

Evaluation of the Gairloch High School Digital Technology Project

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Executive Summary

Introduction

In April 2005, under the FLAT Framework Agreement with Professor Wilkinson, the Faculty of Education at the University of Glasgow was commissioned by Scottish Executive Education Department (SEED) to investigate the impact of the Digital Technology Project (DTP) at Gairloch High School. A team of four from the SCRE Centre, the Department of Curriculum Studies and the Department of Educational Studies conducted the evaluation.

The Gairloch High School Project

Gairloch High is a small integrated community school in a remote rural village in Ross-shire in the northwest Highlands. The DTP explored the use of digital technologies across a range of different subject areas within the secondary school: Art, Music, Modern Languages, Computing, Modern Studies, Science and Support for Learning. One of the DTP's key aims was to create a bank of digital resources. The other key aim of the DTP was to empower pupils in their own learning and use a greater diversity of teaching approaches. The overall aims and objectives of the DTP were to facilitate:

- Subject departments collaborating in the production of digital lessons.
- Digital lessons becoming an integral part of pupil revision and learning resources for future pupils.
- The development of pupils' skills associated with the use of digital technologies in order to build up digital resources for use by future cohorts of young people.
- The development of the school Intranet to allow digital video streaming to showcase pupil work.
- The use of online digital resources by future pupils, parents and other members of the community.
- The use of digital technology to enhance and integrate the community school approach, allowing all community partners to work more closely together.
- Pupils in participating departments being able to construct personal e-portfolios of their work.

Evaluation aims

This evaluation explored whether the project has impacted on pupils, teachers and the community. The key research questions, derived from the DTP's aims and objectives, are detailed below with the main findings of the evaluation.

Methodology

The research design employed a qualitative approach using both interview and focus group methods. The research was based on the perspectives of the school's key stakeholders and consisted of 16 one-to-one interviews with staff; 8 pupil focus

groups; 14 telephone interviews with selected parents; and 3 telephone/email interviews with community partners.

Research questions and key findings

The main findings are highlighted below, alongside the evaluation's key research questions.

- *In each of the subject departments involved in the DTP, do the participating teachers report that involvement in this project has developed their ICT skills and the teaching and learning styles in their subject?*

Participants agreed that the DTP was a way to enhance teaching and learning in their own subject and an opportunity to explore the use of ICT within their subject. Staff were able to use experiential learning techniques in a flexible way with pupils. It had *'allowed pupils to get hands on experience and to use more visual types of learning'*. Teachers felt more comfortable with digital technology as a result of the DTP. *'I'm not scared of it anymore! I don't see the tension between the process and the product, more like a complimentary relationship. The process is the priority.'* In Modern Studies, pupils made a mini documentary, using iLife software, about the health care needs of the elderly. In Modern Languages, pupils had dressed up in typical French clothing, and were video-recorded speaking in French at three periods throughout the year. The DTP *'makes you aware of your own teaching and makes you reflect. It opens things up. It impacts on everything.'* In Biology, pupils used PowerPoint software to make presentations about the New Zealand flatworm. *'Digital technology is no longer special; it is what we do!'*

- *Are subject departments collaborating in the production of digital lessons?*

A key example of collaboration was between the Art and Music departments on a project with S3 pupils. The pupils worked in pairs to create their own videos on the topic of 'emotions'. *'They created their own compositions using keyboard, fiddle, harps and bagpipes. The software lets them make up the music...It is an ideal platform because it is all integrated in GarageBand [software].'*

- *Have digital lessons become an integral part of pupil revision and learning resources for future pupils?*

Pupils reported using digital resources for revision purposes: 'Bitesize' and 'SCHOLAR' were used in Chemistry, Physics and Mathematics. Other curriculum resources are being piloted in the school and were under development for the Highland Virtual Learning Environment (HVLE) in Biology and Science.

- *Have digital technologies and related pupil skills been developed to enable teachers to build up digital resources for use with future classes?*

Examples of some of the newly available resources in participating subject departments are: Inspiration, PowerPoint and digital camera and video recorder. The Internet is routinely integrated into teaching and learning. Also routinely used now are DVDs and the interactive whiteboard, web authoring software and GarageBand.

- *What additional digital technology skills have staff in participating subject departments developed?*

Some participants had learned additional ICT skills as a result of the project. The new skills included movie making, filming, photography, and music composition. Most staff saw the project as a practical way of keeping up-to-date with technological innovations and pupils' expectations.

- *Have pupils in participating departments constructed personal e-portfolios of their work?*

Whilst there was no evidence that pupils had constructed personal e-portfolios, they were able to use the DVDs that they had made in Art and Music to demonstrate their skills in support of their applications for a Community Film and Arts course.

- *How do the courses in the participating subject departments differ from those taught previously? What is the 'added value' of the digital technologies used on pupil skill development?*

Pupils highlighted that the digital technology was opening up new and creative ways of working and communicating their ideas to others. An interesting example was the pupils' use of video diaries for the Duke of Edinburgh (DoE) award. Another innovative example came from Modern Studies: pupils made a video about UNICEF's worldwide activities, which has been shown in other Highland schools.

- *What is the potential for involving other subject departments and pupils undertaking national exams?*

In English, class discussions have been digitally recorded on various topics, such as 'global warming'. The pupils said that reviewing the video clips allowed them to pick up on mistakes rather than relying on the teacher telling them. They also pointed out that a film of their discussion was to be used as an exemplar with the next year group.

- *Do pupils, parents and other members of the community use the online digital resources?*

A minority of parents reported that they were familiar with digital technology and regularly used the Internet at home. The overwhelming majority of parents saw digital technology as something very important for their children, but not for themselves. Everyone agreed that it was particularly important for children in such an isolated area to keep up to date with the new technology because it would increase their job prospects. *'My son can now use the computer a lot more than before and using digital cameras and camcorders gives them a sense of doing something important. Hopefully it will help them going forward career-wise.'*

- *Has digital technology allowed community partners to work more closely together?*

The DTP had facilitated a number of school/community partnerships, which are still underway. These include the local radio station, the National Trust for Scotland, and the local heritage museum. *'I know of pupils who are now adept at video editing who were not beforehand... the local radio station is a fantastic*

opportunity for pupils who are interested. School staff provide courses in the use of digital technology for the community.

- *What is the impact of the DTP on other subject departments?*

Filmmaking is now clearly an integral part of life in the middle and upper school at Gairloch: *'all trips and events get filmed. It is time consuming but it is worth it!'* Other subject areas where video techniques have been successfully incorporated include Gaelic (a fashion show with a voice-over in Gaelic) and PE where it has been used to provide formative feedback on pupils' sports performance.

Conclusion

Very significant progress has been made in deploying digital technology across the curriculum in exciting and innovative ways. However, the extent to which Gairloch High School has met the original, ambitious aims of the Digital Technology Project is mixed. Despite the original consultation process some decisions were seen as divisive by a few staff. The equitable distribution of the DTP resources was an issue for the future and would be addressed in relation to the school's other priorities which are linked to *A Curriculum for Excellence: Assessment is for Learning*, and *Curriculum Flexibility*. Nonetheless the project was of significant value to a range of pupils (including those pupils in Support for Learning): they would like to use it more often and in more subjects across the curriculum.

1: Background

1.1 Introduction

In April 2005, under the FLAT Framework Agreement (QLC/2/5/41) with Professor Wilkinson, the Faculty of Education at the University of Glasgow was commissioned by SEED to investigate the impact of the Digital Technology Project (DTP) at Gairloch High School. The evaluation was conducted by a team of four from the SCRE Centre, the Department of Curriculum Studies and the Department of Educational Studies. It was led by Dr Davidson of SCRE.

The use of e-learning resources in schools is directly linked with the Scottish Executive's key policies in education as specified in the *National Priorities* (SEED, 2000a) and *A Curriculum for Excellence* (SEED, 2000b). The Priorities include improving achievement and attainment (Priority 1); development of lifelong learning skills through encouraging increased levels of IT literacy (Priority 5), and enhancing school environments to make them more conducive to learning (Priority 2). In line with the current thinking on the curriculum outlined in *A Curriculum for Excellence* this project is timely in exploring how digital technologies can promote *Successful Learners* and *Responsible Citizens*.

The increased use and availability of digital technologies in schools brings important benefits and opportunities for exploring different learning and teaching strategies. The recent range of government and school information and communication technology (ICT) initiatives in Scottish schools demonstrates the interest in exploring the potential of digital technologies in the curriculum. The *5–14 Guidelines* on ICT suggest:

The importance of ICT cannot be overestimated. Young people in our schools today will require considerable ICT knowledge, skills and awareness if they are to be successful in their futures and the economy will depend on a high level of ICT capability from its people if it is to develop technologically and to compete internationally.

(SEED, 2000c: 3)

Digital technologies can be instrumental in encouraging the development of lifelong learning skills through encouraging increased levels of creativity (National Priority 5), enhancing school environments which are more conducive to teaching and learning (National Priority 2) and increasing awareness of community, both local and global (National Priority 4). The ICT guidelines maintain that the advantages of ICT include allowing young people '*to benefit personally, to collaborate in groups and to communicate locally and globally*' and that ICT '*supports a wide range of broader educational objectives including independent learning, collaboration with others and communication skills*' (SEED, 2000c: 3).

Given that the contract to deliver the Scottish Schools Digital Network has just been finalised (SETT, 2005), many rapid developments in ICT may be expected to occur in the near future in schools.

Gairloch High School has previously been commended for its use of ICT:

There is a strong sense of community and a positive learning environment within the school, where teachers and pupils enjoy good personal working relationships. The school has recently been awarded Investors In People (IIP) status. Despite its remote and rural situation, the school is very much committed to ensuring that the education of its pupils includes a clear and significant focus beyond the local community. As will be seen, ICT has played a significant role in making this happen...

(Ogg, 2003)

1.1.1 The Gairloch High School Project

Gairloch is a remote rural village in Ross-shire in the north west Highlands. It borders onto the sea and is near the mountains of Torridon. Inverness College, with which the school is linked, is 80 miles away by road. Tourism, salmon farming, cottage industries and crofting contribute to the local economy.

A profile of Gairloch High, which is a small integrated Community school, is shown in Table 1. In terms of the contextual characteristics, Free School Meal Entitlements (FSME) and authorised and unauthorised absences, the figures for Gairloch High School are well below the average for the Highland region and the overall mean for Scotland. The number of pupils was slightly less in September 2004 than at the same time in the previous year. Over the same period, the number of teachers had increased by 1.5 FTEs. In September 2004, the school had 203 pupils and 28 teachers (26.7 FTE). The proportion of the school's pupils with a record of needs and Individual Education Programmes (IEP) was 7%. Gaelic medium and additional support needs are provided within the normal school curriculum. The school has a video-conferencing facility.

Table 1: Profile of Gairloch High School with some comparators for the local authority (Highland) and Scotland for 2004/5

Contextual characteristics	Gairloch High School	Highland mean	Scotland mean
FSME (%)	9.7%	10.5%	16.0%
Authorised absence (%)	6.1%	7.7%	8.0%
Unauthorised absence (%)	0.2%	1.3%	1.6%

Table 2: Profile of some of the exam statistics for Gairloch High School with comparators for the local authority (Highland) and Scotland in 2004/5

Exam awards	Gairloch High mean	Highland mean	Scotland mean
Fourth year SCQF Level 3 (Standard Grade Foundation – 5 or more)	100%	92%	90%
Fourth year SCQF Level 4 (Standard Grade General – 5 or more)	95%	81%	76%
Fourth year SCQF Level 5 (Standard Grade Credit – 5 or more)	49%	38%	34%
Fifth year SCQF Level 6 (Higher – 1 or more)	53%	43%	38%
Fifth year SCQF Level 6 (Higher – 3 or more)	28%	25%	22%
Fifth year SCQF Level 6 (Higher – 5 or more)	**	11%	9%

**fewer than five pupils involved

The exam statistics for the school are given in Table 2 for Standard Grade (SCQF Levels 3–5) and Higher (SCQF Level 6). The school consistently performs above the average for both the Highland region and the overall mean for Scotland. Although a higher proportion of the school's leavers than the national average go into higher education, it should be noted that in 2005 relatively few pupils were enrolled for five or more Highers (Tables 2 and 3).

Table 3: Profile of the leaver destination and percentages* for Gairloch High School with comparators for the local authority (Highland) and Scotland in 2004/5

Leaver destination	Gairloch High Mean	Highland Mean	Scotland Mean
Full-time higher education	47%	29%	31%
Full-time further education	**	18%	21%
Training	**	2%	5%
Employment	31%	34%	27%
Other known	**	11%	13%
Not known	**	5%	3%

* From Gairloch High School there were a total of 45 leavers (Highland=2,752; Scotland=55,952)

** fewer than five pupils involved

This project explores the use of digital technologies across a range of different subjects within the secondary curriculum of the Gairloch High School. One of the DTP's aims is to use these digital technologies to create a bank of digital resources that will be accessed by pupils and teachers across the school Intranet. A subsidiary aim is to use these digital technologies to empower pupils in their own learning and to use a greater diversity of teaching approaches. Pupils are supported and encouraged to use their different learning styles and enabled to think creatively and critically.

1.1.2 The range of curriculum subjects

Departments were selected for participation in the Digital Technology Project to maximise development of the project's objectives (including collaborative opportunities) given the resources available. Computing and Science were

included to provide development opportunities and the other departments were chosen on the basis of their track record (Ogg, 2003). The project included the following departments: Art and Music; Modern Languages; Computing; Modern Studies; Science; and Support for Learning. The DTP explored the use of digital technologies across a range of different subject areas within the secondary school: Art, Music, Modern Languages, Computing, Modern Studies, Science and Support for Learning. One of the DTP's key aims was to create a bank of digital resources. The other key aim of the DTP was to empower pupils in their own learning and use a greater diversity of teaching approaches. The overall aims and objectives of the DTP were to facilitate:

- Subject departments collaborating in the production of digital lessons.
- Digital lessons becoming an integral part of pupil revision and learning resources for future pupils.
- The development of pupils' skills associated with the use of digital technologies in order to build up digital resources for use by future cohorts of young people.
- The development of the school Intranet to allow digital video streaming to showcase pupil work.
- The use of online digital resources by future pupils, parents and other members of the community.
- The use of digital technology to enhance and integrate the community school approach, allowing all community partners to work more closely together.
- Pupils in participating departments being able to construct personal e-portfolios of their work.

Taking into account the DTP's aims and objectives and the range of curriculum subjects involved, the aims, objectives and key research questions of the present evaluation are outlined below.

1.1.3 Aims and objectives of the evaluation

The evaluation aimed to assess the extent to which the DTP has met its aims. In particular the evaluation explored where the project has impacted on pupils, teachers and other members of the school and the wider community. In addition any key facilitators and barriers to the DTP's sustainability were identified. Issues relating to its suitability as a model for other schools in different contexts across Scotland were considered. Taking cognisance of the specified evaluation aims, six key foci were developed for this study: pupils' skills development; teachers' skills development; the integration of digital technology into teaching and learning; sustainability of resources for teaching and learning; development of a learning community; and sustainability of community partnerships. The foci were used to generate the broad research questions specified below.

1.1.4 Research questions

The key research questions, derived from the DTP's aims and objectives, are set out below alongside the main aims of the evaluation:

Assess the overall impact of the DTP on the skills of the teachers involved in the project:

- In each of the subject departments involved in the DTP, do the participating teachers report that involvement in this project has developed their ICT skills and the teaching and learning styles in their subject?
- Are subject departments collaborating in the production of digital lessons?
- Have digital lessons become an integral part of pupil revision and learning resources for future pupils?
- Have digital technologies and related pupil skills been developed to enable teachers to build up digital resources for use with future classes?
- What additional digital technology skills have staff in participating subject departments developed?

Identify what, if any, impact the DTP has had on the skills of the pupils involved:

- Have pupils in participating departments constructed personal e-portfolios of their work?
- How do the courses in the participating subject departments differ from those taught previously? What is the 'added value' of the digital technologies used on pupil skill development?
- What is the potential for involving other subject departments and pupils undertaking national exams?

Assess the overall impact on the school and community:

- Do pupils, parents and other members of the community use the online digital resources?
- Has digital technology allowed community partners to work more closely together?
- What is the impact of the DTP on other subject departments?

The extent to which Gairloch High School has met these three aims is the focus of subsequent chapters of this report.

The remainder of the present chapter addresses the methodology adopted and the scope of the report. The approach was designed to facilitate constructive dialogue and self-reflection among the DTP participants in order to enable the DTP to be effective in the future.

1.2 Methodology

The research design employed a qualitative approach to provide an in-depth evaluation of the DTP at Gairloch High School. The methodology was based on:

- One-to-one interviews with key staff.
- Focus groups with selected pupils.
- Telephone interviews with selected parents.
- Telephone/email interviews with relevant local community members.

The research team made two visits to the school in 2005. The same four researchers who were on the first visit also conducted the second visit. The case study methods adopted are briefly outlined below. The interview schedules used with individual staff members, parents and community partners and the topic guide for discussion with groups of pupils are provided in the Appendix.

1.2.1 *E-forum/web log/publicity*

A page linked to the SCRE website was available for participants and others to make individual comments about the DTP and the research process: www.scre.ac.uk/gairloch/. Two responses were received via the website from staff members at the school.

1.2.2 *One-to-one interviews with staff*

On the first visit, members of the research team conducted one-to-one interviews with 16 staff over the two-day period. This represented the majority (57%) of teachers in the school. Staff chosen for interview at the inception meeting with the Headteacher ranged from teachers and support staff who had participated in the DTP to those who had little or no involvement with the project. The types of interviewees included senior managers, Project Co-ordinators, participating teachers and other participating staff, including three support staff, two from Learning Support and an Administrative Assistant, and also teachers who were not directly involved with the project. Another key purpose of the inception meeting, apart from selecting the interviewees, was to sensitise the research team to the key issues around the development of the DTP at Gairloch High School. The composition of staff, according to the five main types who were involved in the individual interviews is shown in Table 4. The two Project Co-ordinators were also involved in teaching activities associated with the DTP. In order to maintain their anonymity, their comments are grouped with those of the participating teachers. The interview schedules were adapted for these different types of staff. Some staff agreed to be interviewed in their classrooms and there was some opportunity for informal observation by researchers of staff and pupils using DTP resources.

Table 4: Composition of the staff interviewed

Type of staff	Number of interviewees
Senior manager	2
Project Co-ordinator	2
Participating teacher	5
Other participant from the support staff	3
Non-participating teacher	4
Total	16

1.2.3 Discussions with pupils

On the second visit, focus groups were conducted with the pupils who had participated in the DTP and were available to take part in a group discussion on the day of the visit. Each discussion group consisted of between five and eight pupils; usually there was a mix of boys and girls. In total, 49 pupils participated in the discussions: 21 girls and 28 boys. Pupil participation was voluntary. Parental permission to be involved in these groups was arranged through the Headteacher. The profile of the pupil focus groups is listed in Table 5: the groups mostly covered S3 to S5, as the majority of the S1 and S2 pupils were not involved in the DTP.

Prior to the start of the discussion the students were invited to view short video clips (of about 3 minutes duration) produced by various Gairloch High School pupils. The purpose of this was to stimulate a discussion about the group's awareness of digital technology. Examples of video footage used were films about a kayaking expedition for the Duke of Edinburgh Award, DoE), a school trip to France, the history of the new school, and some of the Art and Music pupils' work on the topic of 'emotions'.

Table 5: Composition of the focus groups of pupils indicating year levels during 2004/5 session

Pupil Group	Year Levels
1	S2–S5 (3 boys, 2 girls)
2	S3 (5 boys, 2 girls)
3	S3 (3 boys, 3 girls)
4	S5 (2 boys, 3 girls)
5	S5 (5 boys)
6	S3 (1 boy, 4 girls)
7	S3 (4 girls, 4 boys)
8	S3 (5 boys, 3 girls)

1.2.4 Telephone interviews with parents and community partners

The headteacher kindly supplied the contact details of the parents of pupils who participated in the discussion groups. Three members of the research team conducted individual interviews with a total of fourteen parents over the telephone. The sample included five parents of pupils currently in each of the year levels, S4 and S5, and two parents of S6 pupils. The profile of the parents

interviewed in terms of the year levels of their children at Gairloch High during the course of the DTP is indicated in Table 6.

Table 6: Profile of the parents who were interviewed in terms of their children's year levels at Gairloch High School during the 2004/5 session

Year level(s) of children	Number of parents interviewed
S2	3
S3	5
S4	4
S5	2
Total	14

Three community partners working with the school were also interviewed: a volunteer at the local radio station, a representative from the Heritage Committee of the local museum (also on the school board), and a National Trust for Scotland (NTS) employee at Inverewe Gardens.

1.2.5 Analysis and presentation of information

The individual face-to-face interviews and the focus groups were recorded, with permission, as digital memos using an iPod. The subsequent voice memos were downloaded to iTunes and burnt onto a CD, which was kept as an *aide memoir* to the researcher's notes.

The qualitative findings from all of the above data sources were analysed systematically for key recurring themes within and across the various data sources based on the methods of triangulation and grounded analysis (Glaser and Strauss, 1967; Richards, 2005). The report is based mainly on interviewees' views. The following terms are used to indicate the proportion of interviewees involved: 'few' is one or two; 'some' or 'several' is more than one or two but fewer than half; 'most' is more than half; 'nearly all' is three quarters or more. In the interests of maintaining the anonymity of the participants, attributions for quotations used in this report refer only to the general category of the stakeholder.

1.3 Scope of report

The main purpose of this report is to present the findings from the evaluation, and discuss some of the main issues arising in terms of the sustainability of the project and the way forward. The following three chapters deal with the impact of the DTP in terms of its three key aims, referred to above. Chapter 5 includes the main implications emerging from this evaluation for the future development of digital technology at Gairloch High School. Chapter 6 concludes by drawing out some key general points for other secondary schools, and hence placing this research in the wider national context of initiatives in ICT teaching and learning in Scotland.

2: Impact of the project on teaching

2.1 Introduction

This chapter introduces some of the key themes about the impact of the Digital Technology Project (DTP) on the teaching strategies of teachers in the school. The primary focus is on the evidence based on the views of the staff. Initially there was a core group of staff involved in generating the proposal to SEED under the FLaT programme. Subsequently other staff participated in various ways during the project's operation in the 2004/5 session. There were a number of changes in staff during this period. Not all of the 16 interviewed staff were fully aware of the purpose of the project. The number and types of Gairloch High school staff interviewed are fully described in Chapter 1 and listed in Table 1.2. The interviewees included senior managers, DTP Co-ordinators, participating teachers, other support staff participants and non-participating teachers.

The project was generally viewed as addressing specific demographic and social issues pertinent to the rural and isolated setting of the school:

Pupils should have the same range of experiences as those in the central belt. We have to try that little bit harder to keep pupils moving forward. There is a social function as well, a wider community value.

(Senior manager)

Another general point to note from the outset, was that the school had already established a commendable base line of ICT literacy among staff (Ogg, 2003). Hence, according to one participating teacher, the school aimed to '*build on the already developing expertise and interest in digital technology in the school*'.

The process of obtaining FLaT funding and carrying out related developments was discussed regularly at the school's Board of Studies weekly meetings from draft bid right through to completion with all minutes circulated via First Class internal conference system (and accessible to all staff). A staff meeting was held to discuss the project prior to launch and progress was discussed at further staff meetings. The FLaT co-ordinator in the school reported on progress and allocation of resources via the First Class system, which was accessible to all staff. The school's success with its FLaT bid was also publicised in the weekly local paper. The project's progress was also commented on continuously in the local press throughout the life of the project. The FLaT team also highlighted notable points to staff. During the period leading up to each milestone of the project consultation in relation to progress took place among the school's staff. Major individual projects when completed, the History of Gairloch High School DVD for example, were widely publicised among staff, pupils and community.

The three key areas, in terms of teachers' skills, which are covered in this chapter, are:

- Promoting digital technology skills of staff
- Collaboration among subject departments
- E-learning resources available for the future.

The first question addressed is whether or not the participants thought that their involvement in the project had developed their ICT skills and the teaching styles they used in teaching their subjects. The emphasis is not on describing the software packages, but relevant packages were mentioned when they were embedded in the teaching and learning processes of specific subject areas in the school. In the next section the report highlights the level of staff collaboration fostered by the project across selected subject areas, and documents some of the appropriate Continuing Professional Development (CPD) activities. Finally, the chapter concludes with an evaluation of the key issues and concerns raised by staff about the development of digital resources, including curriculum-linked resources, the types of equipment, the level of maintenance, and the availability of technical support. It should be noted that some of these themes recur in the subsequent chapter on pupils' views.

2.2 Promoting digital technology skills of staff

As articulated by members of the school's senior management team (SMT), the key aim of the DTP was to provide a vehicle for changing learning and teaching styles, which would engage pupils, increase the use of digital technologies within the curriculum, and enhance the Information and Communication Technology (ICT) skills of pupils and teachers. Indeed, interviewees typically concurred that, as new technology is now generally available, it is important that pupils have the opportunity to use it in school.

It is a potential focus for moving ICT forward in the school and bringing it more into the curriculum, while involving pupils in the vision of ICT.

(Senior manager)

Pupils have an expectation that they will use technology in their studies. One (non-participant) respondent said that '*digital technology is part of the way forward*'. Two others, however, said that they had only a limited understanding of the purpose of the project. '*I don't fully know what the project was aimed at and it wasn't explained to us.*' Another (non-participant) interviewee was aware of the project and articulated its aim as, '*to train staff and pupils to use the equipment so that it benefits learning, with benefits into the local community*'.

The DTP had been designed to link with the school's implementation of the Scottish Executive's *Assessment is for Learning* (AifL) programme. A senior manager articulated the connection: '*AifL is pupil centred and encourages self and peer assessment*'. The same interviewee also explained that the use of the technology '*helps to improve classroom relationships and so there are benefits for all*'. However he also highlighted that there was sometimes a real tension between the creative use of digital technology and the pressure on teachers to prepare senior pupils for external examinations. The project '*is specialised, it would not fit into every year; I would rather have it in S1 or S2 than in the Standard Grade years*'. He also went on to highlight, nonetheless, that '*reaction from pupils is positive and this has had an effect on staff. ICT skills have improved hugely.*' Other teachers alluded to the overall benefits of the project in terms of pupil motivation to use the internet for research and revision purposes.

One interviewee, a participating teacher, stated that the *'main spin-off* [from the project] *has been the ease with which I encourage pupils to gather information from the internet and use the digital camera'*.

Overall, interviewees from participating subject areas agreed that the DTP was a way to enhance teaching and learning in their own subject and an opportunity to explore the use of ICT within their subject. Teachers involved in the project who had wanted to use more ICT were able to do so, to *'fulfil their ideas!*' There was some evidence that teaching staff were more able to use experiential learning techniques, where appropriate, with pupils. According to participating teachers, this project added an *'extra dimension to children's learning'*, allowing pupils to get *'hands on experience'* and *'to use more visual types of learning'*. It was also an opportunity *'to give teachers time to develop new things, which could be incorporated into teaching'*. The project encouraged them to *'find ways of introducing pupils to new technology, and to build this into their way of thinking and working'*. According to another participant, *'it allowed embedding of ICT into the curriculum so that it was no longer something special and allowed more flexibility in developing skills and encouraging pupils to apply them in different situations'*. The same respondent commented that the project motivated pupils and encouraged *'ownership of learning'* by pupils, but it needed *'a lot of teacher input'* to support pupils' experiential learning. (This point is discussed further in the next chapter.) A teacher from a non-participating subject explained how the project gave staff and pupils an immediate advantage by developing their skills in the use of the new digital technology.

The 21st century has a different set of literacies from the 20th century. Kids can express themselves better with technology, especially the ones who are not good writers.

(Non-participating teacher)

The DTP had enabled course content to be delivered and experienced in new ways, according to interviewees. Some examples from specific subject areas are outlined below:

- *Modern Studies.* Within the unit *'Health care needs of the elderly'*, the pupils went to a local home and interviewed the residents. They asked them what their health care needs were and explored the types of social housing such as sheltered housing. The pupils considered how to make these places suitable for the disabled; for example, were there ramps, rails, and non-slip floors? The pupils made a mini documentary using iLife software and gave a presentation to the class.
- *Support for Learning.* Using new technologies allowed the teachers to work with more groups of pupils than was otherwise possible. One participating teacher said, *'it has given [me] a good interest in ICT. It has helped keep my skills up-to-date. ICT doesn't frighten me.'*
- *Modern Languages.* The teacher explained that it is important for pupils to appreciate their progression in speaking a language such as French. In order to promote this, pupils dressed up in typical French clothing and were

video-recorded speaking in French at three periods throughout the year. The pupils then edited the videos and inserted the voice-overs. One of the Modern Languages teachers said that it *'makes you aware of your own teaching and makes you reflect. It opens things up. It impacts on everything.'*

- *Biology.* The teacher used PowerPoint software with the Intermediate 1 class. He found it was good for pupils who do not enjoy writing. The pupils used the digital camera in a project on flowers, which he said, helped their observation skills. They made a slideshow of the flowers and added music with GarageBand, which was seen as *'a bit of fun'*. An interviewee reported that the use of ICT is now embedded in the way he teaches his subject: *'it is no longer special: it is what we do'*.
- *Music and Art.* Two teachers created a video exemplar as a stimulus for the pupils to create their own videos on the topic of 'emotions'. (The emotions being considered were 'playful', 'angry', 'calm' and 'miserable'.) The pupils had to work in pairs, one art pupil with one music pupil, to come up with their own video representations and interpretations of these emotions. The film clips, by their own admission, were quite a demanding and time-consuming endeavour for the two teachers involved.
- *English.* PowerPoint is now routinely used by staff and pupils to make presentations, and it has also proved to be a helpful presentational skill for the study club, according to one non-participating teacher. One interviewee undertook some training with iMovie, so that:

I was not scared of it. I don't see the tension between process and product, more like a complementary relationship. The process is the priority.

(Participating teacher)

It is evident that at least some of the teachers of the 2004/5 cohort of S3 to S6 pupils have learned additional ICT skills as a result of the project. The skills developed by staff included movie making, filming, photography and music composition (using the software package for the Macintosh, GarageBand). Most participants saw the project as a practical way of keeping up-to-date with technology and pupils' expectations. According to one other (non-teaching) participant, *'the pupils enjoy this type of learning'*. The change in teaching styles employed and the resulting flexible use of digital video resources did raise issues regarding the storage and maintenance of ICT equipment. Good housekeeping techniques are required when expensive ICT equipment is shared across departments and staff. Establishing collegiate ownership and responsibility whilst encouraging effective use of the resources raises issues that require careful consideration. However, this problem may have been partially ameliorated by the appointment of an ICT technician subsequent to the project's commencement. This matter is discussed further below.

2.3 Collaboration among subject departments

There was a consensus among staff that the DTP had encouraged more cross-departmental liaison: it had further strengthened relationships that already existed. As one senior manager put it: *'departments working together, this has to be a good thing'*. The technology had also been used in other ways including extra-curricular activities, such as preparation for the Duke of Edinburgh (DoE) awards.

A key example of collaboration was between the Art and Music departments on a project with S3 pupils. On the topic of 'emotions', pupils produced a movie and created appropriate electronic music. They produced a *'fantastic'* montage using iMovie and GarageBand (Participating teacher). According to another participant, Learning Support also worked with English Department on an iStopMotion animation.

At a whole school level staff have collaborated in various projects. Examples include making films about a school trip to France and the history of the school and a range of social events. There have certainly been some spin-offs from these collaborative ventures. A specific example involves Ross County Football Club. The school has developed a proposal to work with professional players to produce videos to motivate young players and improve their self-esteem.

Teaching staff reported that the project was a way of extending and developing their courses and a means of facilitating collaborative work with colleagues. The Modern Languages teacher was already using ICT and wanted to develop her skills. She wanted to explore what else she could do, in particular filming and editing, and burning DVDs. The DTP allowed her to develop new skills. In addition, non-teaching staff welcomed the opportunity to take part in courses such as the digital camcorder course. Teachers who had not participated in the project were impressed by the skills that the DTP staff and their pupils had gained. One non-participating teacher reported that he had to *'stand back in amazement'*. He added that the skills developed in the DTP are *'a skill for life'*.

The DTP has provided various opportunities for Continuing Professional Development (CPD) for teachers at the school. Some examples of these activities are listed below:

- In-house training provided by external ICT experts in filmmaking and litho printing.
- Internal inservice courses provided to school staff by participants with prior expertise in digital technology in relation to video editing and filming. Similar courses are also provided in the evening, which are open to all members of the local community.
- Training provided by teacher participants for school support staff.
- Informal discussions in and out of school hours between participants from different subject areas.

- Participants attended in-service courses in other parts of Scotland (including the Learning and Teaching Scotland's SETT conference in Glasgow), and England (a training event for Music Teachers using digital technology, held in Cheltenham).
- Participants provided external training and advice to other Highland Council staff in primary and secondary schools in encouraging the use of ICT in Science and Music.
- Some participants have been seconded to develop online resources in Science at Intermediate 1 for a section on Health and Technology.

Overall the participating staff had positive attitudes towards the DTP, in terms of their own personal development.

2.4 E-learning resources available for the future

The project meant that the departments involved could buy extra digital resources. Digital projectors are only available in some departments, according to one other (non-teaching) participant. Examples of extra digital resources included a digital projector and digital cameras. The DTP was seen by most of those involved to be '*an enhancement*' of what they were able to do (Other participant). However, participating and non-participating teachers agreed, '*it is time consuming*'. There was evidence provided about the staff consultation process and its transparency. One participating teacher commended the First Class Conference System, which functioned during the initial phase of the project to encourage communication within the school. Examples of some of the resources used in the subject departments are:

- In Modern Languages the presence of digital technologies has enhanced the deployment of ICT resources. Examples include Inspiration, PowerPoint and the digital camera. The use of the Internet has become integrated into teaching and learning processes.
- Biology now uses DVDs instead of VCRs because it is easier to find a desired section for playback. The teacher now wants to explore the potential uses of the interactive board.
- The Computing department has web authoring software (13 copies). It is used for individual work for the Advanced Higher and Intermediate 1 Access courses.
- Music and Art used GarageBand extensively in creative ways, as already described above, and highlighted in the press (Blane, 2005).

The Project was also seen as a means of increasing the quantity and range of ICT equipment available for use in school. The type of equipment associated with the project, the Mac, was also important to staff. However, one respondent from a participating subject felt that the project's main purpose was to get equipment.

The Headteacher, who was new in post for the project's final phase, is currently developing a centralised loan system on the back of purchasing additional equipment. It is anticipated that the next school development plan, which will be put forward by the new Headteacher, will take into account the key issues and concerns raised in this evaluation.

Nonetheless some problems with the installation of the equipment in certain subject areas had, occasionally, hindered involvement with project. Although this was not part of the project, an example was a whiteboard that was not at a good angle to demonstrate to the whole class, according to one non-participating teacher.

A participant commented that she has had to become a '*brilliant technician*'. And another interviewee emphasised the effort that had been required to fully realise the Project's benefits. *The project was a steep learning curve*. Some interviewees were keen to emphasise the importance of ongoing technical support if they were to be able to continue to develop curriculum resources. *The school employed a technician in October 2004 and ... everything settled down*.

As well as the previously mentioned training for school staff (both teachers and support staff) at Gairloch High and other Highland Council schools, participants are also developing digital resources in Intermediate 1 Science for use in the Highland Virtual Teaching Centre. The priority in the region is to increase the examination performance of those pupils most likely to be at risk of underachievement. A senior manager reported that the Learning Support Department has used these materials at the school.

3: Impact of the project on pupil learning

3.1 Introduction

This chapter considers the impact of the DTP on the Gairloch High School pupils. It explores the ways in which the project has facilitated their learning. It investigates the evidence for the development of their skills not only within the participating subjects but also across the curriculum and in extra-curricular activities. Links between the DTP project and pupil assessment are highlighted. The focus of the DTP has been on pupils in the middle and upper school.

Pupils generally enjoyed using the digital technology at the school. They also praised the DTP's positive impact on their social lives. It had helped them communicate with their peers, as *'computers are a good way of staying in touch with people'*. Electronic communication is particularly important for young people in the context of a remote Highland school: many of the Gairloch High School's pupils live a considerable distance away from the main Gairloch community. The school has the largest geographic catchment area in the UK.

3.2 Courses in participating subject departments

Pupils were generally enthusiastic about the use of digital technology: they would like to use it more often and in more subjects across the curriculum. According to one pupil focus group participant, *'the headteacher needs to get a move on!'* There were some concerns expressed about the time required to edit video clips in a professional way. They realised that the technology was opening up new creative ways of learning and communicating their own ideas to others. An interesting example was the pupils' use of video diaries for the Duke of Edinburgh (DoE) award. They also mentioned that using the new technology had helped them to develop new ways of working with others: it usually involved them working in groups. There were many subject areas where the pupils mentioned digital technology. Examples from the main participating subject areas included:

- *Modern Languages*. In French, role-plays of pupils engaged in French conversations were filmed.
- *Music and Art*. Pupils worked in pairs to produce short film clips of Emotions.
- *Computing*. Pupils made a video film about how to use a digital camera. *'It took longer than we expected!'* One interviewee (a senior manager) mentioned that the 6th year Advanced Higher computing students had developed websites for local businesses.
- *Modern Studies/Support for Learning*. A group generated a DVD presentation on World Poverty. Pupils made film clips about their favourite hobbies. This involved them in some discussions and consultations with friends and family outside school. Pupils made a film with a soundtrack to

demonstrate the construction process of wooden bird boxes in Craft and Design.

- *Science/Biology*. Projects involved videoing aspects of nature and making a presentation on the subjects. An example was the New Zealand flatworm.

Pupils highlighted other activities involving digital technologies. These included:

- *Gaelic*. A fashion show with a voice over in Gaelic was generated by pupils.
- *History*. Some pupils mentioned that they used the computer for homework.
- *Chemistry*. Pupils use Bitesize for homework. *'We can log in ourselves; we have our own passwords and can go outside class and do our homework at home or in the library.'*
- *Physics and Mathematics*. SCHOLAR had been used at Higher and Advanced Higher. *'More fun than book revision because of the pictures.'*
- *PE*. Some pupils had used video cameras in Higher PE to help improve performance in, for example, badminton.
- *Drama*. School shows had been recorded. Examples of performances were *Grease* and *Bugsy Malone*.
- *Graphic Communication*. Digital technology (not from the DTP) had been used in CAD.
- *Enterprise week*. The pupils made their own advertisements: business cards, flyers and leaflets. *'Then we voted on which were the best.'*
- *Geography*. Pupils do research work on the Internet
- *English*. Class discussions had been recorded on various topics. 'Global Warming' was one such topic. The pupils pointed out that reviewing the videos allowed them to pick up on mistakes rather than relying on the teacher telling them. (An example they mentioned was their posture). They also pointed out that the video is to be used as an example with the next year group.
- *Business Management/Administration*. Pupils used a programme that enables them to simulate creating their own business. *'It was a really good programme. You had to do market research, talk to the bank manager... it was sent away for grading.'*

The skills that pupils developed in participating subject areas, such as Art and Music, had extended to some other subjects and extra-curricular activities. According to senior manager, the S3 pupils were given a day's training in iMovie and shown how to incorporate the movies into PowerPoint presentations.

3.2.1 Music and Art

One participating teacher remarked that the S3 Music class in the 2004/5 session showed particular talent. In conjunction with pupils in the Art class, they worked in pairs to create pieces of music to go with moving images and the end products were short film clips. They got to do a presentation and were given a DVD of their own work. *'Inventing is an open-ended topic in Music and you can use any style and form.'* To produce these short films they used various software packages available through the DTP. These included: iMovie and Garageband. Pupils also use iTunes, and researched on the Internet for visual images in Art.

The participating pupils had training in iMovie and Garageband. The type of music used to accompany the clips varied and was often taken from a music bank available on the school Intranet and developed by the music co-ordinator. Sometimes pupils recorded their own musical compositions. Most of the pupils in the focus groups fluently articulated the advantages and shortcomings of various other relevant software packages. Examples that were often mentioned included PhotoShop, GarageBand, iMovie, iTunes and iDVD. *I am doing Standard Grade Music. You can use the loops or make your own. With GarageBand: it is fun!*

Most participating teachers indicated that approaches to teaching their subject had changed and that this was largely due to the DTP. In particular they emphasised that the DTP had allowed them to do more group work with pupils.

The pupils frequently commented favourably about working collaboratively with others and were able to explain that they had developed their interpersonal skills. Occasionally there had been arguments but, they said that their negotiating skills had improved as time went on. One girl explained:

We were told who we were working with. The teachers must have done some research because we all got on with each other OK...well except for those two and they came up with the goods in the end!

(Pupil focus group)

3.2.2 Modern Languages

In Modern Languages, pupils often used Internet for research purposes. A couple of Intermediate 2 pupils made a PowerPoint presentation about the future tense in French. This is now being shown to other Modern Language classes. A teacher interviewee used the video with S6 for formative assessment: the language assistant filmed them doing their Speaking assessments. The pupils reported that they had benefited from the use of filming in their language work in French and Gaelic. They commented that the DTP had helped them to speak more fluently. Other pupils also specifically mentioned that they had more self-confidence now in speaking French.

You don't have to sit about all the time, getting up and doing things helps you learn better!

(Pupil focus group)

3.2.3 *Science and Support for Learning*

A relatively high percentage of the pupils on the school roll have a record of needs and Individual Education Programmes (IEP) (7%) and as a Project Co-ordinator explained, *'the project is really good at motivating pupils, especially those with dyslexia and the self-esteem of these pupils has improved. Indeed, another participant teacher explained that 'all of the pupils find it more interesting when they are watching other pupils on film'. This staff interviewee also mentioned that pupils have increased confidence and improved communication skills. Some examples of the increased quality of pupils' communication skills were evident in the S3 pupils' presentations on the Enterprise Day. Another (non-participating) teacher said that the DTP 'is an added element to their learning. Anything new that keeps their attention has to be good.'*

Some groups of pupils in Learning Support were also involved in filmmaking. The S4 group made an animated film using clay animals. An S2 group was involved in making a film about constructing bird boxes. They added some music to the video clips (using iMovie and GarageBand). Another (non-teaching) participant pointed out that skills are developed because the students are *'being able to get hands-on with computers and cameras - making their own music with GarageBand'*.

Both pupils and staff pointed out that homework could now be submitted by e-mail in some subject areas. Most of the pupils had access to computers at home. Many of the pupil interviewees said that they were able to send e-mail messages and attachments, although this skill was not necessarily attributable to the DTP. However, one staff interviewee highlighted that *'we don't use it for homework because some pupils may not have Internet access at home'*. Nonetheless some pupils routinely e-mail their work to the school, *'rather than print it out'*. The school has set up a special address for homework.

In Biology, pupils are using SCHOLAR and some Learning and Teaching Scotland National Qualification online materials for Advanced Higher and Higher courses. In Chemistry, the S4 pupils use Bitesize. Pupils reported that they liked using SCHOLAR for revision purposes because of the pictures: *'it is more fun than book revision!'* A non-participating teacher indicated that SCHOLAR was also used for online revision purposes in Mathematics. Overall, participating teachers said that another benefit of the DTP was that the standard of presentation of pupils' written work had improved. In particular one participant pointed out that the DTP had made the pupils *'think about what they were doing, why they were doing it, and how to lay their work out and make the end product look attractive'*.

3.2.4 *Modern Studies*

Various videos made by pupils in Modern Studies have been shown at school assemblies. A remarkable example was a video about world poverty, which was made in the S3 Modern Studies class, and has been commended by a UNICEF representative and shown in other Highland schools. Some of the pupils had

been involved in the production of a DVD of the tenth anniversary of the new school building opening. It included some of their original musical compositions. They had edited some video footage taken by the Depute during the construction of the new school building in 1993/4. Focus group pupils also mentioned that they had used their newly acquired ICT skills to help their parents and local businesses.

One non-participant interviewee commented that pupils had probably also developed their ICT skills elsewhere, outside her classroom. She pointed out that pupils use the computers in the library, and indicated that she encouraged them to use their ICT skills. Other non-participants observed that *'all the kids now use PowerPoint'* and *'know how to use the latest packages, such as GarageBand, PrintShop, Excel'*.

3.3 Courses in other subject departments

Filmmaking is now clearly an integral part of school life in the middle and upper school at Gairloch *'all trips and events get filmed'* according to one other participant. *'It is time consuming but it is worth it. Hopefully the younger ones will be involved now.'* The pupil interviewees gave many examples of their application of digital techniques in a wide range of activities outside the main focus of the DTP's subject areas. Some of the pupils emphasised, however, that teachers did limit their access to the technology. As one girl put it:

*It is dependent on the teacher, some worry you'll break the equipment!
What's the point of having it then! It might as well be broken if the result is it
sits in a cupboard!*

(Pupil focus group)

A staff interviewee mentioned that there was the potential for filming to be useful in PSE, if the equipment was available. In fact, one focus group pupil had been disappointed to find that he did not get to use the technology in PSE. Some of the pupils mentioned that the teachers from the non-participating subjects should be able to go on courses to learn how to use appropriate software packages. Nonetheless, most staff in the school have now done some ICT training,

Overall, the staff and the pupils have been impressed with what the pupils have achieved in the DTP. One participant was also positive about the potential in other subject departments: *'I'm sure there is the potential for use in every department. I am encouraging others because the pupils enjoy it and the teacher also benefits.'* On the other hand another interviewee was more sceptical about short-term change among staff, commenting that it *'depends on the motivation and skills of the staff: some staff are innovative and want to take on new ideas. Others are not so, and it would take them longer.'* Nearly all staff interviewees mentioned the opportunity digital technology gave to enhance the variety of teaching approaches available. *It's another string to your bow.*

3.4 Learning, assessment and achievement

Pupils clearly enjoyed participating in the DTP for many reasons. They liked being able to work independently: *'We were left to get on with it'* and create a completely original piece of work in Music and Art. *'It lets you express yourself. There is not enough of that in normal school.'* Pupils in another focus group had mixed feelings about whether they would be confident to share their digital photography skills with younger pupils or siblings. However some members of this group hoped to raise some of the issues with the Pupil Council about pupil access to the DTP's resources for extra-curricular activities.

The pupils in the middle school during the course of the DTP have now moved to the upper school: as a senior manager observed, they have new ideas about how to learn in different and creative ways. Hence, the DTP is creating some immediate dilemmas for staff in terms of meeting assessment deadlines and covering the required curriculum. *There is a conflict there, pupils do individual work for national exams, the digital projects are collaborative.*

However, two participants concurred that time should not be a constraint to the exploration of useful applications of digital technology across the curriculum in the upper end of the school curriculum. *Even at Higher you should be able to make time. It's not about facts but about process.*

In Modern Languages, it was suggested that video recording could be used instead of an assessor having to visit the school. In English the same interviewee cited that video records could also be useful for assessment purposes: *'pupils would rather talk their essay than write it'*.

The senior managers were not aware of pupils developing their own e-portfolios to date, but believed that this was a task to be undertaken when Personal Learning Planning was introduced. The interviewee from the Music Department mentioned that pupils could *'put it on their forms [if they want to go to college] that they can do audio presentations. They have their demonstration CDs for their interviews at college for the community arts course in film and music making.'* They make their own DVD copy and *'it is a record of their achievement.'* The pupils also submit work for the BECTA awards, *'which encourage collaborative effort'*. One interviewee mentioned that some form of accreditation for pupils with special needs, who had proved to be such excellent video filmmakers would be desirable. Pupils with learning difficulties already use computers to assist them with their examinations: an example is the use of spell checkers.

Some pupils espoused the virtues of being able to work at home. They explained that it might be a helpful way to get ready for the demands of higher education. Some had preferred subjects and would *'welcome more flexible schooling, as it would ease the transition from school to college or university'*. Others, however, felt that they would not be able to work at home.

The absence list created by the Phoenix registration package was sent electronically to all teachers. One other (non-teaching) participant remarked that *'the pupils themselves could do the registration online'*. Pupils are using University and College Admission Service (UCAS) forms online and this has proved a time saver for Guidance staff, according to a senior manager.

The expertise developed by pupils in the participating subject areas cannot be overstated, and is encapsulated in this final comment:

We have used the video for school trips to France. We borrowed the video also or the Art and Music project. You can just ask to use the video. It is up to us. We have got most of the stuff we need. We know how to use it now: how to use the wires to connect ourselves up. We know about using a tripod to avoid camera shake and about framing shots.

(Pupil focus group)

4: Impact on parents and the community

4.1 Introduction

This chapter explores the views of parents and members of the Gairloch High School community about the Digital Technology Project (DTP). Overall, they were generally aware of the DTP, and parents thought that digital technology was very useful for their children. The next section examines some key factors, which have influenced parents' utilisation of online resources. The interviews were conducted with 14 parents who were randomly selected by the researchers. The selection of parents was based on a school list of pupils who had been involved with the DTP. This chapter concludes with the evidence provided by three community members, who were recommended by the school. Their views shed some light on the various community links which have been fostered by the DTP.

4.2 Impact on parents

Access to the Internet was not easy in some areas surrounding Gairloch. The catchment area for the school is very wide, being the largest geographical catchment area in the UK. A few pupils travel by boat from small islands nearby.

Broadband cabling (Asymmetric Digital Subscriber Line, ADSL) has recently been installed in some nearby villages, but according to one parent, *'there are pockets that are still without it. In this area we don't have Internet cafes, so [the DTP] is quite valuable'*. A few parents who lived in the surrounding villages outside Gairloch and/or stayed in rented accommodation mentioned problems with access to ICT. The following quote exemplify the difficulties:

I don't have Internet access at home. I'm a bit behind most people that way. There is Internet access in the library of the school itself and at the village hall in Poolewe... but it is fairly limited in terms of when it is open.

(Parent)

A minority of Gairloch High School parents reported that they were familiar with digital technology and the Internet. Several parents said that they did have ICT access at home. The type of digital technology with which parents were most likely to be familiar, was the digital camera. The overwhelming majority of interviewees saw digital technology as something very important for their children but not themselves: *'We don't have a digital camera ourselves. It was third down on my daughter's Christmas list.'* A few parents who were familiar with the Internet explained that they had used online resources and email packages. The two quotes typify the way parents described their ICT skills:

I use my computer to shop online, I got all my Christmas shopping that way, and it's a 160-mile round trip to Inverness, so it's great, the children use it for shopping as well.

(Parent)

We have a computer at home but we're not experts.

(Parent)

A few parents worked from home. One interviewee mentioned that she had found the Internet very helpful with research for a vocational training course:

I have just finished an SVQ3 in Social Care; I used the Internet to look up information on Alzheimer's and dementia as well as reading through the Data Protection Act and human rights legislation from home.

(Parent)

4.2.1 Awareness of the DTP

Some of the interviewees were aware of their children's involvement in the DTP. A few parents, however, bemoaned the fact that their children did not tell them anything about what was happening at the school: *'it's like getting blood out of a stone!'* Everyone agreed, nonetheless, that it was particularly important for children in such an isolated area to keep up to date with the new technology because it would increase their job prospects. This sentiment is illustrated below:

The location could mean that they fall behind.

(Parent)

My son can now use the computer a lot more than before and using digital cameras and camcorders gives them a sense of doing something important. Hopefully it will help them going forward career-wise. Children leave the area to get employment; they don't have IT jobs up here.

(Parent)

It is important for them to keep up to date with digital technology developments. It is important for the pupils in terms of developing skills for work.

(Parent)

Some examples of DTP activities, which were known to parents, were:

- *French.* Parents were aware of the videoing of pupils' French conversation practice.

[My daughter] was involved in the French class working with puppets. She is quite shy and this experience was good for her confidence. It helped her with her speaking a foreign language.

(Parent)

- *Art and Music.* There was an open evening at the school and the community had the opportunity to appreciate the pupils' video clips about various emotions. *'This work was particularly memorable'*, according to one parent.
- *Drama Club.* One parent specifically mentioned that he was *'very impressed with the DVD recordings of the Buggy Malone show'*.
- *Videos made by pupils in Learning Support about their hobbies.* An interviewee explained that a key aim of the DTP project was to provide flexible learning approaches for pupils with learning difficulties and records of needs.
- *The DVD history of the school, produced by staff and pupils.* Nearly all parents commented very favourably about the excellent quality of this short video film.

We weren't involved in the area before the new school was built. It had been open a year when we arrived. It was interesting to see how different it was before, how small it was when it was part of the primary school.

(Parent)

A school open day, locally known as the 'FLaT Féis', was organised towards the end of the 2004/5 summer term. The school invited the community to attend and it was advertised on the local radio station. It was successful in terms of bringing local people into the school:

The radio advertisement said there were video cameras available and that there would be training in the use of the cameras, in iMovie and editing films. There were adverts for the Open Day in the school placed in the local paper. About 50-60 people attended the event.

(Parent)

Several teachers also mentioned that the event was a success, and a senior manager said it had '*raised interest and awareness*'. A participating teacher emphasised that parents appreciated the innovative quality of the pupils' artwork:

When the FLAT Féis was held at the school, parents came and saw my pupils' work exhibited. Their attitude was: the school was not like this when I was there! This sentiment was expressed by many parents: they were impressed and pleased.

(Participating teacher)

A teacher from a non-participating subject area further emphasised the impact of the event: '*there was good attendance, lots of parents got to see the products and were allowed to use cameras...the parents were impressed*'.

Several parents saw the purpose of the DTP as embedding ICT across the school's curriculum, '*to show how technology can be used across the curriculum*'. A majority of interviewees emphasised that the Internet was important for research purposes. However, digital technology had a shortcoming: it could be very time consuming. According to a few interviewees it needed to be well managed by teachers because, as one parent put it, '*it can be time consuming if there is too much faffing!*' Even so, one parent emphasised that her son had benefited from the use of the DTP equipment in some non-participating subject areas.

One parent pointed out that the Gairloch area had a wealth of potential source materials, not only historical and archaeological, but also in the area's natural history. Another parent alluded to the potential wealth of oral history, as yet untapped for educational purposes, among the inhabitants of the surrounding villages.

...the filmmaking part and interviewing older people...but they need to reach out beyond Gairloch, we live 15 miles away and there are older people here that the pupils could talk to, like the woman who stole the stone of destiny. They could use it for tourism and open things up worldwide; there is certainly the potential to do that.

(Parent)

4.2.2 Transparency of allocation of resources

A few parents mentioned that the school's digital resources needed more informal publicity within the community. These parents were aware that communication can be difficult in a large rural catchment area with a small population: *'communication in the community is a problem. People tend to keep their ideas to themselves'*. Although there could be some teething problems, for the community to be able to borrow equipment and learn how to use it, it was seen as a positive step forward for some staff at the school:

The potential exists among the community, possibly there is a need for skills in IT. Can see problems with borrowing equipment.

(Participating teacher)

A few staff were clearly concerned that equipment might be damaged if it was too readily available to parents, according to a senior manager. *'We don't want to become a lending library'*. Although there were notable exceptions, it was fairly unusual for equipment to be borrowed by the community.

The school won't give the equipment out willy nilly! We will have to buy her [a digital camera] soon.

(Parent of an S5 girl)

In fact, several teachers were unaware of parental utilisation of the DTP's resources. A participating teacher, nonetheless, pointed out that she had given individual tuition to some parents in the use of the digital projector and laptop.

In general, the impact of the project was slowly filtering through to the parents and the local community. There was clearly a huge range of parents' ICT skills within the Gairloch High School and its community. There were evidently a few parents with highly developed ICT expertise.

4.3 Impact on community partners

National and regional organisations sometimes visit the school. Examples include UNICEF and other charities. They have been impressed by the quality of the pupils' videos made for the DTP. The pupils have produced professional clips about UNICEF's world-wide activities.

One of the films is now used as an exemplar in other Highland schools.

(Participating teacher)

The school also works with several local community groups. The DTP has facilitated a number of school/community partnerships. The three organisations that provided feedback for this evaluation were the local radio station, the National Trust for Scotland (NTS) Ranger Service, which is based at Inverewe Gardens in Poolewe, and the heritage museum located close to the school.

One of the community interviewees pointed out that the DTP had improved the ICT skills of the local young people: *'I know of pupils who are now adept at video editing who were not beforehand'*.

The three community members were all more or less familiar with digital resources and the Internet and the DTP. As one of the interviewees explained, *'I use the Internet at home and in the workplace for research, communications and the remote transfer of programme material among other things'*.

All of the three community interviewees were potentially interested in working more closely with Gairloch High School. However, two of the selected interviewees had limited direct involvement with the DTP. One interviewee explained that she had some knowledge and understanding of the project's aims because she was also a member of the School Board:

...main purpose was for less academic pupils. They really got into it and enjoyed the experience! The project was less about theory and it expanded areas of teaching and learning, which would otherwise not be possible...The project involved them in taking pictures, developing these for showing, and it was professionally done. The [School] Board was consulted and invited to the public showing of the materials created...it was well attended.

(Community member)

According to a senior manager at the school, a collaborative venture is now underway with the local museum and the Air Training Corp. It is an historical film and display about the crash of a Liberator plane, which occurred nearly 60 years ago in the nearby mountains of Torridon. The community interviewee also pointed out that the area has a wealth of educational material, which could be suitable for film documentaries:

A good example is the Liberator. The plane that crashed in the hills. There are lots of possible projects and links possible between Museum and the school, such as World War II and the use made of this area.

(Community member)

Another community member highlighted some diverse specialist applications of digital technology used in the routine work of the local Ranger Service. Examples were digital cameras, software for mapping the location of wildlife; and Global Positioning Systems (GPS). He explained that digital technology is generally not used in their educational activities with schools:

A Project Co-ordinator explained that the Wildlife Service had, nonetheless, organised a Bird Box Creation Scheme for local schools. Gairloch High School pupils had contributed to it in a highly creative and educational way: according to a participating teacher, the pupils had made a video about how to construct bird boxes and combined this with visits to Inverewe Gardens to study birds' nesting behaviour.

There were examples of interesting ways that members of the local community had benefited from the DTP. The local basketball team, according to the Project Co-ordinator, had their performance enhanced using video analysis techniques developed at the school. A participating teacher had also developed a website and PowerPoint presentation for the local mountain rescue team.

Several staff participants mentioned that the DTP is having a gradual impact on community awareness of digital technology and the development of local ICT skills. This point is exemplified below:

Lots of members of the public come in and use the Internet in the library. One of the girls in the library is involved in community learning, offering night classes. There are going to be courses in digital photography, more people are looking for places than are available... We had a youth worker based in the school, visited the primaries...to do little projects, such as dance...they made a film with their own digital camera... [The films] give [the community] a flavour of what is going on in the school. We invited people from the old folk's home to come in and see the film the pupils made of the tenth anniversary of the new school building.

(Other participant)

In conclusion, a practical theme recurred among a few school staff. Although, they conceded that the DTP could bring benefits to the locality, they suggested that the school needed to develop a systematic policy about the use of these resources:

...need a firm policy about how the resources are to be deployed: what are the applications? [The digital equipment is] not just a gimmick!

(Non-participating teacher)

It might help the promotion of business if more community members were better trained.

(Non-participating teacher)

Recurring themes not only for the community members but also for parents were that the DTP needed wider publicity in spite of the lengths the school had already gone to in advertising the success of the pupils.

5: Views on the way forward

5.1 Introduction

This chapter unravels the key priorities for the way forward for the Digital Technology Project (DTP) at Gairloch High School in terms of the perspectives of the key stakeholders. Key issues about the transparency of the process of consultation and implementation of the DTP are considered. Some implications of the outcomes of the DTP are identified with reference to further projects in the school. The evidence presented is based mainly on the reflections of the school staff. The chapter also explores pupils' aspirations in relation to digital technology at school. In conclusion, a few of the school community's innovative suggestions for future partnerships are briefly outlined.

5.2 Staff perspectives

5.2.1 Consultation and communication

A key issue was the initial consultation process with staff. A few staff reported that they were not sufficiently involved in the preparation of the original proposal and the implementation process of the DTP. Three interviewees summed up the range of prevailing sentiments among participants and non-participants:

Initiatives like this could be better presented and explained.

(Non-participating teacher)

I was not consulted at the start (in April 2004), although I was at the school then and remember the first lot of equipment arriving. I gave support to the project co-ordinator. I helped to order new equipment and ensured that we reached our milestones.

(Participating teacher)

There was a little bit of jealousy, we got a boost in terms of resources... If the same thing was offered again, more would get on board as they have seen the benefits of [the DTP] and the enthusiasm generated by digital technology.

(Participating teacher)

Issues arising from the consultation process appeared to contribute to the feeling amongst some staff at the outset that the project was divisive. Although information was given at a staff meeting it was far from clear to some staff why only some subject departments had been chosen and not others. A senior manager concluded that by the end of the DTP evaluation process the majority of staff had informed him about

the excitement among the pupils and their high levels of engagement....

Almost everyone involved has told me about how much value they got from the Project, especially working collaboratively with colleagues. More people got involved than were originally involved, so it has grown and spread.

(Senior manager)

There was a problem noted by a few staff which was related to the highly commended electronic conferencing system (First Class). It was open to all staff at the beginning of the DTP. One participant observed:

We use the Internet and First Class for conferencing. We use it for group work with pupils and they can do their essays online. We put up a copy of what's good to show other kids. It's a record of what's good. It provides a bank of good resources.

(Participating teacher)

A non-participating teacher also extolled the e-forum's virtues:

All staff had access to the FLAT e-conference facility; there was lots of informal contact in the staff room. I was always aware of what was going on.

(Non-participating teacher)

However, a senior manager admitted that the First Class system was not an immediate priority for the technician who was only recently employed part time to support all ICT infrastructure in the school. The new Headteacher had created a new FLAT conference shortly after his arrival and just after the FLAT project ended. ICT staff working in The Highland Council with responsibility for supporting First Class within the school had not managed to recover the evidence supporting the statements of staff for the benefits of the evaluators.

One of the other participants emphasised that the DTP had involved a range of the school staff and pupils. *A whole range of pupils are benefiting, especially those who are disadvantaged, have learning difficulties or behaviour problems.*

5.2.2 Participants' concerns post-DTP

Participating teachers had some concerns about the future. These were primarily about time commitments, monetary remuneration post-DTP, appropriate Continuing Professional Development (CPD), future resources and the ICT support service. There was a clear consensus that more consumables would obviously be needed in the future. Examples included: Lapel microphones, DVDs/CDs and batteries. Some participating staff, who had contributed a great deal of their own time, were concerned that they would not be able to continue to do so because it would no longer be recognised by additional payments. Other participating teachers commented on the amount of time it took them to improve their ICT skills: *'sometimes it would take forever, and so could be a bit frustrating!'* The majority of participants highlighted that ICT training needed to be a continuing feature of in-service days. It should be noted that at least one participant was also involved in the Chartered Teacher programme. A few staff had been seconded to develop e-materials. Two of these teachers were still based in the school.

5.2.3 Future resources

The role of support staff was an issue raised by a few teachers. One non-participating teacher explained that it would be useful to be able to use a school assistant to film practical activities in Home Economics and Physical Education. Several staff mentioned that the sustainability of the DTP's developments in learning and teaching were dependent not only on an assistant to help with curriculum resources, but also on a full-time ICT technician available on-site. At the commencement of the DTP, a technician was available part-time, but, as a participating teacher remonstrated, *'this proved difficult*

when you had a class of 30 and things break down!' Another similar comment was:

IT things break down so there has to be full technical support, as we can't predict when things will go wrong. The technician needs to be there all the time.

(Non-participating teacher)

In spite of the fact that the school's network had been upgraded before the project started as part of Highland Council's infrastructure development in all schools, and Hubs were replaced with Switches from 10 Mb to 100Mb bandwidth, the present evidence indicated that for the DTP to be sustainable, it would be quite helpful to encourage more team-working among all staff. An example could be a brief collective training/discussion session with all school staff, including support staff, in order to discuss any improvements to the current system for the following computer housekeeping tasks in the school:

- Software installation and licences are covered by ICT technician
- Use of passwords is arranged by ICT technician
- Documentation, paperwork and inventory is handled by a technician
- Appropriate communication between teachers and technical support (on- and off-site)
- Backing up (including data projector material) is done by office administrator and ICT technician
- Security with network and Internet is handled centrally by Highland Council
- Back up lesson plans in case of ICT failure is up to teachers

Although one non-participating teacher indicated that the DTP had been successful, he had concerns about whether or not the resources would be shared equitably among all of the staff in the school and the community. The same participant said that the school needed to consider providing technical support for different types of computers. The school's ICT technician is, in fact, a PC-trained person. According to the current Headteacher, additional support is brought in from elsewhere to assist with Mac hardware if it causes a problem.

5.2.4 Curriculum flexibility

The DTP had impacted mainly on the middle and upper stages of the school. This was partly because it was conceived as a way to improve the learning opportunities for the pupils who had established requirements for additional Support for Learning: that is, they had a Record of Needs and/or an Individual Education Programme. A senior manager noted that he saw a tension between the DTP and the *Assessment is for Learning* (AifL) programme in the school: *'The AifL (might) affect attainment and achievement...'* whereas the DTP *'was great fun to do, but what have we achieved?'* Both projects meet the objectives of *A Curriculum for Excellence* in terms of developing individualised learning, however, the collaborative nature of the work does not necessarily sit neatly with submissions for the SQA as evidence. A teacher in the school has been in

touch with the SQA and has been informed that some of the pupils' work may not need to be excluded completely.

Some participating teachers were concerned about missing regular units in the S3 curriculum. However, they mentioned that this problem could be overcome in the future by covering the DTP material in S2 rather than S3. Indeed a cornerstone of the DTP was its apparent flexibility of implementation across a range of curriculum subjects and pupil ages.

5.2.5 School development plan

According to a senior manager, ICT developments will underpin *AifL* and *Curriculum Flexibility* developments and assist in integrating the extensive benefits of the FLAT project into the whole school and community. The key foci of the school's proposed way forward are:

- Assessment is for Learning (AifL)
- Curriculum Flexibility
- ICT strategy development

Examples of some features of the move forward into the 2005/6 session mentioned by a senior manager include:

- Continue development of new projects in the subject areas of English and History (An example was a remake of a post-war film about the local crofting community. This would be based on a new film about the life of a surviving crofter around Gairloch.)
- Build on skills developed in the local primary schools.
- Further develop links with local radio station.
- Continue multimedia development of the school website and use Podcasting to combine and extend radio access and local skills.
- Open up discussions with staff about necessary training and resources.
- Staff providing evening classes in digital technology.

5.3 Pupils' perspectives

Pupils were overwhelmingly enthusiastic about the DTP. They would like further opportunity to use digital technology both within the curriculum and also for extra-curricular activities. They very much enjoyed making quality films to a professional standard. They also appreciated being independent learners and the creative freedom this entailed. The user-friendly nature of the music-making facilities available with the relevant Macintosh software applications was highly commended. Indeed, one pupil reported that the school needed to purchase more specialist microphones to record drum sets. A few senior pupils were interested in using more online resources at home. This may well be feasible when the Highland Virtual Learning Environment (HVLE) and

the newly developed Scottish Schools Digital Network (SSDN) are fully integrated.

The pupils had a short-term objective. This was *'to be able to borrow digital equipment from the school'*. They saw this as an issue that the Pupil Council could explore and, perhaps, take forward. Whether or not the Pupil Council, or another school body, would be willing and/or able to administer a lending scheme for digital equipment is a question the school community might wish to contemplate.

5.4 Perspectives of parents and community partners

Overall, parents welcomed the coming of digital technology to the area and were keen to be kept more fully apprised of the school's activities. They indicated that they looked forward to more publicity (formal and informal) about the digital resources. Although sometimes there might be cost implications, community members were willing to offer their ICT expertise to the school. Some suggestions for new collaborative projects came from parents and local community members. Innovative examples included:

- Further partnerships could be extended between the local NTS staff at Inverewe Gardens and Kinlochewe. An example could involve the production of digital photographs of local *minibeasts* (invertebrates). The invertebrates could also be projected onto a large screen with a digital microscope in the classroom. This could be useful not only in the primary schools but also for the Science course in S1/S2. Other possible projects that were mooted involved *'developing narratives around the various stories connected with the area'*. Specific subjects of interest for stories and signage in local parks included: crofting, archaeology, ornithology, and fresh water versus salt-water ecology.
- Broaden out the focus of the digital equipment and software to multiple suppliers, including PCs. (One main supplier, Apple Macintosh, was used for the DTP.) It was arguably *'distorting the market and future skills base'*.
- Develop a scheme to loan out laptops, at a minimal cost, to pupils without access to digital technology at home.
- Local experts could be involved in training the school staff in some specialist applications of digital technology.
- Gairloch High School could provide its local primary schools with staff training in the use of digital technology.

6: Discussion and conclusion

6.1 Introduction

This chapter revisits the three main aims of the evaluation, in terms of the research questions set out in Chapter 1, in order to assess the overall impact of the DTP. Briefly, it also explores the interrelationship between some key contextual factors and the overall impact of the Digital Technology Project (DTP) at Gairloch High School. The factors considered include school size and geographical location. The chapter concludes by asking how much the findings from this one-year pilot project, which was designed to facilitate the embedding of ICT in certain curriculum areas, can be helpful to other schools considering piloting such an initiative?

6.2 The research questions revisited

In order to evaluate the overall impact of the DTP, it is necessary to summarise the extent to which Gairloch High School has met its three main aims based on the evidence provided in the previous chapters of this report. The answers to the research questions presented in Chapter 1 form the focus of the following three sections.

6.2.1 The overall impact on the skills of the teachers involved in the project

In each of the subject departments involved in the DTP, the participating teachers and others generally reported that they had developed their ICT skills and extended the repertoire of teaching and learning styles they had adopted in their subject in the 2004/5 session. Some of the subject departments were collaborating in the production of digital lessons. Examples were Music and Art, Support for Learning and Modern Studies and Science. There was overwhelming evidence that pupils had become quite familiar with using digital technology in the participating subject areas. Examples of software packages routinely used by the pupils in Modern Languages, Biology, Music and Art included Inspiration, PowerPoint, and Garageband. Digital lessons for use in Biology were currently under development by a seconded teacher based in the school. Participating teachers indicated that in the future, they might use the digital resources in Music and Art with S2 pupils rather than with S3 pupils. The Support for Learning Department had used some of the Highland Council Virtual Learning Environment (HVLE) resources developed for Intermediate Science. These resources may well be suitable for future classes.

The use of the electronic conferencing system, First Class, was unanimously commended. The importance of the opportunity of such internal networks for dialogue and communication in the smooth running of school communities has been recently emphasised (Haughey, 2006).

Additional digital technology skills developed by participating staff mainly revolved around the use of PowerPoint presentations and filmmaking techniques relevant to their subject area. The participating staff have developed

considerable ICT expertise. Staff members have given relevant in-service sessions to other teachers in the school and Highland Council and the local community.

6.2.2 Impact on the skills of the pupils involved in the project

Digital technology was used as a way of extending the teaching approaches available not only in the classroom but also for extra-curricular activities. An extra-curricular example was a film made about a kayaking trip as part of preparation for the Duke of Edinburgh (DoE) award. The pupils appreciated the opportunity to be able to submit a video diary instead of the traditional text format previously required as evidence for the DoE.

The courses in the participating subject departments differed, nonetheless, from those previously taught in a number of important ways. The pupils were able to be more creative and independent in their learning. An illustration of the use of the video clips to assist learning comes from Modern Languages where pupils were able to do some role-playing in French. Video clips were made of the pupils engaged in French conversation. Their French conversation skills improved considerably.

As a result of the DTP, the Support for Learning Department was able to provide pupils with more opportunities for experiential learning and group work in a variety of environments. The success of their approach was evident in the high quality video clips produced by the pupils about their hobbies. A remarkable example was a 5-minute video clip about trail bike riding.

Due to the small size of the school community, the DTP had impacted on other subject departments. After the commencement of the project other subject areas, including English, became involved. The English Department has used the technology to develop formative assessment techniques of pupils' discussion. A dedicated printer had been set up so that the pupils could e-mail their homework to school where it could be printed off to deliver to teachers. Further development of online resources should be possible when the Highland Virtual Learning Environment (HVLE) and the Scottish Schools Digital Network (SSDN) are fully synchronised. For examination revision purposes, the pupils access some other online resources, not only in class and the school library but also at home. Examples of materials for Intermediate level are Bitesize and SCHOLAR for Higher and Advanced Higher courses in Mathematics, Physics, Chemistry and Modern Languages.

Due to time constraints, pupils had not yet been involved in the construction of their own e-portfolios. This was still a task for the future, which would be incorporated as the school developed Personal Learning Planning (PLP). However, the pupils had their own personal DVD copies of the film clips that they had created for Art and Music on the topic of 'emotions'. Pupils had been able to use these to demonstrate their achievements in interviews for a Community Arts course in Film and Music. In Computer Studies, Advanced Higher and Intermediate 1, pupils used web authoring software to design their own web sites.

6.2.3 The overall impact on the school and community

Some parents and other members of the community used the Internet and are familiar with online digital resources for work and/or at home. The item of digital technology most likely to be familiar to parents was the digital camera. Shopping online was popular with a few parents and pupils. For various reasons, a few parents did not have access to digital technology at home. The majority of parents were aware of their children's participation in the DTP at the school. Open events put on by the school to encourage the community's awareness of the DTP had been well attended. There had been a demonstration of the uses of digital technology for parents. They had been given opportunities to watch their children's videos on a large screen. Parents were generally very impressed by the quality of their children's film clips. The school had provided training sessions for parents in the use of the digital video recorder. In the 2005/6 session it was offering an evening course in digital technology. Pupils would like to be able to make more use of the filmmaking skills that they have developed in school. Whether or not it was feasible to make video cameras and laptops more readily available for loan to pupils was a key issue for the school to consider in its future development plan.

It was too soon to report on whether or not the school had successfully built on its connections with the community as a result of the DTP. New projects were just getting under way. An example was a collaborative venture with the local heritage museum to create a film about an historic plane crash in the nearby mountains. As a result of an incentive scheme organised by the Wildlife Service at Inverewe Gardens, pupils had made an innovative film about how to construct a nest box. Some of the pupils had evidently honed their ICT-related skills by working at the local radio station.

Gairloch High School has been able to meet the key aims of the DTP as much as could be expected given the time constraints on teachers and the nature of school life (McPake *et al*, 1999). Some concerns about the sustainability of the project were raised in terms of the needs for new hardware. The DTP has obviously been a very worthwhile exercise from the point of view of the majority of the participating staff: they have had their ICT skills considerably extended. The pupils, particularly those based in the Support for Learning Department, appreciated the DTP, and the new opportunities it had afforded them for creative independent experiential learning in new contexts both inside and outside the classroom.

6.3 Sustainability: what makes the project work?

Although there is evidence that secondary schools in Scotland are not using ICT in flexible ways within typical classroom contexts (SEED, 2005b), there are some remarkable exceptions and one example of innovative practice is Gairloch High School. In some respects this project, was very much building on the already acknowledged skills and ICT expertise in the Gairloch High School staff (Ogg, 2003). Some of the key features of what makes the DTP project

work are briefly highlighted in order to allow others to debate and implement in their own context.

Project champions, that is teachers with some ICT skills keen to develop them further, were prerequisite for the project to work. Pupils liked being able to work independently, although a few pupils questioned whether they had yet developed the confidence to share their digital photography skills with younger pupils. Overall, the enthusiasm of the pupils was infectious and it had the spin off of encouraging other staff to participate in the project. The expressive arts pupils had produced their own individual demonstration CDs, which could be used in portfolios and audio presentations as part of their interviews for a community arts course. Access to the digital technology resources was an issue for the pupils. They emphasised that it was a matter to be raised with the Pupil Council. For National Exams individual work is typically required and so the digital technology skills could be best introduced and developed in S1 and S2 rather than in the middle to upper school. Nonetheless subsequent discussions by teachers in the school with the SQA have proved fruitful, as some of the pupils' digital technology work may not be completely excluded from SQA submissions. This point is further elaborated under in the concluding section about project links with Scottish Executive's policy developed in *A Curriculum for Excellence*.

The use of ICT is only slowly becoming integrated into teaching approaches across the curriculum (John, 2005). The appointment of an ICT technician during the course of the project substantially alleviated some teachers' anxieties about technical breakdowns. A centralised loan system is now being developed on the back of the purchasing of additional equipment. Hence this research suggests that if the infrastructure and support systems and ICT champions are available in a school, then innovative creative uses of digital technology can be introduced flexibly across the curriculum in secondary schools, particularly in languages, social studies, sciences and expressive arts (Blane, 2005). How other curriculum components will integrate digital technology in innovative flexible ways is a question to be explored further in this school and other schools across Scotland.

6.4 Key contextual factors

6.4.1 School size

The school is small for a secondary school in Scotland and has a recently declining roll. Despite this, there was a recurring theme about the importance of transparency and effective communication among the teaching staff and other stakeholder groups, such as parents and community members in relation to the DTP. Given that the targeting of resources is essential for the effective implementation of a similar project in other secondary schools, it has to be noted that an essential factor was the presence of a senior manager with the enthusiasm, drive, creativity and vision to motivate both pupils and staff. The innovative use of the digital technology in Support for Learning may also be a particularly helpful model. Dedicated technical support needed to be on hand

for the effective maintenance of the ICT infrastructure, conference system and curriculum support for teachers. This was partly funded from the McCrone Agreement (SEED, 2002). Good communication may also be relevant to any other Scottish secondary schools intending to implement a similar type of innovative teaching and learning programme, which relies heavily on the development of new skills and sharing resources.

6.4.2 Geographical location

The isolated nature of the Gairloch community has been mitigated to some extent by recent major developments in the area. The first development is the new two-way road, which is to be sealed for its entire length of 80 miles, from Gairloch to Inverness. The other major development is related to the advent of digital cabling in the main village of Gairloch and the subsequent broadband connection to the school. The isolated location was an impetus to the use of digital technology in this school. The school's aim was to ensure that its pupils would not be disadvantaged by living so far away from the central belt of Scotland. In some other parts of Scotland, schools have high-level Internet connectivity. If staff are enthusiastic, in these schools it may be feasible to consider adopting a similar project to the DTP at Gairloch High School.

6.5 Making the link to *A Curriculum for Excellence*

In some respects the digital technology project was building on the already acknowledged skills and expertise of the Gairloch High school staff, the existing positive learning environment and the strong sense of community (Ogg, 2003). This project particularly involved the development of the capacities outlined in *A Curriculum for Excellence*. There is a genuine feeling of excitement in the school among most staff and pupils about working towards enabling all young people to become successful learners, responsible citizens, effective contributors and confident individuals. The proposed development of *A Curriculum for Excellence* (Scottish Executive, 2006: 1) *signals a need to revisit traditional assumptions about the curriculum in Scotland...to extend the model of the curriculum to embrace all experiences which promote effective learning...*

At Gairloch High School, both the participating teachers and the pupils were able to describe classroom interactions which had enabled the development of the pupils' learning and thinking skills. In reality, formative assessment processes, where the teachers had shared the standard expected for success, had effectively complemented summative assessments. The use of high quality digital film-making, as described in this report, is an excellent way forward for enhancing and improving learning and teaching, interdisciplinary activities and recognising broader achievements and progression within the developing flexible curriculum framework for the 21st century.

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Appendices

- A1 Interview schedule for teachers from participating subjects
- A2 Topic guide for pupil focus groups
- A3 Interview schedule for parents and local community groups/partners

**Evaluation of the
Digital Technology Project at Gairloch High School**

A1: INTERVIEW SCHEDULE

For Teachers From Participating Subjects

Name:

Designation & Subject Area:

Date:

Start time:

Finish time:

Interviewer:

**PLEASE STRESS THE CONFIDENTIALITY OF THE INFORMATION
AND VIEWS SUPPLIED**

Section A: Level of understanding of, Consultation on and Agreement with the aims of the Digital Technology Project at Gairloch High School

1. Please explain in your own words what you understand to be the main purpose and aims of the Digital Technology Project.

2. Why did you become involved in the Project?

3. Why do you think such a project is desirable?

4. Were you consulted about the Project at the outset and as the project progressed? If 'yes', how were you consulted?

8. Have you developed any additional skills, not already mentioned?

9. Have there been any areas of concern you have identified that are attributable to the Project?

13. Is there any potential in the future for further involvement of other subject departments in the use of online digital resources? If 'yes', please give examples.

14. Is there potential for further use of digital technology to support pupils undertaking national exams? If 'yes', please give examples.

Section D: Impact of the Digital Technology Project on parents and the community

15. Do parents and other community members use online digital resources generated by the Project?

16. Has digital technology affected the way community partners work together in any way? If 'yes', please give examples.

17. Has the project affected other staff and departments in the school in any other ways not already mentioned? If 'yes', please describe briefly.

A2: Topic guide for pupil focus groups

Year Level: S2/S3/S4/S5 _____

Interview Group: I/II _____

No. of pupils: _____

Gender mix boys/girls: _____

Time: _____

Facilitator/Recorder: _____

Video excerpt: Gairloch High School 1994–2004 – Classes in action

Please check that everyone is happy for you to use the recording device: Ipod

Introduction

Explain who we are [researchers from Glasgow University], what the research is for [Scottish Executive Education Department] and what will happen to findings. [The Report will have the comments anonymised.] Explain that we are interested in the views of young people about digital technology and its use at Gairloch High School. We are speaking to 8 groups of students at Gairloch who have had some experiences of using the technology at school and are prepared to share their experiences with us, both positive and negative. This is the students' chance to tell the government what they really think are the main issues around digital technology in school!

Check that the group:

- understands the term Digital Technology
- agrees with the examples to be included under the heading Digital Technology. (Examples are digital video cameras, PowerPoint, GarageBand, iStopMotion, digital still cameras, web design, Internet, NQ online, CDs and DVDs.)

View excerpt. The purpose of clip is as a stimulus to start the discussion about pupils' use of digital technology, particularly at Gairloch High School last session 2004/5.

A *Students' involvement in Digital Technology*

- Tell us about any subjects where you used Digital Technology last year.
- Tell us about any other areas outside the classroom where you were involved in using Digital Technology (*Examples might come from the Duke of Edinburgh Award, school trips*).

B *Students' development of knowledge & skills*

- Tell us about anything new you have learnt while using Digital Technology at school (*Examples could involve ICT skills/Subject knowledge/Core Skills: Presentation, Communication, Confidence, Working with Others*).

C *Future learning*

- Tell us about any ways your experience of using Digital Technology at Gairloch High may be useful to you out with school, or in the future. (*Examples might be: in your studies, your hobbies, at home, your work/career.*)

D *Concerns about the use of Digital Technology at Gairloch High School*

- Tell us about any problems you have had with using Digital Technology at Gairloch High School.

E *Any other comments*

Thank you for sharing your views with us.

**Evaluation of the
Digital Technology Project at Gairloch High School**

A3: INTERVIEW SCHEDULE

For Parents and Local Community Groups/Partners

Name:

Ages of any children (and their year levels if at Gairloch High):

Date:

Start time:

Finish time:

Interviewer:

**PLEASE STRESS THE CONFIDENTIALITY OF THE INFORMATION
AND VIEWS SUPPLIED**

A: Level of publicity about the Digital Technology Project at Gairloch High School

1. Are you aware of the digital Technology Project at Gairloch High School? [If 'no', explore possible activities related to DTP. Then if still 'no', go to Section D]
2. Did you have children, or have you worked with children, involved in the FlaT-funded digital technology project at Gairloch High School? (An example might be the video of the school's history)
3. What do you understand to be the main purpose of the Project?
4. Were you consulted or informed about the Project? If 'yes', how were you consulted?
5. Do you think such a project is desirable? If so, why?

B: Impact of the Digital Technology Project on pupils

6. Has the Digital Technology Project impacted on the young people you know at Gairloch High School? (For instance in terms of ICT skills.) If 'Yes', can you give an example?
7. Are you aware of digital materials becoming an integral part of lessons in any particular subject areas? Or for any specific extra-curricular activities where digital technology is useful? If so, can you give examples? (Examples might include revision materials, preparation for Duke of Edinburgh Awards).

8. Is there potential for the use of digital technology to help pupils preparing for national exams? If 'yes', please give examples (An example might be revision or homework using Internet-based resources and online materials for Higher Mathematics or French).

9. Do you have any concerns about this Project or the use of digital technology?

C: Impact of the Digital Technology Project on local community.

10. Do you use online resources yourself? If so, please give some examples and explain where you access these resources. (Examples may come from using the Internet at home or in a community centre or workplace)

11. Has the Digital Technology Project at Gairloch High School had an impact on you, your family, friends and/or colleagues in Gairloch? (For instance in terms of your own ICT skills or hobbies) Can you give examples?

12. Has digital technology affected the way the local community works with the school in any way? If 'yes', please give examples. (Examples might be a video made with people in the local Nursing Home, or collaboration with the national Trust staff and Inverewe Gardens).

D: Sustainability of the Digital Technology Project

13. Is there potential for greater involvement of the local community with the digital resources available through the school? If 'yes', please give an example. (An example might be making a film about local history) What might be the barriers to such involvement?

14. Will the school need any particular resources to continue such work? Would you like to see the school continue with the use of digital technology?

15. Do you see any long-term benefits about the use of digital technology in a rural secondary school, such as Gairloch High School?

16. Are there any other comments you would like to make about this project?

Thank you for taking the time to share your views with us.