difficulties in receiving the answers, printing them”, “A few computers froze or the students couldn't get the program up”, “We had problems getting all the computers linked to the net. This is not good from a classroom organisational point of view”

In schools where there was a teacher in charge of the ICTs project or the computer room, this person almost changed his/her role from that of teacher to that of system administrator and technician. This kind of situation lead to incidents that may suggest unpleasant situations being generated among members of the staff due to the fact that teachers are covering the functions of technicians. “Big problem today, after lunch the teacher in charge of the computer room found graffiti on the start up screen, the last students in the room were my class. I don't know if I'm bringing them again”, “At this stage the hardware is working, but frustration still occurs when some teachers cannot connect to the Internet. It works fine for me but the system is far from fool proof and if something goes wrong some teachers are not able to put it right again”.

Although the lack of technical support is evident and this generated negative effects, it is also important to highlight that extensive use was made of informal technical support from students. This deserves further exploration as it could form part of an effective model of technical support and training in future interventions, “There are 4 girls in class who have computers at home and are able to act as trouble-shooters”, “Needed help to get the class started the server, not turned on”, “...one student exceptional she helped”.

Time

Many teachers' worked extensively in their own time. “It takes a lot of time to surf and prepare appropriate sites; always at home and in own time because no time in a school day. Concerns about accidentally calling up an appropriate site, especially by children”, “Four hours downloading pictures from camera and resizing, printing some. Thirteen hours office work write text and pictures at home. Internet lesson ¾ hour and one hour preparation at home”. “This takes up a lot of my time... lunch time and after school”, “I'm improving the more after I do it, but it is almost all outside of school hours, in my own time”, “Spent time at HOME updating web site. No school time”.

“Time, time, time”, “Also the time given to this project needs to be increased greatly”.

Time spent on technical support issues has just been mentioned but there was also a lesser commitment to project administration. “Two hours Interim financial report”.

Time was also an issue due to the fact that most teachers are still novice in ICTs skills and that school timetables are already loaded. “The loaded timetable in school does not help us. We cannot meet as a group to discuss project”, “Time limited but, children very keen and interested”, “All very full schedules and totally committed to other aspects of school at present”, “Time is very short. The timetable is so full...”, “Not enough time available to involve every child to the extent I would have liked”, “Very busy time in school- just couldn't make time for computer”.

Insufficient equipment was another factor that additionally contributed to aggravating the existent time problem, “Several four, five interfaces would be great so they could do more themselves and it would take less time”, “This took a long time, as they had to share resources”, “Time and the fact that Dreamweaver is only installed on one computer is the main drawback at this point”, “Difficult to give each pupil sufficient time on the computer to develop skills”.

The Project Co-ordinator

The crucial role played by the dedicated project/ICT co-ordinator cannot be overestimated. This is reflected in the comments below. A detailed description of the co-ordinator's role is given in *Appendix 3 - The Role of the Project Co-ordinator* while the co-ordinator's own view are expressed in *Appendix 4 - Reflections of the Project Co-ordinator*.

"Co-ordinator has spent the last 2 days taking 4 of our teachers on an individual basis to update their own skills."
 "ICT co-ordinator came in to give guidance & assistance during the 2 days; Day1: groups in comp room organising results of their project work (saving to floppy); Day2: Putting pages together & uploading- Very successfully put 7 pages up."
 "Met with ICT co-ordinator 1 hour to discuss ideas". "Meeting ICT co-ordinator again tomorrow to go through uploading of data & alter some pages currently up on site. We're getting there."
 "Tutorial on DreamWeaver from ICT co-ordinator. Very helpful to have someone there to show you the best way to do things. ICT co-ordinator came back at 2pm & after many attempts we eventually got it up on the web."
 "Thurs: ICT co-ordinator came, planned site layout, change tabs"
 "2hrs with ICT co-ordinator trying to get material up onto site-Internet explorer disconnecting as soon as try to open DreamWeaver & connect scanning diagrams for inclusion on site".
 "Training given on camera by ICT co-ordinator was encouraging & helpful". "Training given by ICT co-ordinator on digital camera useful & helpful. Some research done...".

Lessons Learned

It was stated earlier that the study would try to shed some light on some specific questions. These are repeated below along with tentative answers.

- Teacher training: to what extent and to what standard are the project teachers trained?

This is an area where further work is needed. In particular training is required on the pedagogical use of ICTs. Postgraduate degrees and diplomas, as well as practical workshops and best practice information exchange, are a very good way in which teachers can develop a deeper understanding in this area.

- Usage of technology: how much time do teachers spend using ICTs for administration, preparation in class, private use or pupil use for learning?

It is obvious the ICTs are being used and that the whole initiative took up an enormous amount of teacher time. However without further training and support this is likely to be a one-off occurrence in some schools.

- Content: planning for curriculum delivery: how are the Project Content and IT skills prioritised?

As this was the first time that many of the schools were involved in ICT projects the project content and priority of ICT skills are areas which need further attention.

- Infrastructure: hardware installation and access: are the resources, which were awarded, in use and available?

By the end of the project most systems were up and running. KIA assisted in preparing equipment specifications and in recommending software solutions. There is increased access to ICT available for pupils. Primary Schools are considering installing LANs in their schools while Post Primary Schools would like a stand alone PC in each classroom.

- Technical issues: is technical help needed and available? How much time is spent by teaches *giving* technical help, or on network administration-outside of class time or even school time.

Lack of technical support was a major headache although teachers involved in the initiative received more support than is common in other projects. KIA's approach to the issue has been short term reactionary rather than long-term preventative, primarily because of resources. It was realised that a technician facility was required but there was difficulty in finding a suitable local candidate and also many of the post primary schools participating in the projects have only in the last year upgraded to a LAN in their school. The

technical issues become paramount when the number of computers in schools increased. In August 2001 Kilkenny Information Age in association with the Kilkenny City Schools have sanctioned appointment of an IT Engineer to assist schools to address technical problems and make better use of their ICT Resources.

- Student learning: what are the teachers' perceptions of student reactions/responses to learning with ICTs; what do the students themselves think?

There is definite evidence that in some cases at least the initiative resulted in very high quality learning experiences. This included students learning how films are created, students improving their oral and presentation skills, socially disadvantaged children being given the opportunity to improve their numeracy and literacy skills. Reports on the logs suggest that many children were very enthusiastic about using ICTs.

- Internet access and usage: for research or for contact in class or in school staff room? Was the Internet used privately at home in preparation for class?

Extensive use was made of the Internet but lack of access and slow connectivity, particularly in the classroom, is a problem. ISDN access in the primary schools classroom would be desirable but the cost is a major issue. Controlling access to unsuitable web site is a major problem.

- Contact or collaboration: with other teachers in the school and in the city. To what extent did this occur?

A good side affect of the project was the extent to which it got inter and intra-school contacts going. In the post primary sector staff members from different departments worked together and shared pedagogical ideas and technical expertise, teachers collaborated with other teachers in other schools. The Primary Schools collaborated closely in the Schools archival project.

Appendix 5 Recommendations K outlines the recommendations of the KIA Schools management team. The CRITE team fully endorse these recommendations as they are very much in line with the CRITE recommendations made in [CRITE 2000].

Appendix 6 Questionnaire on the Evaluation process Itself contains the results of the final questionnaire which was intended to elicit comments on the evaluation process itself. (For politeness or some other reason these are for the most part positive!).

In Conclusion

Five different stages have been identified in the take-up of ICTs by teachers. These are familiarisation, utilisation, integration, re-orientation and evolution. It is clear from this study that the majority of the participants have moved well beyond the familiarisation stage and are actively engaged in utilisation and integration with a few brave souls being further on in the process.

The steep learning curve the participants scaled was enormous and a strong case can be made that the participants are now in an ideal position to build upon what has been learned and to carry the process forward. This does of course require that many of the serious issues raised in this study are addressed.

The experiences of the KIA Schools community also deserves much further dissemination so that others can learn from the efforts of those involved.

Appendix 1 - References

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Appendix 2 - Project Timetable

November 1998 – December 1999

- Meetings with schools to identify appropriate projects.
- Schools' preparation of their own project plans using a template designed by NCTE.
- A four-day IT Networking training course attended by twelve schools.
- Selection of the IT co-ordinators in each school.
- Minister for Education and Science Michael Martin launches initiative in November 1999.
- Preparation of equipment specifications for each of the projects.
- Identification of project partners.
- NCTE released 50% of current funding to all schools.

December 1999 – June 2000

- Appointment of fulltime SIP Co-ordinator January.
- Delivery and installation of equipment funded by Kilkenny Information Age to all schools February - May 2000.
- Development of individual primary school websites.
- Preparation of a training manual for schools archival project.
- Training for the primary teachers in out of school hours in Kilkenny Education Centre.
- Completion of project H in June 2000.
- Local radio publicity and media publicity re the Project F.
- Appointment of IT Class Assistant to Project B September 2000.

June 2000 – June 2001

- Design of the implementation of the evaluation schedule in association with NCTE, KIA, CRITE and Kilkenny teachers.
- Organisation and delivery of summer training course for primary teachers on Internet, email, Dreamweaver and Photoshop.
- Purchasing and installation of relevant software for Project B – software funded by NCTE.
- Training for IT Class Assistant and staff members of Project B.
- On site NT network training to Project B and Project H staff members.
- Network training with Intel to staff member of Project F.
- SiR training sessions on the OILS software in Project H's school.
- Refresher course for primary teachers on the use of Dreamweaver and photoshop.
- Specialist training by NCTE for Video conferencing to teachers in Project A.
- Presentation of the Kilkenny Information Age Schools Initiative's work to the SIP Symposium in Portmarnock, December 2000.
- Preparation of paper on the SIP Symposium presentation for publication in September 2001.
- Majority of schools received 40% of current budget funding from NCTE.
- Kilkenny Schools participation in pilot of PcHelpdeskonline three-month technical support initiative.
- In school one-to-one staff training sessions on ICT skills and ICT integration in four primary schools.
- Continued support to primary schools on the use of digital camera and web design skills.
- Training to post-primary teachers to facilitate them to develop their project websites.
- Publication of a newsletter SIP055 of the Kilkenny Projects.
- Feature on project in Examiner supplement "Town and County" re the projects.
- Uploading of project website to www.sip.ie/sip055
- Review of evaluation of CRITE report.
- Launch of a number of Kilkenny Archival Websites.
- Local radio publicity re the launch of a primary school Archival Website.
- Project B, IT Assistant final report.
- Presentation to NCTE of submission for continuation of projects and development of new ones.
- Majority of schools apply to NCTE for further 40% current budget funding

Appendix 3 - The Role of the Project Co-ordinator

The Education Project Co-ordinator was employed by Kilkenny Information Age and NCTE. The role of the Co-ordinator was to support schools and teachers in developing and implementing their SIP projects, developing training programs and provide ICT supports. The Project Co-ordinator also worked in collaboration with the director of Kilkenny Education Centre and other providers to ensure that the best possible local service was provided within the resources available. The Project Co-ordinator reported to the Kilkenny Information Age Education Steering Committee on a monthly basis and carried out the following tasks:

- Planned and developed a programme of support for the ICT co-ordinating teachers and other teachers involved in the projects in the different schools.
- Delivered training programs and demonstrations of best practise in the use of ICT applications.
- Liated with the Principals in the project schools on the progress of the projects and also was in regular contact with the IT project co-ordinators in each school in progressing their projects.
- Liated with other SIP initiatives to ensure a consistent and co-ordinated approach to project development, delivery and implementation was carried out in Kilkenny.
- Provided advice and disseminated information, directly to schools on all aspects of SIP in conjunction with NCTE's information dissemination activities on Schools IT2000 generally.
- Planned and co-ordinated the provision of technical support to the project schools including PcHelp-desk-online and Network training courses.
- Monitored, reviewed and contributed to the formal evaluation of the different aspects of the implementation of the projects, in conjunction with the NCTE and the Kilkenny Education Steering Committee.
- Prepared periodic reports as required, and prepared reports on the different projects.
- Assisted in the preparation and editing of appropriate resources materials, and the facilitation of workshops and special interest groups. These resources are available at www.sip.ie/sip055.
- Publication of project newsletter.

Appendix 4 - Reflections of the Project Co-ordinator

Two interviews with the local ICT Coordinator were held on Thursday April 5th 2001, and June 13th 2001, with email contact in between these dates to review the evaluation process.

The co-ordinator sees the success of the primary schools Archival SIP project primarily being due to the dedication and interest of the teachers involved. When more than one teacher in a school is involved, this created a team environment where teachers exchanged expertise and problems on the projects.

She is confident that the integration of ICT into the curriculum is happening in the primary sector, but it is hampered by the fact that the majority of primary schools only have one computer in the classroom, and only one computer in the school connected to the Internet.

She reiterated the view expressed in the logs, that the structure of the log did not lend itself to portraying the excellent work being undertaken in the schools. She states that many of the teachers would prefer to write a paragraph instead of ticking boxes.

She felt the visits by the research Team were crucial, as it was impossible for anyone to get a practical understanding of what is going on from reading the log/diary. The seminar was the first occasion where the teachers from both the Primary and Post Primary had the opportunity to meet with each other during the whole SIP project implementation, and this was seen as a positive exercise.

She is convinced that the SIP projects have encouraged the teachers in Kilkenny to embrace technology and to integrate it in their work. She is also of the opinion that more is needed: more training for teachers in how to integrate technology into the different subject areas, more paid technical support, increased student access to computers, and more certainty about future funding for ICT in education.

She stated that the following action points were very positive signs of success.

- The employment of an IT classroom assistant to assist schools in the delivery of ICTs.
- The inclusion of ICT on the Transition Year programme Timetable.
- There was evidence of increased demand for the use of the ICT room in many of the schools
- Familiarity with ICT amongst the teachers has stimulated an enthusiasm to find ways of integrating ICT into the curriculum.
- A greater number of teachers are participating in ICT as seen in the data-logging project, where initially only three teachers were involved now all six science teachers are using the equipment.

In response to the question where was most of her own time allocated? The co-ordinator replied as follows:

I devoted the greatest proportion of my time to the **Kilkenny Archival Project** which involved thirteen schools. An IT co-ordinator was assigned to the project. During the initial stages the level of ICT literacy amongst the staff of these schools was low and there was a sense that this project was enforced upon them. I delivered group and individual training on how to use the digital camera, the scanner and on how to upload web pages. Initially, only one teacher in every school received training from me. Nevertheless peer teaching amongst staff members on how to use the digital camera has occurred. Now when I visit schools I work with a number of teachers adapting the training to match their ICT requirements and to give them the ICT skills to integrate ICT into the classroom. For example, in working with junior infant teachers they are shown how to load software onto the pc and how to design simple worksheets with the autoshapes element of the drawing toolbar in MS Word. Training in Powerpoint is used as a tool for reinforcing the reading scheme at junior level. I demonstrated how to download freeware such as WordSearchFactory etc. to help in class preparation. On completion of the initial phase of confidence building in using ICT, the majority of the teachers have now reached the stage where they are ready to integrate ICT into the classroom.

Post Primary Sector

I supported the project co-ordinators of the other seven projects, meeting with them and their teams at least twice a term. Each of these projects developed at varying rates and produced varying amounts of resources, depending on teacher time, technical issues and the human factor. In terms of training I liaised with the Local Education Centre in the delivery of general training programs and sourced specific training from external sources.

In response to the question what should have been done differently the co-ordinator replied as follows,

Teachers involved with this project expressed the opinion that they should have a greater role in its implementation and the website should only have been the side issue and not the main focus.

The post primary co-ordinators should have met more frequently and this process should have been instigated at the start of the initiative. I did organise one meeting in the Project H School in December 2000 and representatives from four schools attended.

Factors required to sustain the projects without the intervention of the education co-ordinator

The majority of the secondary school projects will continue to integrate ICT into the selected subjects chosen as part of their projects. There is also evidence of increased participation by teachers in the application of ICT in the classroom. The appointment of an ICT engineer will help address the technical problems. Some teachers will need further training on the pedagogical use of ICTs.

The primary school teachers need further support in terms high-speed Internet access into their classrooms, technical support and training on the pedagogical use of ICTs.

Appendix 5 Recommendations Kilkenny Information Age Team

The following are the recommendations of the KIA Schools management team itself. The CRITE team fully endorse them.

- A directive from the Dept of Education & Science on the role of ICT within the curriculum.
- The status of ICT on the schools timetable.
- A solution to address technical support in the schools on an ongoing basis.
- The need for further investment in ICT equipment and comms for the primary schools.
- Special attention to be given to socially disadvantaged children in using ICT as an alternative way of learning.
- All software applications should be discounted for the educational purposes.
- The allocation of sufficient time to the teachers to advance and develop their ICT skills.
- The development of links with the business and community sectors re ICT project work.
- The identification of support mechanisms to sustain the projects and to preserve the wealth of skills and material already developed.

Appendix 6 – Questionnaire on the Evaluation Process Itself

The Aim of the Final Questionnaire was stated as follows:

“The purpose of this final questionnaire is to elicit your comments on the evaluation process - the particular data collection instruments used:(initial questionnaire; log/diary; seminar Jan 19th and schools visits, Jan18th). It is your opportunity to evaluate the evaluation! Our reasons are to include your views in our recommendations for future similar evaluations, which will be conducted on other SIP projects in different locations.”

Forty-four questionnaires were handed to the 19 schools on the 22nd of March 2001. Twenty-six questionnaires were returned, a response rate of 59%. The responses were returned as follows: 10 were returned by post; 2 were returned by e-mail; 14 were collected by a researcher on 18th of April 2001. On the 18th of April 2001 the survey was closed after sending one e-mail reminder to non-respondents.

The respondents completed the questionnaire in their own time and were asked to identify only the SIP project number, in order to give as much anonymity as possible. The researcher team chose to distribute the questionnaire rather than interview the respondents and ask them to complete the questionnaire in their presence. The presence of the researchers might have influenced the responses.

Summary and Commentary on results of Questionnaire.

- Q1 25 Replies: 67% of respondents felt that the Timeframe of the Evaluation was of the right length, while one person commented that an early evaluative intervention could have helped modify the project.
- Q2 25 Replies: 40% recorded that the log was frequently filled in, but 48% completed it either only occasionally or never. One comment described the log as unsuitable to their project, and one said that the log did not record the informal learning that occurred.
- Q3 23 Replies: The one page format of the log suited 61% as a record-keeping medium, while 22% found it inadequate. Five respondents commented that the log design was inappropriate either to their project or their school.
- Q4 23 Replies: 74% thought that the time taken to complete the log was acceptable, 26% thinking it a nuisance.
- Q5 24 Replies: The “Thinking Skills” section was found to be helpful or partially helpful by 54% in judging learning using ICTs, but 46% found it otherwise. One teacher found it gave an insight into the process.
- Q6 21 Replies: During the Evaluation Team’s visits to the schools 76% were content with the manner in which they showed their project, 24% did not feel that their project was shown to their own satisfaction. Four respondents commented that the Evaluation Team did not visit them, and two commented that they visited either too late or that the classroom was not visited. The Gaelscoil respondents were gratified that the evaluators addressed their pupils in Irish.
- Q7 21 Replies: During the timeframe of the Evaluation 67% had either changed the way they used ICTs or incorporated ICTs into their classroom practice.
- Q8 25 Replies: 80% found that their personal skills and usage had improved. Four of those who replied observed that while the teacher skills had improved these skills had not yet been transferred to the pupils.
- Q9 0 Replies
- Q10 26 Replies: Internet usage was increased by 46% of respondents, 50% experiencing no change in usage.
- Q11 25 Replies: Technical Support was available to 48%, as needed, another 48% either seldom or never received support. 4%had no need of support.
- Q12 24 Replies: Two-thirds of respondents found the seminar with CRITE excellent or very helpful, while the remainder thought it marginally helpful. Comments from two participants recorded that sharing SIP experience and that the feedback from the team was valuable.
- Q13 19 Replies: The social interaction at the dinner/night-out was viewed as excellent for connecting with other schools by 47%, however 53% met only with teachers from their own school.

- Q14** 19 Replies: In the suggestions for future evaluations five questioned the desirability of the logs. One suggested that the evaluation should be done by interview instead of by using a log-diary. One teacher saw the evaluator as being over inquisitive and judgemental. Other responses indicated; that only end product should be evaluated, that the evaluation process should be made relevant to all projects, and that the timeframe for evaluation was too long.
- Q15** 22 Replies: The most important issue to be highlighted in the report was seen by five respondents as Technical Support. Four felt that resources, funding and a proper system of substitute coverage were important. Time constraints should be emphasised in the report according to six responses. Special Needs software and software “as gaeilge” were items requiring attention in the report, while the suitability of web-based projects for Primary level should be questioned. Two teachers saw the change in their teaching technique as a result of the process as being worthy of mention in the report.
- Q16** 25 Replies: 48% thought that the Evaluation process was very good for focusing on the SIP project objectives. 52% thought the process was only marginally useful. The comments again reflected that time constraints were significant in two cases, another experiencing stress as a result of the process.
- Q18** 0 Replies: No other final thoughts were recorded.

Other general observations were that the projects and their evaluation were imposed, not chosen, and that it was a particularly disrupted year given the teachers industrial action and the disruption caused by foot-and-mouth disease.

Appendix 7 – Primary and Secondary Log Diaries

LOG/Diary for Primary Teachers-KIA- SIP		Your ICT Training (any developments)	
Name:		IT2000 Phase1	
SIP project Number		Phase2	
Week	Oct13th 2000	ECDL	
Class/Year Group:		Dreamweaver3	
Class time spent on project		Use of class computer, (admin)	Time spent:
Timetabled class in c.room		Personal/staff room	Time spent
Own preparation time		At home	
Focus of Lesson		Relation to overall Scheme of Work	
Subject area		(Curriculum)	
ICT skills		Proposed Methods of Evaluation	
Prerequisite		Overall (theme/unit)	
Taught			
Children's learning			
1	Knowledge-		
2	Comprehension	Specific (this particular lesson)	
3	Application/ explore/Activity		
4	Collaborate/Discuss		
5	Analyse/ Synthesise		
6	Evaluate/Create		
Methodology Employed this week on project		Resources Available:	
Location of project work:		Computer room	
Direct instruction of content by teacher:		Classroom	
Demonstration of IT skills by teacher:		Hardware used	
Paired work on comp.:		(printer/camera/scanner)	
Individual Research on Internet:			
Group collaboration to do task:			
Other:		Software Used	
Teacher Reflection-Key thoughts		Technical back-up	
		Required	
		Available	
		Technical help given to colleagues:	
		-eg to Network: time spent	

SIP Second-level teachers for self-evaluation		Time spent in project preparation (ICT) this week																						
Name:		Formal Usage of Computer: (tick) -eg giving courses/help (training)	Daily Weekly Occasionally never																					
SIP project No:			Informal/personal use (staff room or at home)	Daily Weekly Occasionally Never																				
Week	Oct13th2000	Time Spent on Network:																						
Class/Year Group:		Curriculum Area Addressed:																						
Timetable for ICT project:		Assessment Planned for this unit/module/activity																						
ICT Training (Any developments)		<table border="1"> <thead> <tr> <th>Level</th> <th>Thinking Skill</th> <th>Today</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Information/knowledge</td> <td></td> </tr> <tr> <td>2</td> <td>Comprehension/Application Search, Select, Judge</td> <td></td> </tr> <tr> <td>3</td> <td>Explore, Test & Activity (engage with the information)</td> <td></td> </tr> <tr> <td>4</td> <td>Collaborate, discuss, demonstrate</td> <td></td> </tr> <tr> <td>5</td> <td>Analyze, Synthesize and Evaluate</td> <td></td> </tr> <tr> <td>6</td> <td>Create and promote new information</td> <td></td> </tr> </tbody> </table>		Level	Thinking Skill	Today	1	Information/knowledge		2	Comprehension/Application Search, Select, Judge		3	Explore, Test & Activity (engage with the information)		4	Collaborate, discuss, demonstrate		5	Analyze, Synthesize and Evaluate		6	Create and promote new information	
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