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Evaluation of the Flexible Learning in the Community (FLiC) Initiative

Final Report

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Executive Summary

The **Flexible Learning in the Community** project (FLiC) was set up by the City of Edinburgh to take advantage of the potential of the City's information and technology network to support flexible learning and teaching within and across its schools, colleges and community learning centres. An evaluation of the project was commissioned by the Scottish Executive Education Department, which had provided some funding for FLiC, through the Future Learning and Teaching (FLaT) programme. The evaluation was carried out during 2003-04 by a team from the Quality in Education Centre, the University of Strathclyde.

The FLiC project had three main strands: video-conferencing, multi-media presentations (Kar2ouche[1]) and a virtual learning environment (digitalbrain[2]). Support and training for both teachers and pupils were provided by the Information Technology Support Team (ITSU) alongside a considerable investment in hardware, software and networking. Following a year of pilot work the initiative was launched by the Minister for Children and Young People in March 2003.

The evaluation focused on three main school clusters (15 schools in total), who had been involved in the pilot phase of the FLiC project. (The involvement of colleges and community learning centres had not developed as originally intended and so they were omitted from the evaluation.) Questionnaires were developed to gather teachers' and pupils' views on their involvement with the project and visits were made to observe and talk informally with staff and pupils while they were working with one of the strands. A second series of questionnaires was issued towards the end of the evaluation. This was distributed to teachers and headteachers in the pilot schools and a small number of additional schools that had become involved since the pilot.

The number of schools, teachers and pupils who participated in the evaluation was disappointingly low. The response to the first survey revealed a much less extensive use of the FLiC strands than had been indicated in the information received prior to the evaluation. In addition it proved difficult to find sufficient use of the strands within the timescale of the evaluation to carry out observation visits as planned.

The key aims of the evaluation were:

1. to determine the impact of FLiC on teachers and pupils and on the learning environment.

2. to analyse the use of digitalbrain, Kar2ouche and video-conferencing within the pilot schools.

3. to determine the impact of community learning

4. to provide information on any gender-related differences in relation to pupil participation.

The key findings are presented to reflect the aims of the evaluation. In the light of the low participation in the evaluation these findings should be treated with a degree of caution. However, the feedback was consistent across participants and throughout the course of the study.

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[1] Kar2ouche – see www.**kar2ouche**.com
[2] digitalbrain - see www.**digitalbrain**.com

1.   The impact on teachers, pupils and the learning environment

i.   Enthusiasm was high at the launch of FLiC (http://egfl.net/news/news/flic.html), but this was not translated into the anticipated numbers of actively involved teachers and pupils.

ii.   The usage of each of the strands of FLiC was less than anticipated. This was, in the main, due to delays in the supply of equipment and training as well as difficulties with the managed system (Syntegra) and the firewall.

iii. Considerable frustration and disillusionment were reported due to the unreliability of equipment and network connections, both during training and in classroom use. Several had access to ICT at home which was far superior to that available in school (e.g. broadband), which they found irritating.

iv.   Teachers and pupils who persevered were very enthusiastic and saw real potential in the extension and integration of all 3 strands into the classroom. Where this enthusiasm existed it has continued to develop, albeit through the efforts of particular individuals rather than as a whole-school phenomenon.

v.   These teachers were positive about the benefits of using technology in the classroom in relation to enhancing pupil motivation, attainment, confidence and skills. FLiC activities were reported as encouraging young people to work collaboratively; Kar2ouche, in particular, encouraged dialogue and discussion.

vi.   The majority of pupils were very enthusiastic, although this was tempered at times by the frustrations of establishing contact and getting online. There was some evidence that pupils were ahead of the teachers in their ICT competence but as we were able to observe very few genuine lessons involving the FLiC strands, it is difficult to make judgements on the impact on the relationship between teacher and learner.

2.   The use of digitalbrain, Kar2ouche and video-conferencing

i.   Both pupils and teachers reported high levels of experience in using computers and standard software packages; the frustrations reported in using some of the strands are unlikely to result from lack of knowledge and confidence generally.

ii.   Video-conferencing was more readily used than digitalbrain or Kar2ouche in the pilot phase, possibly because it required less investment of time to acquire new knowledge and skills and there were existing events that could be enhanced by its use, e.g. transition. It was also used to provide opportunities for pupils to share learning, particularly modern language skills.

iii. The use of digitalbrain and Kar2ouche initially had been confined primarily to the learning and teaching of modern languages, where they were seen as effective in encouraging imagination, creativity and confidence in speaking. Digitalbrain was also used to support learning in maths and Environmental Studies and the use of Kar2ouche was developing in other subjects.

iv.   The use of the virtual learning environment, digitalbrain, is the most relevant to the impact on home study, homework and revision. It was, however, the least used of the three strands and teachers saw providing information for pupils and their parents by electronic means, as low priority. Technical issues, including time to download, caused some annoyance amongst pupils.

v.   The limitations of Kar2ouche (static characters, French, limited number and type of characters) has led to the development of iMovies. These use the storyboards created on Kar2ouche, still photographs or 'live' videos, as the basis for a digital

video which is then edited on the computer. In one school, the videos were used as assessment evidence for the talking component of the Standard Grade examination.

vi. A number of teachers (primary and secondary) expressed a desire to link with schools and organisations in other countries by video-conference facilities, and use the language skills in an international context. The authority firewall prevented that, however.

3. The impact of community learning

i. The hoped-for increased involvement of parents and improved home-school links had been very limited. Parents were marginally involved in digitalbrain, as discussed earlier, and we can assume that their children told them of some of the events in schools, but otherwise parents appear to have been largely unaware of the initiative.

ii. The community dimension of the FLiC initiative was never really developed. Although talks were held, in the early stages, with representatives of the community education sector, they did not get involved in the roll-out for reasons that were not made clear.

iii. Schools were interested in becoming more involved in the wider community – local, national and international – through video-conferencing in particular. However, issues with the stability of the video-conferencing network and firewall restrictions had inhibited this development.

4. Gender-related differences

While some attempt was made to determine whether there were any gender-related differences in relation to attainment and/or motivation, sample sizes were relatively small and any differences observed were inconclusive. There was some evidence that teachers varied in their perceptions of whether boys or girls were gaining more from their involvement, but most appeared to believe that both groups were benefiting similarly. Any benefits are likely to attributable to a range of factors, including the wider availability of ICT generally and the impact of out-of-school access as much as in-school.

There are signs that some of the aims of the project have resulted in effective changes to learning and teaching, using ICT, in some schools for some pupils. Primarily, this is where an enthusiastic and committed member of staff has taken on the initiative and persevered with it. One of the key obstacles has been the unreliability of the technology. The infrastructure of networking, hardware and software was not sufficiently robust to give teachers confidence in implementing the initiative within the classroom. The ITSU supported schools quite intensively during the pilot phase and more recently as more schools have become involved. However, the three strands will only become embedded in practice if they are easily managed and maintained. At the time of the evaluation, they were not perceived as such. Teachers and pupils did see significant advantages to be gained from video-conferencing, virtual learning environments and multi-media applications but were frustrated in their attempts to implement them. Teachers' concerns focused on the mastery of the applications rather than on the impact that they might have on learning and teaching or on relationships within the classroom. A constant theme was the need for time – time to familiarise themselves with the applications and the technology as well as time to reflect upon and plan for the integration with learning and teaching.

FLiC Final Report

1. Introduction

In 2003, the Scottish Executive commissioned an evaluation of the FLiC initiative under the Future Learning and Teaching (FLaT) Programme. This is the final report of that evaluation, undertaken by the Quality in Education Centre at the University of Strathclyde.

The Flexible Learning in the Community (FLiC) project was introduced by Edinburgh City Council with the aim of using the City's ICT network for schools to develop flexible delivery methods that could respond to the needs of students of all ages (lifelong learning), promote cross-sectoral partnerships and maximize the use of Information and Communication Technology (ICT) in learning. The original intention was to involve schools, colleges and community learning centres in Edinburgh and to encourage the development of a wide range of ICT-based flexible learning materials for students. In the event, the initiative focused on learning and teaching in schools, both primary and secondary.

To support the project, the City Council invested in hardware, software and staff training through the Information Technology Support Unit (ITSU). This Unit had been in existence for some time and had offered training in a range of ICT approaches, including video-conferencing. While some staff and schools had benefited, it was felt that there was a lack of city-wide coordination and that good practice was not disseminated. In May 2001, a steering committee was established involving schools in 3 cluster areas and further education, community and business partners. This group, with the support of City of Edinburgh Education Services, sought and gained financial support from SEED in January 2002, with the new FLiC initiative starting shortly thereafter. The specific aims were to:

- promote and develop flexible approaches to curriculum delivery, incorporating ICT

- provide appropriate staff training through the FLIC development Team

- disseminate good practice across educational sectors and business partners.

Following a year of pilot work, the initiative was launched by the Minister for Children and Young People in March 2003. At this event, early success stories were reported, including: boys' improved attainment in modern languages; the successful amalgamation of two primary schools; better primary-secondary transitions; extended support for subjects online; greater use of home computers/local community facilities for homework activities; and increased parental involvement in their children's learning. These had been facilitated through the use of a series of ICT initiatives including virtual learning environments, multimedia authoring/editing and video-conferencing.

The pilot project involved 3 school clusters, centering on Broughton High School, Liberton High School and St Thomas of Aquin's High School. Within the pilot, priorities were identified as: primary/secondary transition, 5-14 modern languages, education/industry links and personal and social education (although some development beyond these specific areas was identified). A Project Co-ordinator and Development Officers were appointed initially to take the aims forward although the specific personnel changed during the course of the project.

With regard to 'flexible learning', three key strands were identified to support students: video-conferencing, virtual learning environments and multi-media software. The virtual learning environment chosen for the pilot was **Digitalbrain**, while **Kar2ouche** was selected as the multi-media package, with the specific aim of supporting learning and teaching in modern languages. (Further details of these applications can be obtained from their websites: www.digitalbrain.com and www.kar2ouche.com)

2. The FLiC Evaluation

The evaluation of FLiC by the QIE team began in September 2003. The original specification for the evaluation indicated that the main focus was to be on project outcomes, rather than processes, concentrating on:

- assessment of the overall impact of the project on both teachers and pupils in participating schools and identification of any improvement on the learning and teaching environment

- analysis of the use of the three strands of ICT support - Digitalbrain (online learning environment), Kar2ouche (Multimedia Authoring Package) and Video-conferencing - and identification of the impact these resources have had in assisting with home studying, the teaching of languages and the transition between Primary and Secondary

- assessment of project impact on community learning

- identification of any gender differences in relation to pupil participation in the project.

In line with this, four specific aims, each with a number of research questions, were identified:

1. to determine the impact of FLiC on teachers and pupils, and on the learning environment

    i. What has been the extent of the usage of each of the strands of the project?

    ii. What has been the impact on the strategies and approaches used by teachers and learners, separately and together?

    iii. In what ways have the resources, written and electronic, supported and complemented each other (blended learning)?

    iv. What impact has the introduction of ICT-based activity had on the nature of the relationship between teacher and learner?

2. to analyse the use of Digitalbrain, Kar2ouche and Video-conferencing within the pilot schools

    i. What has been the impact on:

    - home studying, including homework and revision?

    - the teaching and learning of languages?

    - the primary-secondary transition?

3. to determine the impact on community learning

    i. To what extent have parents and the wider community been aware of and involved in the project?

    ii. What has been the impact of their involvement?

4. to provide information on any gender-related differences in relation to pupil participation

    i. What gender-related differences are discernible in the motivation and/or attainment of pupils?

    ii. To what extent are these attributable to the FLiC project?

3. Methodology

The initial pilot project involved 3 secondary schools and their associated primaries, giving a total of 16 schools (one of which subsequently indicated little/no involvement and withdrew from the evaluation). The specification for the evaluation indicated that the numbers of teachers and pupils involved were as in Table 1.

Table 1:   Breakdown of teachers/pupils across strands

Strand	Teachers	Pupils
Digitalbrain	300	400
Kar2ouche	30	200
Video-conferencing	40	900

As the evaluation aimed to determine the impact on practice, staff and pupil perceptions of the developments and the implications for further development within and across educational establishments, a balance of quantitative and qualitative approaches to data-gathering was identified. (The timetable for, and key events in, the evaluation process are outlined in Appendix 1.)

3.1   Initial survey of pilot schools   (Sept – Dec 2003)

In the first instance, a series of questionnaires was designed for pupils and teachers to provide baseline data on their experiences of and attitudes to the pilot project. This was followed by visits to schools with the aim of gathering further, qualitative data through observations of teacher-pupil-ICT interaction, together with interviews and focus groups involving staff and/or pupils. In addition, various documents including the internal evaluation of training programmes were provided by the FLiC Project Team.

The sample

The evaluation focused on samples of pupils and staff within the 15 pilot schools. Access was sought from the Director of Education and letters were distributed to schools to be issued to parents. These letters outlined the extent of their children's involvement and sought their permission to involve them.

At the start of the study, information was sought from schools on the numbers of staff and pupils who had been actively involved in FLiC, and in which of the three strands. In the majority of instances pupils were involved in only one of the strands, but in some schools teachers had been involved in more than one, usually with different classes/stages. Separate questionnaires were therefore developed for teachers and pupils. While attempts were made to ensure that the samples were representative of the pupils and teachers within the pilot schools, the numbers were relatively low and choice was limited.

Teacher Questionnaire   (Appendix 2)

The questionnaire for teachers included sections on each of the three strands as well as some general questions on the new technologies, development planning, including National Priorities, and aspirations/intentions for the future.

Pupil Questionnaires   (Appendix 2)

Three questionnaires were developed, one for each of the three strands of FLiC – video-conferencing, digitalbrain and Kar2ouche. Each questionnaire had two sections. The first section focused on the particular strand of FLiC with which pupils had been involved, while the second asked for some general background information

on their use of a range of Information and Communication Technologies (ICT). Different groups of pupils, from across the schools involved, were identified for each of the strands.

3.2   Visits to schools   **(Oct 2003 - May 2004)**

In the original proposal, a series of observation visits to schools was scheduled to begin during the autumn term of 2003. The visits were expected to produce qualitative data on pupils and teachers working with ICT as part of the everyday learning and teaching experience. The 15 pilot schools were asked to advise the evaluation team of opportunities for visits to observe any of the FLiC strands in action. However, feedback indicated that none of the schools expected to be working with the FLiC strands before the Christmas break. It was decided therefore to arrange interviews with key people in a number of the schools to gain some background information on their involvement and to postpone observation visits until early 2004.

The interviews were arranged on a cluster basis. A representative from each of the secondary schools was interviewed, as were two primary representatives from one cluster while a primary representative from a second cluster was interviewed by phone. It proved impossible to arrange an interview with a primary representative from the third cluster during the relevant period.

Between January and May 2004 schools were contacted on a regular basis asking for opportunities to observe video-conferencing, Kar2ouche and/or digitalbrain as naturally occurring events in the classroom. Although a few responded that they were hoping to arrange video-conferences with other schools in their cluster or hoped to be using the other strands, it remained very difficult to identify specific events and set days and times. A few video-conferencing sessions were identified in February and early March; a number of schools indicated that they were still having difficulty with network connections or with equipment not working.

One secondary contact reported that it was not a priority for the school and that there would be nothing happening that could be observed. Some of the primaries likewise said they were not doing any FLiC activities. This was confirmed by ITSU staff. Other schools indicated that they would not be doing anything until the summer term.

Identifying opportunities in the summer term to observe Kar2ouche and digitalbrain still proved more difficult than expected. Schools who had indicated they had started using digitalbrain earlier in the year had experienced difficulties and by May still did not have it *'up and running'*.   It was reported from one school that 2 teachers had started using it but they had *'so many problems they don't want to use it with pupils because they know it will go wrong'*.   Two of the schools who had given early indications of using Kar2ouche had not been using it after all. Reasons included difficulty of access to laptops, which were shared with other classes and teachers for other purposes and, although it was being developed by language teachers in one school, they were not using it *'at the moment'*.

It was possible to undertake a small number of visits where activities were observed and staff and pupils were interviewed.

Visits for observation and interviews with teachers and pupils

	Primary	**Secondary**
Video-conferencing	P6 with S1 for Spanish	S1 with P6 for Spanish
	P7 with S1 for transition	S1 with P7 for transition
	P4 with P4 for Environmental Studies	
Kar2ouche	P6 – PSD – dilemma solving	
	P7 – German	
digitalbrain	P6 – French	
	P7 - Environmental Studies project	
*i*Movies	P7 – French; bullying	S grade Spanish group

In total, 6 of the 15 schools in the FLiC project were visited to observe the 3 main strands of FLiC. Although iMovies was not part of the original FLiC package, it was included as 2 of the schools had introduced it as a development from digitalbrain and/or Kar2ouche. Two schools were visited twice – once each for video-conferencing and once each for Kar2ouche.

3.3   Second survey of schools   (May – June 2004)

Given the lack of opportunities to observe 'naturally occurring events', it was decided that a second survey of schools would be undertaken towards the end of the evaluation process. Two new questionnaires were developed from those used in the initial survey – one for the headteacher/senior management team member (SMT) in each school and one for class teachers (see Appendix 2). These were distributed to all pilot schools and 10 others identified by the FLiC Co-ordinator as having made progress in one or more of the FLiC strands since the pilot project.

Of the original 15 schools in the pilot phase, 6 headteacher/SMT members and 9 class teachers returned questionnaires. Of the teachers, 7 had used one or more of the FLiC strands during 2003-04 while 2 had not. Four headteacher/SMT and 4 class teacher questionnaires were returned from the additional 10 schools contacted.

4.   **Findings from the initial survey: Analysis of pupil questionnaires**

Following feedback from schools on active involvement in FLiC, a target sample of pupils was identified. The numbers of pupil questionnaires sent out and returned are shown in Table 2.

Table 2:   Nos. of pupil questionnaires sent out and returned

Strand	Target sample	Questionnaires returned
digitalbrain	86	42
Kar2ouche	58	24*
Video-conferencing	100	57

*   One school sent a package of 9 questionnaires which was not received
    at the project office and so one set of data was lost

(Given the relatively small numbers, both percentages and numbers have been given in this report.)

4.1   Video-conferencing

A total of 57 pupil video-conferencing questionnaires were returned from schools, 44% of which were from boys and 56% from girls. The largest group of questionnaires came from pupils who had used video-conferencing in their final year of primary school and were now in Secondary 1.

Pupils were asked to indicate which of a number of possible uses they had made of the video-conferencing facilities. Three of these were concerned with familiarisation before transfer to secondary or in preparation for a merger of primary schools. Thirty-four (60%) had used it to speak with secondary pupils when in primary school and 4 (7%) had used it to speak to primary pupils when in secondary school. Thirty-one (54%) had used video-conferencing when preparing for merger.

In addition, pupils reported sharing ideas with pupils in other schools (22: 39%), talking to teachers in other schools (19: 33%) and talking to people other than teachers (8: 14%).

Other uses given by pupils included one respondent who reported *'having a conversation in French to another Primary School'* and another who reported *'meeting another class'* though did not give any details. A third said they had used it for the purposes of *'testing it'*.

For 49 (86%), video-conferencing was *'easy'* and for 48 (88%) it was *'fun'*. Sufficient instructions were given to 49 (86%) and where there were problems, teachers were on hand and able to help, according to 51 (90%). Forty-five (80%) thought that video-conferencing should be used more frequently in school, while only 2 (4%) thought that it took up too much time to be worthwhile.

Pupils were asked to indicate what they thought would make it better to use and 44 (77%) made suggestions. The most common comments related to the quality and stability of the connection or the transmission. Two indicated that a better connection would be helpful, while a group of 12 pupils (all from the same school) suggested that using Broadband would improve it. A few said, broadly, *'It would be good if it worked'* (3). Six spoke of the quality of the picture and sound: for example, it would be better if *'faces didn't go fuzzy'* and *'if the screen didn't move and freeze too much'* and *'if it was louder'*.

Eight suggested that getting more opportunity and more time to use video-conferencing would be better and six suggested further uses such as talking to pupils in other countries, talking to teachers and playing games with other schools. The remaining pupils indicated that no improvements were necessary: for example, *'I think video-conferencing is perfect in every single way!'*

Other open-ended questions asked pupils to indicate what they liked most and liked least about video-conferencing. All (100%) gave responses to 'liked most'. The majority gave one suggestion but a few made more than one and so the responses add up to more than the number of respondents. Two indicated that they liked everything. The majority of 'likes' focused on the inter-personal links that occurred, including:

- talking to others generally (25)
- being able to see the person or people you were talking to (14), with a subset mentioning specifically those who were far away or in other places (5)
- learning or getting information about high school (12)
- meeting or getting to know new people (10)
- listening to others (4).

A few specific comments were made about getting *'to see old friends'* and *'talking to my old primary teachers'*; one mentioned that *'your worries were answered'*. The above comments were made by both boys and girls.

A smaller number of pupils (10) indicated that they liked using the equipment best, for example *'being able to make the camera move'* and *'talking to a camera'*. Only one girl mentioned the equipment and that related to *'acting in front of the camera'* as opposed to using it.

Slightly fewer pupils (53: 93%) responded to the 'liked least' question, with the main areas of concern falling into two broad categories: technical issues and the nature of pupil involvement.

The technical issues were similar to the points made about what would improve vide-conferencing. They included:

- problems relating to the quality of the transmission: for example delayed responses - *'when your mouth moves, five minutes later the words come out'*; and *'fuzzy and frozen'* pictures (15)

- problems relating to the connection and setting up time: for example *'waiting for the school to answer (just sitting there)'* and failed connections (14).

Issues relating to the nature of pupil involvement included:

- the process of involvement: such as taking turns and being *'quiet when it was not your turn'*'; asking and answering questions; having *'to do what was written on the sheet, I would like a choice'*; and having to prepare for it (7)

- personal impact: such as being embarrassed or nervous (6)

- lack of opportunity: for example, not everyone taking part or getting a chance to ask questions; not doing video-conferencing often enough (4).

Pupils were also asked to make suggestions as to other activities that they would like to undertake using video-conferencing and 30 (53%) did so. The majority of responses related broadly to linking to other schools and in particular pupils in other schools, but, within that, several suggested specific purposes, for example:

- linking to foreign countries (12) with a subset specifically mentioning speaking foreign languages (4)

- social contact, for example *'chatting'* and *'for a social point of view'* (4)

- revision and sharing subject knowledge (3).

Two pupils mentioned video-conferencing with teachers and three mentioned making other links: *'Talking to different people, not just schools'*; one suggested *'leisure centres'* and another, more enigmatically, *'cars'.*

Thirty-one (54%) suggested they were already using video-conferencing during 2003-04, with a further 7 (12%) unsure as to whether they would be or not. Those who were using it were asked to indicate what they were using it for. The responses to this question were from two of the secondary schools and one primary. In one of the secondary schools it was suggested that the main use was to *'talk to primary pupils'*. Some responses suggested that this was future rather than current, and some stated that it would be *'the school'* or the *'S1s'* who would do this and, therefore, not necessarily them in particular. The pupils in the other secondary school spoke more generally of *'talking to other schools',* though a few (3) specifically mentioned Spanish. The primary pupils indicated that they communicated with peers in other cluster schools, for example a P5 pupil stated *'P5 talk to another P5 class in another school';* two mentioned this was about topics and projects. The future use for P7s to talk to the high school was also mentioned.

A space was left for any other comments that pupils wished to make on video-conferencing and 10 (18%) did so. These were all strong endorsements, for example: *'I thought it was a really good idea and I would really like to do it again'; 'It is so much fun and I would like to do it again'; 'I really enjoyed it. I want to do it more. I think it was really fun.'; 'I would like to use it more. We use it once in a blue moon.'*

4.2 Digitalbrain

A total of 42 pupils returned questionnaires, 23 (55%) boys and 19 (45%) girls. Pupils were asked to indicate in which of the subject areas they had used digitalbrain. The responses are shown in Table 3.

Table 3: Use of digitalbrain across subject areas (pupil responses)

Subject area	no.	%
mathematics	6	14%
English	11	26%
science	1	2%
history	6	14%
geography	5	12%
modern languages	31	74%

Other areas given by pupils included computing and business management. A number indicated that they used it for homework projects and a few highlighted at this point in the questionnaire that they had not used it since the launch of FLiC: *'I never used it again after the conference launch.'* Some of these made negative comments throughout the questionnaire.

It is intended that pupils can access digitalbrain from home as well as in school. When asked about frequency of use overall, 18 (43%) said they used it 'hardly ever', 1 (2%) said '2-3 times per month', 17 (41%) said 'at least once a month' and 6 (14%)

said they used it 2-3 times per week. Overall, very few said they made regular use of it. Pupils were asked to indicate what they used it for in school and at home. The responses are shown in Tables 4 and 5.

Table 4:   Use of digitalbrain <u>in school</u> (pupil responses)

In school ….	no.	%
I used it to share my work with others in the class	10	24%
I used it to practise what I had been learning during lessons	25	60%
I used when I worked with others in the class, in a pair or as a bigger group	23	55%
We used it to show people outside of our school what we were doing in school	14	33%
I used it to check on the marks I get for my homework and any tests or assignments	5	12%
I used it to make a record/portfolio of my work and achievements in school	7	17%

Therefore, in school, digitalbrain was used to practise recently acquired learning and often as part of a pair or group.

Table 5:   Use of digitalbrain <u>at home</u> (pupil responses)

At home ….	no.	%
I used it to see what homework was due and when	13	31%
I used it at home to let my family see my school work	15	36%
I used it to send homework to the teacher from home	11	26%
I used it to check what was happening on the school calendar	5	12%

In terms of use, 28 (67%) thought it was 'easy to use' and 23 (55%) thought it was 'fun'. Twenty-nine (69%) thought that they had been given enough instructions to be able to use it and the same number reported that the teacher was able to help with any problems that arose when using digitalbrain. Overall, levels of enthusiasm were lower than for video-conferencing.

Digitalbrain should be used in more subjects according to 27 pupils (64%) and 22 (52%) thought that it made learning more interesting. While 16 pupils (38%) found it easy to access, only 6 (14%) reported doing more homework with digitalbrain than before.

Asked for suggestions for improving digitalbrain, 34 pupils (81%) responded, some making more than one suggestion. Three suggested they would add *'nothing' – 'I don't think there is anything that would make it better to use because it's good the way it is.'* The comments fell into the following categories:

- user interface and access: for example, shorter usernames, more icons and pictures, more colour, guide to buttons and toolbar and generally it should be *'easier to use'* (13)

- content: for example, more subjects, more activities, use of chat room and, predominantly, games (suggested mainly by boys) (13)

- technical issues: for example, compatibility with computer and not working from home (6)

- pupil use: for example, it should be used more often and in more subjects; more training and practice should be given (5).

As with video-conferencing, pupils were asked what they liked most and least about working with digitalbrain. Thirty-two (76%) made positive comments. Two main themes emerged:

- having a personal webpage (15). In particular they liked having personal access, their own email and student planner, and being able to customise their homepage by using their own pictures and colours

- the fact that it was different from normal class work (10). *'It was more fun than doing proper work'*.

A number of additional individual points were made. For example, two mentioned being able to do homework on the internet; two mentioned mathematical games; others liked working in a group, the fact that help was available, developing ICT skills and doing French.

The aspects that they did not like were split between:

- difficulties in relation to technical issues: for example, the system not working, but mainly the length of time it took to access, to upload and download materials (12) and generally finding it difficult to use (4)

- the way it was used in school: for example, as it was mainly work it was *'boring';* the school or teachers laid down restrictions on what material could be uploaded and the use of email, and had access to the pupils' private files (9).

Additionally, a few suggested they did not use it often enough.

Twenty-one pupils (50%) made suggestions for other things to do with digitalbrain. These reflect some of the points made in response to making digitalbrain better, for example, generally using it more, using it in more subjects and having access to games and chat rooms (13). Some S1 pupils noted that they would like to be using it in secondary school (8), with a few specifically mentioning using it for homework.

Twelve pupils were using digitalbrain during 2003-04. The main uses were: checking on homework set (5: 12%); sending homework to the school/teacher (1: 2%); keeping a record of how s/he is doing in school (7: 17%); and showing new teachers her/his work (2: 5%).

A space was left for additional comments and 10 pupils (23%) responded. These comments reinforced earlier points, with five being positive, saying it was fun or enjoyable or *'quite useful';* two saying it helped with homework; and the others expressing reservations about it *'being hard to use'* and one reporting *'it was a stupid idea'*.

4.3 Kar2ouche

A total of 24 questionnaires were returned from 11 boys (46%) and 13 girls (54%) in two secondary schools. Of these, 18 (75%) were in S1 and the remaining 6 (25%) in S4. All respondents used it in modern languages classes; no other subject area was identified.

Kar2ouche was used: 2-3 times per week by 4 pupils (17%); 2-3 times per month by 8 pupils (33%); at least once a month by 6 pupils (25%); and hardly ever by 6 pupils (25%).

The main uses for Kar2ouche are shown in Table 5.

Table 5:   Use of Kar2ouche within modern languages (pupil responses)

Uses	no.	%
We used it to make storyboards	21	88%
We used it to make moving stories (animations)	15	63%
We presented our storyboards to the others in the class	15	63%
It helped me to practise what I had been learning during lessons	16	67%
It helped me to improve my language skills (French, German, etc.)	18	75%
It allowed me to use my own ideas and be imaginative	21	88%
I used it when I was working with other pupils (in twos or as a group)	21	88%

One pupil reported that s/he had used Kar2ouche *'for dialogues'*.

Twenty pupils (83%) thought that Kar2ouche was easy to use and 20 (83%) thought it was *'fun'* (not exactly the same pupils). Eleven (46%) thought it was *'difficult in parts'*. Most (21: 88%) thought that using Kar2ouche made learning more interesting and 20 (83%) reported that the teacher was there to help with any problems that arose.

Two pupils said that they had used it at home. One said this was to show her family her storyboard and animations and the other to show his parent his own and other people's 'shows'.

Nineteen (79%) made suggestions for making Kar2ouche better to work with. Two indicated that there was *'nothing'* which would make it better. The majority of comments related to perceived limitations of the software (12); these included wanting more scenes to place characters in, more characters, characters that move, more graphics; one suggested that it would be better if pictures from the internet could be added and another proposed the option of including *'ourselves and our own environment, eg from a digital photo'*. Four comments were from pupils who had evidently been using Kar2ouche for French: one wanted a dictionary added, two suggested it would better in English and one wanted it in Spanish. A small number of more individual comments were made suggesting it could be easier to use, understanding how to record sound would have helped, one wanted to use it more and one suggested using it in other subjects (maths and English).

When asked what they liked most about Kar2ouche, all commented. The main comments related to enjoying making the animations and storyboards (14), with a subset (5) particularly mentioning enjoying recording their voice on the computer. The remainder of comments related to learning and the learning environment: being

creative and using your imagination (4); conversing in another language (4); it was fun, interesting and a change from class work (4).

When asked what they liked least, 21 (88%) responded. Seven of those said there was *'nothing'* that they did not like, or more positively *'I liked it all'.* Comments included:

- difficulties with recording (5): for example, *'When it came to recording our voices it was complicated because we had to keep remembering to save each recording we made which was a hassle'; 'the speaking didn't sound realistic'* and *'you had to go into a quiet room'.*
- the characters didn't move (4).

Other comments reflected technical difficulties (microphone not working) and the fact it had been used in French.

Only 7 reported that they were actually using Kar2ouche during 2003-04, although a further 6 were unsure as to whether they would be using it later on. The main uses this year were: making storyboards (5); making moving stories (4); presenting stories to others (1); and printing stories to show to others (1).

Four other comments were received, repeating the view that it was fun and also it was a *'good way to learn'.*

4.4   Using computers

All three groups of pupils (video-conferencing, digitalbrain and Kar2ouche) were asked some general questions about using computers. The aim behind this was to determine their use of and confidence in using computers to provide background information against which the use of the three strands of FLiC could be set. Where the responses from the three groups are separated out, the abbreviations VC (video-conferencing), db (digitalbrain) and K2 (Kar2ouche) are used.

Pupils were asked to indicate how often they used a computer in school.

Table 6:   Frequency of use of computer by FLiC groups

I use a computer in school …	VC	db	K2	total (n)
every day	5 (9%)	8 (19%)	6 (25%)	19
2-3 times each week	23 (40%)	15 (43%)	1 (4%)	39
at least once a week	24 (42%)	7 (17%)	8 (25%)	39
2-3 times a month	1 (2%)	3 (7%)	7 (29%)	11
hardly ever	4 (7%)	7 (17%)	4 (17%)	15

Most pupils used a computer in school at least once a week, if not more frequently.

A number of possible uses for computers were given to pupils and they were asked to indicate if they did the various activities 'often', 'sometimes' or 'never'. The figures for 'often' and 'sometimes' (yes) have been collapsed into one set of data and presented in Table 7 alongside the 'never' figures (no).

Table 7: Activities using computer (by FLiC group)

I use it to …	VC		db		K2	
	yes	no	yes	no	yes	no
write stories, letters or reports	48 (84%)	8 (14%)	29 (69%)	8 (19%)	20 (83%)	2 (8%)
store information in a database/ spreadsheet	31 (54%)	25 (44%)	33 (79%)	6 (14%)	17 (71%)	7 (29%)
do calculations	23 (40%)	31 (54%)	14 (33%)	25 (60%)	5 (21%)	18 (75%)
make graphs or charts	37 (65%)	19 (33%)	27 (64%)	12 (29%)	16 (67%)	7 (29%)
send email	42 (74%)	15 (26%)	24 (57%)	15 (36%)	18 (75%)	6 (25%)
make multimedia presentations (like slideshows using powerpoint)	44 (77%)	11 (19%)	28 (67%)	11 (26%)	19 (79%)	5 (21%)
search for information on the www	52 (91%)	4 (7%)	38 (90%)	2 (5%)	22 (92%)	0
design webpages	23 (40%)	33 (58%)	13 (31%)	26 (62%)	3 (13%)	20 (83%)
use a digital camera and put photos on the computer	24 (42%)	30 (53%)	12 (29%)	27 (64%)	9 (38%)	15 (63%)
use a webcam	11 (19%)	43 (75%)	3 (7%)	36 (86%)	0	23 (96%)

A few indicated that they also used computers in school to learn to touch-type and a number mentioned that they used them to play games, with some emphasising that these are *'educational games'.*

Asked to indicate how good they thought they were at using a computer, 28 (49%) of the video-conferencing group thought that they were 'really good' while 29 (51%) thought that they were 'good at some things but not others'. The respective figures for the digitalbrain group were 11 (26%) and 29 (69%) while, of the Kar2ouche group, 10 (42%) thought that they were 'really good' while 14 (58%) considered they were 'good at some things but not others'.

Fifty-two (91%) of the VC group had access to a computer at home, 89% of which were connected to the internet. The figures were similar for the other two groups, with 39 (93%) of the digitalbrain pupils and 23 (96%) of the Kar2ouche pupils having access to a computer. Internet access was available for 38 (91%) and 20 (83%) respectively.

Pupils were asked to indicate what they used the home computer for, using the three categories of 'often', 'sometimes' and 'never'. The results are shown in Table 8 – again the first two categories have been collapsed as in Table 7.

Table 8:   **Use of home computer by each FLiC group of respondents**

I use it to …	VC (57)		db (42)		K2 (24)	
	yes	**no**	**yes**	**no**	**yes**	**no**
write stories, letters or reports	47 (82%)	6 (11%)	35 (83%)	3 (7%)	22 (92%)	0
store information in a database or spreadsheet	23 (44%)	28 (49%)	17 (40%)	21 (50%)	14 (58%)	8 (33%)
do calculations	18 (32%)	33 (58%)	11 (26%)	27 (64%)	8 (33%)	14 (58%)
make graphs or charts	20 (35%)	31 (54%)	19 (45%)	19 (45%)	11 (46%)	11 (46%)
send email	45 (79%)	7 (12%)	30 (71%)	9 (21%)	20 (83%)	3 (13%)
make multimedia presentations (like slideshows using powerpoint)	28 (49%)	25 (44%)	14 (33%)	24 (57%)	11 (46%)	11 (46%)
search for information on the www	47 (82%)	6 (11%)	37 (88%)	2 (5%)	21 (88%)	2 (8%)
design webpages	21 (37%)	31 (54%)	10 (24%)	28 (67%)	6 (25%)	16 (67%)
use a digital camera and put photos on the computer	27 (47%)	25 (44%)	19 (45%)	19 (45%)	13 (54%)	22 (92%)
use a webcam	19 (33%)	32 (56%)	5 (12%)	33 (79%)	2 (8%)	22 (92%)
take part in chat rooms	21 (47%)	31 (54%)	20 (48%)	18 (43%)	10 (42%)	12 (50%)
play games	51 (89%)	1 (2%)	36 (86%)	2 (5%)	22 (92%)	1 (4%)
download music	40 (70%)	12 (21%)	32 (76%)	7 (17%)	16 (67%)	7 (29%)

Other activities included watching DVDs, painting, downloading pictures, downloading films before they were out at the cinema, burning CDs and shopping online.

5. Findings from the initial survey: Analysis of teacher questionnaires

Following feedback from schools on active involvement in FLiC, questionnaires were sent out to 67 teachers across the 15 pilot phase schools. Although 67 questionnaires were sent out, it soon became evident that some teachers had not been actively involved in using any of the strands with their pupils. Some had undertaken training but not actually used the programmes in their classes, while others had been listed to take part but had not, at that time, participated in training nor had they used the FLiC strands with their pupils. In the end, only 14 valid teacher questionnaires were returned.

Of these 14, 3 teachers had used all three strands, 3 had used video-conferencing and digitalbrain, 7 had used only video-conferencing and one had used only digitalbrain. Thus responses were given to each strand as follows: videoconferencing – 12; digitalbrain – 8; Kar2ouche – 3. (Given the small numbers responding, they are reported as actual figures rather than percentages.)

The questionnaires for teachers included sections on each of the three strands as well as some general questions on the new technologies, development planning, including National Priorities, and aspirations/intentions for the future.

Background data on the respondents showed that 8 were female and 4 male. While 10 had been teaching for over 5 years, 4 had between 0 and 5 years' experience. All had undergone staff development in ICT and 7 of the 14 had attended NOF training, while 13 had attended other local authority classes. Other training included 2 who had undertaken ELITE training (primary) and one who had training for her/his role as ICT co-ordinator (primary). Three held formal qualifications related to ICT (Postgraduate Diploma in Information Technology [secondary], Master of Education in IT [primary]; and ECDL [primary]).

The responses from primary schools indicated that, in one school, digitalbrain had been used across all of the stages. One other teacher reported that it had been used in P6 (7 pupils) and two teachers reported using it in P7 (32 and 50 pupils). Kar2ouche was used by 2 teachers in P7 (32 and 50 pupils) and video-conferencing was used in P6 by 1 teacher (10 pupils) and P7 by 6 teachers (10, 12, 20, 25 and 34 pupils).

All 4 teachers from the 3 secondary schools reported that digitalbrain had been used with pupils, although only 2 provided data. In both cases it was used with S3 (7 and 15 pupils). Only 1 teacher reported using Kar2ouche with pupils, though provided no data, while 4 teachers said that they had used video-conferencing with pupils, although only 3 provided additional data. Two used it in S1 (12 and 20 pupils), 1 in S2 (12 pupils) and 1 in S4 (6 pupils).

Nine of the 14 teachers had undergone training for digitalbrain; 4 thought it 'good', 4 thought it 'adequate' and 1 thought that it was 'inadequate'. Of the 4 who had training for Kar2ouche, 2 rated it as 'good' and 2 as 'adequate'. Eleven had undergone training for video-conferencing, with 5 rating it as 'good', 5 as 'adequate' and one as 'inadequate'.

Only two comments were made regarding more training and preparation before starting. One simply suggested that a lot more of it was needed. The other suggested preparation of a different kind: *'We had no TV in the school … and could only borrow one for a few months. All equipment should be supplied!'*

5.1 Experience of working with FLiC

Teachers were asked to indicate the extent to which they agreed or disagreed with a series of statements relating to the experience of being involved with FLiC.

Table 9:   Teachers' views on involvement in FLiC

	SA	A	D	SD	NR*
The pupils work effectively on their own without teacher input on FLiC activities	0	2	6	4	2
The FLiC project encourages pupils to work together more effectively	1	10	1	0	2
The motivation of pupils has increased through the use of technology	4	7	0	0	2
FLiC activities have contributed to an improvement in the attainment levels of pupils	0	5	4	1	3
Pupils have become more confident through FLiC activities	2	6	2	1	2
The use of technology does not suit some pupils	1	3	8	1	1
I have changed how I organise teaching and learning activities because of involvement in FLiC	1	3	5	1	4

Key: SA = strongly agree, A = agree, D = disagree, SD = strongly disagree
* NR = non-responses – included 'too early to say'

One of the aims of the project was related to gender-related issues on learning and motivation and the impact of FLiC on these.

Table 10:   Teachers' views on gender-related aspects of FLiC and learning and teaching

	SA	A	D	SD	NR
a. Boys are more enthusiastic than girls in using technology	0	1	10	2	1
b. Boys and girls are equally enthusiastic about using the technology	3	10	1	0	0
c. Boys have gained more in terms of attainment than girls	0	0	7	2	3
d. Boys and girls have improved equally in attainment levels	1	4	2	0	5
e. Girls have gained in confidence more than boys	0	0	10	0	3
f. Boys and girls have gained equally in confidence	1	10	0	0	3

No real pattern of gender-related differences is discernible.

5.2   Digitalbrain

In the primary schools, digitalbrain was used in environmental studies (1), modern languages (1) and '*for homework*' (1).   In secondary schools, it was used for administration in relation to Standard Grade (1).

From a list provided, teachers were asked to indicate and rank up to five reasons for the introduction of digitalbrain to their school, ranking them 1 – 5, where 1 was the most important.

The prime reasons ranked '1' were:

- 'to improve the range of resources available to pupils' (2);
- 'to encourage pupils to work independently' (1); and
- 'to develop ICT skills' (3).

A number of teachers ranked as '2', the reasons

- 'to manage homework and assignments' (2);
- 'to encourage pupils to work independently' (2);
- 'to encourage creativity and imagination (1); and
- 'to encourage pupils to work collaboratively' (1).

Only 'to provide information for pupils and their parents' was not ranked as either 1 or 2 by teachers; only one teacher ranked it at all and as '5' out of a possible 5.

Other uses of digitalbrain included encouraging home/school links for a child with poor attendance and to develop foreign language skills through access to the materials.

Teachers were asked to indicate what benefits they thought that the use of digitalbrain had brought, firstly for themselves as teachers, and secondly for the pupils. Their responses are shown in Tables 11 and 12.

Table 11:   Perceptions of benefits to be gained from using digitalbrain for teachers

Working with digitalbrain –	SA	A	D	SD	NS*
helped me to introduce new concepts within subject areas	0	4	0	0	2
provided a range of resources for learning and teaching	1	5	0	0	1
helped to provide for differentiation	0	5	1	0	1
improved communication with parents/carers	0	2	2	0	2
reinforced and gave practice in new learning	2	4	0	0	1
provided quality resources for learning and teaching	2	3	0	0	2
provided templates that I used to prepare lessons, etc.	0	2	2	0	2
assisted with assessment and feedback	0	4	1	0	2

* NS = not sure

Table 12: **Perceptions of benefits to be gained from using digitalbrain**
for pupils

Working with digitalbrain –	SA	A	D	SD	NS
encouraged pupils to continue their school work at home	3	3	1	0	1
gave parents/carers greater involvement in their child's learning	1	3	2	0	2
supported the development of communication skills	1	6	0	0	1
supported the development of ICT skills	2	5	0	0	1
encouraged pupils to work collaboratively	1	4	1	0	2
encouraged pupils to share their work with others	2	3	1	0	2
allowed pupils to monitor their own learning	0	6	0	0	2

Digitalbrain also brought challenges, however. The challenges identified by the respondents fell into two broad categories – using technology (11) and incorporating digitalbrain into the learning process (6). Comments about the technology included:

- internet failure, for example *'… when it goes down, so does the lesson'*. Others mentioned the server crashing and the frustration of slow uploading and downloading

- problems with the user interface: this was described as *'not user friendly'* and *'complicated'*. Others described difficulties getting used to the navigation and *'channelling information to different factions'*

- other problems related to using digitalbrain on 'Macs' and difficulties for pupils connecting from home. One commented that *'parents are unsure of how to resolve technical problems'*.

The challenges around incorporating digitalbrain into the learning process related primarily to finding time for teachers to learn and practise, for pupils to learn how to use it and for teachers to check how the pupils are using it, in particular checking homework. A further concern was finding time to allow pupils who did not have internet access at home to use it in the school.

Four out of the eight respondents were not using digitalbrain during 2003-04. The others were trying it out with new groups and more classes and using it to access resources. One teacher had trained ten 'fast-track' pupils who had then trained the rest of the class.

Future plans were to add more material, extend the use of digitalbrain to more groups, with four in particular mentioning using it for homework. Three specific uses were proposed. One was to set up a collaborative project between P7 classes from different cluster schools; one secondary was considering using it to link with next year's intake while still in P7; one proposed using it to allow excluded children to continue with school work.

5.3   Using Kar2ouche

As only three responses were received to this section, these are presented very briefly. Two teachers had used Kar2ouche in modern languages lessons with primary pupils and one in modern languages with secondary pupils.   Only one teacher completed the ranking of reasons for using the technology. Other uses given were to share resources with other primary schools and to develop foreign language competence.

All 3 teachers agreed that amongst the benefits for them as teachers were to introduce new concepts and to provide an increased range of resources. One agreed and one strongly agreed that it provided for differentiation while all three agreed that it reinforced new learning. All agreed, one strongly, that it provided quality resources and added a new dimension to traditional subject areas.

Benefits to the pupils included the development of communication skills and ICT skills, collaborative working, the sharing of work and the opportunity to monitor their own learning. They agreed that it helped the less able to achieve and motivated boys (in modern languages). They were divided on whether it gave parents greater involvement in their children's learning or whether it encouraged pupils to continue to work at home.

The three respondents agreed that not having enough computers was a problem and it was difficult to give every child the time they needed on the computer. It was also a challenge to find space for recording that was free from distractions and noise. It was also noted that the software caused certain computers to crash.

In terms of current use and plans for the future, one of the respondents was not using K2 during 2003-04, one was using it linked to digitalbrain and the other was using it for language assessments.   Future plans were to put the software on to more computers and extend its use to more classes and year groups.

5.4   Video-conferencing

Eleven teachers had been involved in using video-conferencing for primary/secondary transfer and one had used it to facilitate the merger of two primary schools. Three used it to communicate with other schools and 2 used it to support learning and teaching.

Of those who had used it for transition activities, 6 found it very effective and 3 rated it as 'effective'. Two were less enthusiastic. Use prior to merger had been very effective; communicating with other schools was rated as 'effective' or 'very effective' by 2 teachers and support in learning and teaching was also considered to be 'effective'.

The benefits noted of using video-conferencing fell into three main categories with a few additional points. These included:

- pupil learning and development (14): for example, increased motivation, confidence and self-esteem leading to improved behaviour and, potentially, achievement. Pupils also benefited from improved communication, language and technical skills

- developing relationships (10): for example, improved links between schools, with a subset (5) particularly mentioning transition from primary to secondary; more generally it allowed contact with other people and the opportunity to get to know them

- using technology (6): for example, learning how to use the equipment and seeing the potential of it. In particular, the pupils learned to operate and control the equipment themselves. This was both exciting and enjoyable for the pupils, though one respondent added, *'when the equipment works'.*

Other comments included the suggestion that staff benefited from learning about the potential of new technology and that secondary staff time was saved by not travelling to primary schools. One respondent said there had been no benefits so far.

The challenges outlined by respondents related broadly to management issues (18 comments) and to technical issues (12 comments), with a few additional comments. The management issues included:

- managing time: this affected the use of video-conferencing in a number of ways, for example to prepare and set up the conferencing, to meet with colleagues in other schools to plan, to find time when both schools are available and, indeed, to incorporate it within lessons

- staff issues: it was a challenge to provide staff with adequate training and practice so that they were confident using the equipment; also to find sufficient staff cover

- space: it was also suggested in two cases that finding space for the equipment was a problem.

Technical issues related primarily to the unreliability of the network connection and secondly to the quality of transmission, both picture and sound. It was suggested that the network problems had meant a *'huge gap between initial training and eventual use'.* It was reported that it was difficult *'keeping pupils motivated after two or three failed connections'.* Other challenges related to ensuring that video-conferences were *'partly scripted to keep them fun'.* In terms of using video-conferencing at present and in the future, 9 of the respondents had not used video-conferencing in the current session for a variety of reasons: for example, the network had been down, the camera was being repaired, there were other priorities such as getting digitalbrain *'up and running'*; some planned only to use it later in the year for transition.

Those who had used it reported video-conferencing between schools for discussion in a foreign language; one reported arranging a discussion between two S6 groups in different schools to discuss UCAS applications. This school had also used a special arrangement to allow video-conferencing at the SETT exhibition between the exhibition, the school and schools in Northern Ireland and the Highlands.

Plans for future use were speculative, dependent on improvement in the quality of service and the ability to connect beyond the Edinburgh Council firewall. Hopes for the future included links with museums, weather stations, with schools in Australia, with *'communities all over the world'*, mentoring for gifted pupils and links to CPD providers for staff. There were also plans to further develop video-conferencing between cluster schools.

5.5   National Priorities, development planning and other initiatives

The final questions in the survey focused on aspects of other national and local initiatives that were in place in schools and the relationship between them and FLiC. Teachers were asked to indicate the extent to which involvement in FLIC had helped in meeting the school's National Priorities targets. FLiC had contributed to the first of the National Priorities, relating to *achievement and attainment*, only a little or not at all (12 teachers) although 2 replied 'much' and 1 'very much'. The second priority focused on a *framework for learning* and again most respondents (10) thought that FLiC had contributed little or nothing to the targets, while 4 were much more positive. Similarly, FLiC had made little or no contribution to *inclusion and equality* according to 12 teachers, although 2 felt it had contributed much or very much. For targets related to *values and citizenship*, 8 teachers felt it had contributed little or not at all, while 5 said 'much'. The fifth priority, *learning for life*, was more evenly split, with 6 on the positive side and 8 more negative.

In relation to school development planning, FLiC had contributed 'very much' according to 3 teachers, 'much' according to 1, and 'only a little' (7), or 'not at all' (2) for the remainder. Views on the extent to which involvement in FLiC complemented other initiatives are shown in Table 13.

Table 13:   Views on FLiC's contribution to other initiatives

	Very much	Much	Only a little	Not at all	We are not involved in this initiative
a) Assessment is for Learning	0	1	5	2	3
b) Creativity in Education	0	5	1	2	4
c) Curriculum Flexibility	0	3	4	2	2
d) Education for Citizenship	0	3	6	1	1
e) Enterprise in Education	0	2	2	4	3
f) National Grid for Learning	0	6	2	4	n/a
g) Edinburgh's Grid for Learning	1	6	2	4	n/a
h) Study Support	0	2	1	6	4

5.6   Looking to the Future

Teachers were asked the extent to which they agreed or disagreed with a number of statements relating to future developments.   Their responses are summarised in Table 14.

Table 14:   Teachers' views on future developments

	SA	A	D	SD
We need better ICT resources to take full advantage of the new technologies in FLiC	5	5	3	0
Resources like digitalbrain and Kar2ouche will lead to significant changes in learning and teaching in schools	2	10	1	0
Video-conferencing will lead to significant changes in learning and teaching in schools	1	9	1	1
I would like to see virtual learning environments like digitalbrain extended to more areas of the curriculum	3	8	1	0
I would like all pupils to have the opportunity to use multimedia software such as Kar2ouche.	6	7	0	0
I would like to see greater use made of video-conferencing	4	7	2	0
I intend to undertake further staff development in on-line learning/use of virtual learning environments	4	8	0	0
I intend to undertake further staff development in use of multimedia software	5	6	1	0
I intend to undertake further staff development in video-conferencing	2	8	2	0
We need better technical support to extend these initiatives	1	5	8	0
I anticipate that within 5 years many more courses will be taught using these technologies	3	9	0	0

When asked to evaluate their own competence across a series of aspects of ICT, the majority of teachers considered that they were competent or very competent on most. Details are shown in Table 15.

Table 15: **Teachers' views on their own competence across strands of ICT capability**

	Very competent	Competent	Need development	No idea how to do this
doing word processing	11	2	1	0
using databases and spreadsheets	5	8	1	0
using graphics and digital media	4	7	2	1
finding information on the WWW	10	3	1	0
designing web-pages	1	3	8	2
using simulations and playing games	4	4	3	3
using computer based resources with my pupils	7	6	1	0
undertaking video-conferencing	2	9	2	1

Combined with the data on training and qualifications, there is evidence that, for most of the aspects of FLIC, the teachers who completed the questionnaires were competent in the skills and knowledgeable about ICT. Eleven of the 14 had a computer at home, with 10 of these connected to the internet. They used it for a range of personal and professional activities (Table 16).

Table 16: **Teachers' use of computer at home**

	Frequently	Occasionally	Never
preparing documents for personal use	9	2	0
preparing documents for school and professional use	11	0	0
accessing the WWW for personal use	10	0	0
accessing the WWW for school and professional use	9	1	0
sending email for personal purposes	9	1	0
sending email for school or professional purposes	7	2	1
using digital media for personal purposes	5	3	3
using digital media for school and professional purposes	4	4	3
using webcam for personal purposes	0	1	9
using webcam for school and professional reasons	0	0	10

Space was left for additional comments and 9 teachers used it to elaborate on some of the questions or raise other issues. The majority spoke of the potential of the initiatives, emphasising pupil enjoyment, enthusiasm and the pride that they took in their work. FLiC was described as a *'wonderful initiative'*; *'… the potential of video-conferencing is immense'* … '*it could be a fantastic resource'* and *'impact was high at the time'*.

However, frustrations were many due to delays and technology which did not work. Other points made were:

- *'Teachers have not been given enough training and time to fully deliver these initiatives'*

- *'Video-conferencing wasn't a great investment – money could be better spent. It wasn't led strongly enough as a local project by those who managed the project – rather left to individuals in schools to do as they wished'*

- *'It is another project on top of one hundred others we are asked to undertake – it doesn't help when the equipment is not reliable and you are trying to "sell" to the staff. It will take time, increasingly reliable resources and set-up at establishments for the full benefits of the project to impact on teaching and learning and assist children's attainment'*.

6.   Key points from Phase 1 of the evaluation

The initial survey of pupils and teachers involved in the pilot programme of FLiC formed the first phase of the evaluation. As a result, a number of key points were identified for further investigation during the second phase. These were:

- While enthusiasm was high at the launch of FLiC (http://egfl.net/news/news/flic.html), this had not been translated into the anticipated numbers of actively involved teachers and pupils.

- The small numbers of staff and pupils that had continued with the strands of FLiC were enthusiastic and committed and appear to be taking the initiative forward in innovative ways.

- Staff development and the provision and suitability of equipment had lagged behind developments somewhat, delaying and frustrating wider developments.

- Considerable frustration and disillusionment were reported due to the unreliability of equipment and network connections, both during training and in classroom use.

- Teachers and pupils who had overcome the induction and access to equipment difficulties were very enthusiastic and saw real potential in the extension and integration of all 3 strands into the classroom.

- Both pupils and teachers reported high levels of experience in using computers and standard software packages. It was, therefore, unlikely that the frustrations reported in using digitalbrain and Kar2ouche applications resulted from lack of familiarity with computers.

- Video-conferencing was more readily used than digitalbrain or Kar2ouche in the pilot phase, possibly because it required less investment of time to acquire new knowledge and skills and there were existing events that could be enhanced by its use, e.g. transition.

- The hoped-for increased involvement of parents and improved home-school links had been very limited.

- The use of digitalbrain and Kar2ouche had been confined primarily to the learning and teaching of modern languages, where it was seen as effective in encouraging imagination, creativity and confidence in speaking.

- The numbers involved in the survey were relatively low and, as a result, these findings were to be regarded as tentative and partial.

7.   Findings from the visits to schools

An initial round of familiarisation visits in late 2003 was followed by a series of observation visits in spring 2004. In both cases, the focus was on the pilot phase FLIC schools.

7.1   Familiarisation visits

The initial series of familiarisation visits to schools generated information on how schools got involved, their expectations of that involvement and participation to that point. The key points are:

Getting involved and expectations

- A number of schools involved in flexible learning (primarily SCHOLAR[3]) led to the proposal for the FLiC project. There was a lot of initial enthusiasm when cluster schools met, but the project had a slow start due to delays in the appointment of staff and changes in personnel.

Participation during pilot phase

- This was mainly confined to video-conferencing for P7-S1 transition, though some staff had trained to use digitalbrain.

- Video-conferencing was used for the launch of FLiC in 2003. In one school, the Primary 2 pupils prepared a song in Italian for the launch but the link failed.

- Video-conferencing was used by two primary schools to prepare the pupils for a merger of the two schools. This was reported as very effective as it *'led them gently into it and made it less disruptive'*.

- One primary reported that although they tried video-conferencing, it didn't work very well and digitalbrain didn't work at all.

- It was reported in two clusters that there was a lack of collaboration because schools had different priorities; schools had the choice of what to work on and when. While this allowed them to address their own needs, there was a lack of consistency in developing the strands within or across clusters. There was some concern about a lack of clarity in the longer term. Schools had questions about how they should plan developments: was there a long term plan or were schools to go ahead and do their own thing?   Schools also reported that FLiC activities were not emerging as an authority priority, which again meant that there was no imperative to progress the developments.

Current and planned activities

- These were mainly confined to video-conferencing. Some schools had plans to continue using video-conferencing during the P7-S1 transition and two secondary schools had linked S5/S6 pupils to work on UCAS forms and were planning to link other common interest groups. Modern language teachers intended to use video-conferencing for linking to primary schools and some of the primary schools also identified the potential for this.

- A number of those interviewed indicated that they would like to use video-conferencing to communicate with schools in other countries (modern languages, environmental studies) and with other schools on various projects, but the local

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[3] SCHOLAR is an online resource for students in schools and further education who are studying for external awards.

authority firewall was a significant obstacle to these plans. Some had plans to link to NASA, weather stations, museums and other community education links, but these had been put on hold.

- One secondary school had digitalbrain in place for pupils to access both within school and from home. One primary was using digitalbrain for the school website and external links, while in another it was reported that, to date, digitalbrain had not been successful but they were going to try again. In another, while all P5 to P7 pupils had received digitalbrain addresses, it had not been used with the pupils.

- In one secondary, Kar2ouche was being used with Standard Grade pupils to do presentations and older pupils were editing digital films of prepared scenarios in, for example, Spanish and preparing *i*Movies as part of the assessment of speaking skills. In another secondary school this had been considered, but the modern languages staff had other priorities. In the primary schools they were considering how Kar2ouche might be used to support the teaching of languages and other subjects.

Resources

- Access to resources was varied, with some schools obtaining it through the FLiC initiative while others were well equipped.

- One new school had a suite of 34 pupil machines plus 1 for the teacher, and the management team had laptops.

- At least two of the schools visited had 'Class in a Box', but were experiencing some difficulty due to the security software required by Syntegra.

Main benefits to date

- Video-conferencing – support for transition which, although difficult to measure its impact, was held to have 'smoothed over fears'. It also smoothed the merger process for 2 schools.

- K2/*i*Movies – were considered to be motivating, to encourage working together and to provide a relevant context for practising skills in modern languages.

- Training programmes were considered good, but it was felt that it takes some time to move from training to developing a programme for pupils and delivering it.

Main challenges and difficulties

- Edinburgh local authority firewall – plans for video-conferencing as identified above went unrealised due to firewall problems.

- Poor connections when video-conferencing – when this happens, the initial excitement is quickly followed by disappointment.

- Lack of stability in networks for both digitalbrain and video-conferencing.

- There was resistance from some teachers, although they were, in general, positive. This resistance was reinforced when technology did not work.

- Time is needed to train and 'bed in' skills before using the strands creatively: staff development is more than a training session. Time is also needed for cover and staff release to allow them to develop skills in using new technology and software.

- Digitalbrain had posed particular problems as it did not work on Macs. While this was the VLE during the pilot, a number of teachers were aware that it might not be the one finally chosen for the Edinburgh Grid for Learning. They were of the

view that people would be reluctant to invest time in learning its idiosyncrasies if they thought it would be replaced.

- The relationship with Syntegra was mentioned by a number of schools. There were very long delays between putting in requests and getting work done: for example, schools were waiting for both computers and software to be installed; one school wanted to use wireless technology, but it was not installed, and they had problems using the network because of security software, which slowed everything down. It was felt that there was a lack of understanding and support from Syntegra – *'they think businesses and offices'* – and that they showed little understanding of school needs (as well as being perceived as expensive).

- One school regretted the lack of development of the Community aspect of the FLiC project which, they understood, had resulted from a breakdown in relationships with community education personnel.

Other observations

- The view was expressed that the use of digitalbrain in secondary schools may be driven by pupils entering S1 with experience of working with it in primary school.

- One secondary school would like to use video-conferencing to support minority subjects (where expertise is limited), to create links between schools and also to support SCHOLAR and other distance learning materials available through (FE) colleges.

7.2   Observation Visits

A total of 10 observations were carried out in 6 of the 15 FLiC pilot schools: 2 secondary and 4 primary. Five were for video-conferencing, 2 for Kar2ouche, 1 for digitalbrain and 2 in connection with *i*Movies. The key points from the observations are reported here.

Each observation focused on a number of issues: the context of the class; the role of the teacher and the purpose for which the FLiC strand was being used; integration with subject learning; the involvement of the pupils and technical issues. Each observation was followed by a pupil focus group or class discussion to elicit the pupils' views.

The schools visited

Five out of the 6 schools visited were using, or endeavouring to use, all of the 3 main FLiC strands, albeit with differing degrees of success. In one secondary the main locus of activity was the modern languages department, which was very supportive of the use of ICT in learning. Most of the developments were being driven by one enthusiastic and committed teacher. Three of the primaries were using video-conferencing, had attempted digitalbrain (but with limited success) and were at different stages of developing Kar2ouche. The main focus in the fourth primary was the use of digitalbrain, though this had not been without its problems, including slow access. This school had progressed to *i*Movies from Kar2ouche because of perceived limitations of the latter; their previous attempts at video-conferencing had been unsuccessful, but they were preparing to try again. The sixth school, one of the secondary schools, was focusing mainly on video-conferencing, but had introduced Kar2ouche in the current year.

In the primary schools ICT co-ordinators had responsibility for taking the developments forward but had varying amounts of time available, ranging from one

who was fully class-committed to another, who due to school circumstances, had no formal class commitment in the current year.

a.   Video-conferencing

Class context, teacher role, and purpose of session

The video-conferencing sessions observed took place in a range of contexts: library, computer suite and the normal classroom. The purpose of one session was to allow primary and secondary pupils to practise the Spanish they had been learning; another session allowed P4 pupils to present the work they had been doing in environmental studies projects and to question each other; one session focused on transition, with P7 pupils putting questions to S1 pupils. In 3 of the sessions observed, the whole class was present with individuals chosen to be lead speakers, either presenting information or asking questions. The 'non-participants' were either seated at desks or on the floor. In 2 of the groups there was opportunity for participation of those not on the panels in open sessions. In the transition conference only groups of selected pupils were present. The sessions were largely managed and directed by the teachers (or, in one case, a member of the ITSU team, as there was no teacher present).

The environments seemed suitable for video-conferencing, and being in their normal classrooms did not appear to distract the pupils from the video-conferencing.

Integration with subject learning

The session for Spanish was run entirely in Spanish and drew on recent classroom learning, thereby reinforcing it. The session for environmental studies clearly required the pupils to speak about what they were learning and thus also provided reinforcement. Pupils were also introduced to new ideas from their partner school. In this session the teacher had also involved the pupils in setting up the equipment and talked them through the process of making the connection. They were therefore also learning about the equipment and reinforcing their ICT skills. There was an open session at the end which allowed the pupils to engage in social interaction and for some to speak to friends at the other school. The conference on transition was not curriculum related, but addressed issues raised by the pupils. As such it was relevant to their needs and interests.

Pupil involvement

Pupils had been selected to take part in a variety of ways. For some it was on a rotational basis – different pupils would be chosen on other occasions. Others had volunteered to take part. Some had been selected by the teacher, with pupils perceiving that their behaviour and wearing of school uniform had been important aspects of being chosen.

For the most part there had been some preparation for the event, with pupils practising their questions or presentations. The pupils involved in transition were asking questions on behalf of their classmates and would be required to report back to them on what they had learned. The P6 pupils taking part in the Spanish video-conference had had no prior warning of, or preparation for, the event. They saw it as part of their normal Spanish lesson and used class worksheets as prompts.

Where the whole class was present, there were occasions when some of the pupils were not on task. This took the form of giggling, joking, chatting and sighing, though no major disruptions occurred, and was more likely to occur when the panels were the focus of the discussion and to involve pupils on the periphery of the groups. In one of the follow-up discussions with pupils, some commented that they had found the behaviour of members of the other group a distraction; on the other hand, none

seemed to be distracted by members of their own group. Several commented that although they did not take part they learned from listening to the others. Further investigation would be required on the extent to which pupils who appear to be off-task in such environments really are distracted, in which case a different approach to managing the sessions might be beneficial.

Technical issues

At 4 of the sessions observed, members of the ITSU team were present and set up the equipment. Connections were made quickly and there were no major technical problems. ITSU staff or teaching staff controlled the cameras. One teacher commented that the first time they had made a similar link, the connection had taken a long time and she did not yet feel sufficiently confident to operate the equipment by herself. It was also pointed out by a member of the ITSU team that the teacher was responsible for the whole class and if there were any incidents outwith the video-conferencing, or if a child needed help, then the video-conferencing session would have to be stopped. Additional support was important when running such events.

At the fifth session there was no member of ITSU present: the conference was set up and managed by the class teacher and the ICT co-ordinator. During the session one of the pupils on the panel controlled the camera and the microphone, zooming in and out and panning around the room with great ease, requiring only occasional direction from the teacher.

However, in this session there were two major problems. Firstly there was difficulty with the connection, due mainly to the fact that the school was using a replacement camera because their own one was not working and they had not had time to check it. Thus the start of the video-conference was delayed by about 40 minutes. The second problem was severe interference at one end during the conference. There was no evidence that these problems were anything to do with the skills of the teacher or ICT co-ordinator who were clearly familiar with the equipment and extremely competent in their use of it. The class teacher managed the situation well and managed to retain a high level of pupil involvement despite the problems. These problems, outwith the control of the school staff, undoubtedly detracted from the event, and in the follow-up discussion pupils stated that the waiting and the 'fuzzy-bit' had been the least enjoyable parts of the event.

Pupil views

The majority of pupils in all groups agreed that they enjoyed video-conferencing and that it made learning more interesting because it was fun. Their enjoyment appeared to be derived from the social aspect of being able to see and speak to people in other places. Several spoke of being nervous or under pressure and forgetting what they wanted to say.

While video-conferencing was being used to enhance the teaching and learning environment for the pupils in a way relevant to their subjects and/or interests, the use of the technology in the normal class environment is still being developed. It would appear that the quality of links remains unpredictable and some teachers still require additional support. The extent to which such support can be given is a major issue for long term sustainability of developments.

b.   Kar2ouche

Class context, teacher role, and purpose of session

Classes using Kar2ouche were observed in 2 schools. In one school the pupils worked in small groups using laptops from a 'class in a box' in their own classroom, though in order to record, some groups left the room to find a quieter spot. In the other school pupils were using computers in a modern languages suite. One class was developing dialogues around dilemmas they had been introduced to in personal and social development. The other class were preparing dialogues in German to practise words and phrases they had been learning. In one class the teacher was mainly supervising; in the languages class the teacher led the pupils through the scenarios of the storyboard before they commenced work on their own.

Integration with subject learning

Kar2ouche was being used as a tool to enable pupils to reinforce their learning. In the German class considerable attention was being given to the process of using the software and so there was also a focus on the pupils' IT skills.

Pupil involvement

For the German lesson 10 pupils had been chosen; others in the class would have an opportunity to use Kar2ouche at another time. In the other school the whole class was involved. All pupils had received training from a member of the ITSU team. Those doing German had had their training about two weeks earlier and had had a revision lesson the day before the observation. They still needed further training/time to develop skills in using the software. The other group had had 3 training sessions and they indicated that they were now 'good at it'. In both groups the pupils were very focused on the tasks they were doing. Those with more experience appeared confident and asked each other if they needed help.

Technical issues

There were no problems with the computers. The main issue was that the software was designed for use in the French language, but one group was working in English and the other in German. This was a point made by pupils in the follow-up discussions.

Pupils' views

The pupils enjoyed working on computers and were positive about Kar2ouche. Some pupils in one group had downloaded a trial version on their home computers and used it there. (Several reported that they had access to ICT at home that was superior to that available in class.) Some pupils commented on the restricted range of characters available and the fact that they could not make them move. The main way it enhanced learning was to make it more interesting.

c.   digitalbrain

Class context, teacher role, and purpose of session

Two classes in one school were observed using digitalbrain. The sessions took place in the computer suite which had 30 computers plus a set of 'class in a box' laptops. Both sessions were run by the ICT co-ordinator, although she would normally encourage the class teacher to take the session, remaining present if staff needed her support. A P6 class were practising French, while a P7 class were researching materials for a project on World War 2 that they were about to start. The ICT co-ordinator gave whole-class introductions covering revision of accessing digitalbrain,

running through the tasks to be completed and, with the P7 class, revising downloading and uploading files.

Integration with subject learning

The language pupils were reinforcing prior learning and in particular were practising phrases after listening to a French boy which gave the exercise increased credibility with the children, because, as they commented, it was a 'real' accent. The P7 pupils were being directed to search for new information. They also had to complete a spreadsheet reinforcing IT skills and maths.

Pupil involvement

The whole of the P6 class was involved; the P7 pupils came from 2 separate classes chosen for the observation session. The pupils had all been trained by the ICT co-ordinator with support from the ITSU team. There was no special preparation for the sessions being observed and their use was as it would be in 'normal' sessions. The pupils were totally absorbed in their work, working individually. If they needed help they asked the teacher.

Technical issues

The main difficulty appeared to be the length of time it took some pupils to get logged on to the system, especially those using the airports for 'class in a box'. Also on some machines the exercises did not work because 'Flash' had not been installed or 'cookies' were missing. In these cases the teacher directed the pupils to an alternative activity.

Pupils' views

The pupils enjoyed learning on the computers and some commented that one of the benefits of digitalbrain was being able to complete work at home. It was more interesting than reading and writing. The most difficult part was logging on, because the usernames and passwords were difficult to remember.

Although there were some minor technical problems, these did not appear to deter the pupils. A clear benefit was being able to give the children access to additional resources in an environment that motivated them. The ICT co-ordinator and a class teacher commented that the children did not perceive it as 'working'; they persevered more on the computer and stayed on task longer.

d.   *i*Movies

Two schools had progressed from Kar2ouche to digital video editing using *i*Movie software because of Kar2ouche's perceived limitations, such as the limited number of characters, lack of animation, and computers 'crashing' because of insufficient memory to run the programmes.

In one of the schools a group of 11 Standard Grade Spanish pupils were being shown how to edit a digital video they had made earlier in Spanish, using the *i*Movie software. The pupils were attentive and keen to edit their own videos, although they did not really enjoy the effort of learning the skills to do this. This was a group who had originally been designated foundation level and 5 had additional support needs (dyslexia). It would appear that working with computers was motivating for them and helped their learning. Three ITSU staff were present, with one leading the training session, as well as the class teacher. It was unclear why so many of the ITSU team were present but all assisted the children as required.

In the primary school all P7 children had been involved in making videos or still photograph sequences with voiceovers, either to produce scenarios in French or to

illustrate other issues, for example, bullying and racism. The main gains to the pupils, as explained by them, had been the process of making the videos. They had worked together as teams, discussed what they wanted to do and come to agreement about that, planned, written, rehearsed, filmed and then finally made decisions about the editing. However, the editing had been carried out by a member of the ITSU team, as neither the pupils nor the ICT co-ordinator had any training in using the software.

Therefore, while *i*Movies was seen as useful progression by the schools, at this stage there appeared to be considerable dependence on ITSU staff.

8. Final survey of schools

Of the original 15 schools in the pilot phase, 6 headteacher/SMT members and 9 class teachers, jointly representing 8 schools, returned questionnaires. Seven of the class teachers had used one or more of the FLiC strands during 2003-2004, while 2 had not used any. Of the additional 10 schools contacted, responses were received from 4 schools, each returning one teacher and one headteacher/SMT questionnaire. Therefore, a total of 10 headteacher/SMT questionnaires were completed and returned, along with 13 class teacher ones.

8.1 Additional schools beyond the FLIC pilot phase

The additional schools were included on the advice of the ITSU team on the basis that they were schools in which developments had 'taken off'. Initial telephone contact with those schools indicated that, although they were interested in developing the use of the various software packages, in the majority of cases, they had not yet implemented them. Indeed, in 2 schools Kar2ouche training had taken place over a year before but had not been used; in one case this was because of lack of time and in the other because of software compatibility and technical support issues. In one secondary, digitalbrain was being used extensively as a tool for web publication but not for the same communication uses being promoted by FLiC. School contacts agreed to receiving the questionnaires and completing as much as they could.

The responses from the 4 SMT respondents (all primary schools) confirmed that training had been undertaken by one teacher in each school for Kar2ouche and digitalbrain and in one school a teacher had also received training in video-conferencing. In one school some P3/4 children had received training in the use of digitalbrain and in this school they had also been introduced to using it for modern languages. One of the schools had both Kar2ouche and digitalbrain in their development plan and another one had included the use of *i*Movies in their planning and had used it with some of the children.

The 4 teachers reported receiving training in digitalbrain, Kar2ouche and *i*Movies. Two thought the training for both digitalbrain and Kar2ouche had been good and 2 thought it had been adequate. The training for *i*Movies had been adequate. It was reported that the ITSU staff had been very helpful (1) and helpful (3).

In the school that had introduced digitalbrain, its effectiveness had been limited because there were insufficient computers available for the pupils and there had been problems accessing the internet, for example failed connections and slow uploading and downloading of files. The teacher from this school indicated that they introduced digitalbrain to support modern languages but did not yet have enough experience in using it to make further comment. The school that had introduced *i*Movies noted that it was with limited success, due mainly to lack of time. Two headteachers responded that there had been no time to schedule video-conferencing.

Two headteachers indicated that one class teacher had responsibility for taking forward developments. Plans to use these strands during 2004-2005 were noted as: video-conferencing – 1 school; Kar2ouche – 2 schools; digitalbrain – 1 school; *i*Movies – 2 schools.

From the responses to the questionnaires and through other contact with these schools, it was clear that developments were still in early stages and the respondents were not in a position to comment on the impact such initiatives had on the learner or learning.

8.2   The FLiC pilot schools

The majority of responses to the headteacher/SMT and teacher questionnaires came from schools that had been identified as being active and had been visited for observation purposes. From one cluster (Cluster 1), the only response received was from a primary school class teacher who reported that she had not been involved in any FLiC activities during 2003-04. The respondents in the other two clusters were:

o Cluster 2: 2 primary SMT; 2 primary teachers, one of whom had not been active during 2003-04 although had been involved during 2002-03; and one secondary teacher.

o Cluster 3: 3 primary and 1 secondary SMT; 4 primary and 1 secondary teacher.

Of the 7 teachers who had been actively using FLiC activities during 2003-04, 5 had used Kar2ouche, 5 had used digitalbrain, 6 had used video-conferencing and 2 had used *i*Movies. It was reported from one secondary school that digitalbrain had been introduced as staff development but not used with pupils.

a.   Impact of FLiC on teachers, pupils and the learning environment

Extent of usage of each of strands of the project

There is evidence that some schools had expanded their use of FLiC strands during 2003-04.

Seven of the 8 schools from whom responses were received had also responded to the first survey. The response from the 'new' school indicated that Kar2ouche and digitalbrain had both been introduced successfully to P6/7 pupils for modern languages during 2003-04. In 4 schools where only one strand had been tried during 2002-03, 2 had introduced one more element and 2 had introduced 2 more during 2003-04. One school had tried 2 strands previously and had added a third strand in the current session. Two schools had introduced video-conferencing, digitalbrain and Kar2ouche during 2002-03; both had added *i*Movies during 2003-04, but while one continued to use Kar2ouche, one had dropped it during 2003-04, having found that it did not operate well on their computers.

Although two schools had introduced video-conferencing to P4/5 classes and one had introduced Kar2ouche to this age group, the majority of work in primary schools was with P6 and P7 pupils. In one of the secondary schools, aspects of FLiC activities had been introduced in all years from S1 to S6, but this was within one department.

Thus it would appear that amongst those schools who had introduced some aspects successfully during the first year, there was a willingness and ability to continue to develop the use of ICT.

Plans for future use

All 8 schools reported plans for using video-conferencing in the 2004-05 session; 5 were planning to use Kar2ouche, 6 digitalbrain and 3 *i*Movies.

Impact on strategies used by teachers and learners

Five teachers agreed that they had changed how they organised their teaching and learning because of involvement in FLiC, while 2 disagreed. The teachers who had used digitalbrain and Kar2ouche agreed that they provided a range of quality resources for learning and teaching. They largely agreed that they helped introduce new subject concepts to learners, though 2 were not yet sure; they agreed that both helped reinforce new learning, except for one teacher who thought that digitalbrain

did not help with this. All thought that both supported differentiation. There was agreement that Kar2ouche added a new dimension to teaching traditional subjects; while it had been introduced to encourage learners in modern languages, it was being used to encourage dialogue and discussion in other subject areas.

There was agreement that FLiC generally encourages pupils to work collaboratively. This was true for both digitalbrain and Kar2ouche. One teacher who had used *i*Movies particularly emphasised that this had been 'extremely good for collaborative projects'. Both digitalbrain and Kar2ouche also encouraged pupils to share their work with each other and enabled them to monitor their own learning. Four teachers thought that FLiC activities encouraged pupils to work more independently of the teacher, while 3 disagreed.

Impact on motivation, attainment and skills of pupils

The teachers were positive about the benefits of the FLiC activities in terms of enhancing motivation, attainment, confidence and skills. Only two out of the 7 thought that pupils had not become more confident. Kar2ouche and digitalbrain both contributed to the development of ICT and communication skills.

b.   The use of the FLiC strands in the pilot schools

Impact on home-studying, including homework and revision

Only 3 teachers thought that digitalbrain had encouraged pupils to continue their school work at home. One (secondary) thought that Kar2ouche had encouraged this.

Impact on the teaching and learning of languages

Kar2ouche, digitalbrain and video-conferencing had all been used in the learning of languages. Four teachers agreed that boys in particular had been motivated through using Kar2ouche, though it was pointed out that it did motivate both boys and girls. Use of digitalbrain was reported by one primary and one secondary teacher: in the primary it allowed access to a wider range of resources, in particular, language spoken by a real French person; in the secondary school it allowed access to language resources for those who could not fit it into their timetable. Video-conferencing to support languages was reported by 3 teachers; 2 reported it as very effective, commenting that it had greatly increased the confidence of the children in speaking the other language and had encouraged them to work hard at improving. The third teacher reported it as effective.

The primary-secondary transition

Four of the teachers who returned questionnaires had used video-conferencing for transition purposes, including video-conferencing with other P7 classes in the cluster so that they had met before progressing to S1. Two thought video-conferencing for this purpose had been effective and 2 thought it had been very effective.

c.   The impact of FLiC on community learning

With respect to communicating with parents and increasing their involvement in their child's learning, only one primary teacher agreed that digitalbrain had helped. One secondary teacher thought that Kar2ouche had increased parental involvement in the pupils' learning.

Video-conferencing had not been used at all for linking to the wider community. Some of the respondents to the second survey again mentioned the difficulties of doing this because of poor connections and limitations because of the firewall, as mentioned elsewhere in this report. It was mentioned by one that the Local Area Network was now more stable and it was hoped that the firewall issue would be resolved for future use.

d.   Gender related differences

Five of the 7 teachers thought that boys and girls were equally enthusiastic in using technology and gained equally in attainment and confidence. One primary and one secondary teacher thought that boys were more motivated by it and one primary teacher thought that boys were more likely to improve in attainment levels.

e.   In-school support and development issues

The questionnaire for members of the SMT asked about staff responsibility for taking the FLiC initiative forward in the school and also how it contributed to development plan objectives and meeting national priorities.

Staff with responsibility

All 6 HT/SMT respondents indicated that there was a designated person responsible for taking forward FLiC developments. In the 5 primary schools this was the ICT co-ordinator, who, in 3 cases, was also a depute head and, in one case, was a class teacher. The fifth school did not give this information. All but the class teacher had non-teaching time, but it was pointed out by one respondent that this was very limited along with all her other responsibilities. The secondary respondent indicated that the person responsible was a class teacher who did not have any remission of teaching time to carry out the FLiC developments. On the teacher questionnaire this particular member of staff commented that a major challenge had been the amount of time he had spent preparing materials for the various activities.

Support for development plan objectives and national priorities

Four of the headteachers thought that FLiC activities contributed very much or much to the development plan and 2 thought they had contributed a little. Three mentioned that it had contributed to developing ICT in particular and 2 to developing links with cluster schools.

With respect to meeting national priority targets, one respondent indicated that it was too early to say. The remaining 5 gave the following responses.

Table 17: Views on the contribution to National Priorities

National Priorities		Very much	Much	A little
1	Achievement and Attainment	1	2	2
2	Framework for Learning	0	4	3
3	Inclusion and Equality	0	1	4
4	Values and Citizenship	0	2	3
5	Learning for Life	0	3	2

f.   Other comments

The respondents were asked to indicate the greatest challenges they found in using the FLiC strands. Their comments were similar to those already reported elsewhere, focusing on limited ICT equipment, the complexity of ensuring that the equipment is all up and running for classroom use, inadequate support from the external provider and the need for further staff development to ensure confidence in using the technology.

9. Discussion

The findings from the three key evaluation activities are discussed within the framework of the aims and questions established at the start of the project. It should be noted that the reality of what was happening in schools was significantly less than originally anticipated and the numbers of responses from school staff and pupils were disappointing. Any conclusions drawn from the data must therefore be regarded as tentative, although the issues raised have been consistently reported across schools.

9.1 The impact of FLiC on teachers and pupils and the learning environment

The FLiC development grew out of an interest in flexible learning in a few schools. These schools were already committed to ICT to support learning and teaching and enthusiastic about its potential. Where this enthusiasm existed it has continued to develop, albeit through the efforts of particular individuals rather than as a whole-school phenomenon.

The pupils in almost all schools were enthusiastic, although this was tempered by the difficulties of establishing contact and getting online. They saw a number of opportunities for further use of the strands and several indicated that they would like to access digitalbrain and Kar2ouche from home. Several had access to ICT at home which was far superior to that available in school, which they found irritating.

The usage of each of the strands of FLiC was less than anticipated. This was, in the main, due to delays in the supply of equipment and training as well as difficulties with the managed system (Syntegra) and the firewall. Where it has worked, pupils and teachers were enthusiastic and could see potential for further development to support learning and teaching.

Video-conferencing was the most frequently cited strand in use. While initially it was used to support primary-secondary transition and a merger, other uses were emerging. Kar2ouche was being used for a variety of purposes, mainly in primary schools. Although many pupils (and staff) had received training in digitalbrain, it was not successfully established, mainly due to technical issues. Kar2ouche and digitalbrain were being used to support learning in specific areas of the curriculum while developing ICT skills and knowledge; this was beginning to happen with video-conferencing.

The majority of pupils at all stages considered that they were 'good' or 'very good' on most applications and found the FLiC strands 'fun' and/or 'easy' to use. They were involved in a wide range of ICT-related activities, both in school and at home.

There was some evidence that pupils were ahead of the teachers in their ICT competence but as we were unable to observe very few genuine lessons involving the FLiC strands, it is difficult to make judgements on the impact on the relationship between teacher and learner. A few teachers commented that when stuck, they drew on the pupils' skills and knowledge before going for 'expert' help.

9.2 Digitalbrain, Kar2ouche and video-conferencing within the pilot schools

Impact on home studying

The use of the virtual learning environment, digitalbrain, is the most relevant to the impact on home study, homework and revision. Digitalbrain was the least used of the three FLiC strands. Of the pupils who had learned to use it in school, approximately one third used it 'to see what homework was due and when' or used it at home 'to let

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my family see my school work'. Around one quarter used it to send homework to the teacher from home, while around one tenth accessed the school calendar to check up on what was happening.

Technical issues, including time to download, caused some annoyance amongst pupils. (Not all had a broadband connection at home.) For teachers, using digitalbrain 'to provide information for pupils and their parents' was a low priority, although one teacher did report using it to encourage home/school links for a pupil with poor attendance. Some respondents were of the view that it had the potential to improve communication, although others disagreed. Looking to the future, some teachers were intending to use it for homework activities, while another proposed using it to support excluded pupils and their learning.

A small number of the pupils involved in observation visits and focus groups had downloaded a 'free 30-day trial version' of Kar2ouche on to computers at home and were using it there.

The teaching and learning of languages

Video-conferencing and Kar2ouche were used in a number of classes to support learning in modern languages. Video-conferencing was used across schools to encourage practice and consolidation of learning, with primary and secondary pupils exchanging information in e.g. Spanish.

Kar2ouche was used to construct dialogue around specific scenarios, using whichever modern language they were learning. Kar2ouche is designed specifically for French but the pupils using it were learning Spanish. The limitations of Kar2ouche (static characters, French, limited number and type of characters) led to the development of *i*Movies, using the storyboards created on Kar2ouche as the basis for a digital video which was then edited on the computer. The videos were used as assessment evidence for the talking component of Standard Grade in one instance.

A number of teachers (primary and secondary) expressed a desire to link with schools and organisations in other countries by video-conference facilities, and use the language skills in an international context. The authority firewall prevented that, however. (At the time of writing this report, the authority was investigating ways of overcoming the obstacles presented by the firewall.)

Primary-secondary transition

Video-conferencing was used to ease the trauma or apprehension of primary-secondary transition. Pupils in the primary school spoke with S1 pupils in the associated secondary school (usually those who had been at the same primary school) about their concerns and asked questions relating to both the academic and social aspects of the secondary.

9.3 The impact on community learning

The community dimension of the FLiC initiative was never really developed. Although talks were held, in the early stages, with representatives of the community education sector, they did not get involved in the roll-out for reasons that were not made clear.

The schools themselves were interested in becoming more involved in the wider community – local, national and international – through video-conferencing in particular. However, issues with the stability of the video-conferencing network and firewall restrictions had inhibited this development.

Parents were marginally involved in digitalbrain, as discussed earlier, and we can assume that their children told them of some of the events in schools, but otherwise parents appear to have been largely unaware of the initiative.

9.4 Gender-related differences

While some attempt was made to determine whether there were any gender-related differences in relation to attainment and/or motivation, sample sizes were relatively small and any differences observed were inconclusive. There was some evidence that teachers varied in their perceptions of whether boys or girls were gaining more from their involvement, but most appeared to believe that both groups were benefiting similarly. Any benefits are likely to be attributable to a range of factors, including the wider availability of ICT generally and the impact of out-of-school access as much as in-school.

9.5 Reflections on the initiative

This final section reflects on the nature of the initiative and what can be learned about the process of implementing change in such a manner.

a. Technical issues

The initial enthusiasm of the cluster groups was dampened because of the slow start to the project and the subsequent technical problems. In some instances, schools were trying to use software on inadequate systems, e.g. older computers or without broadband connections. Other schools were using Macs and they were not always compatible with the applications. The managed network system in the city (Syntegra) also posed problems – unstable and slow to process and download. Two years after the start of the project and the upgrading of computers and operating systems, some schools are still reporting that digitalbrain does not work.

Of those who have tried to use Kar2ouche – some of whom have had considerable success in embedding it into the curriculum (e.g. modern languages, PSE) – the limitations of the package proved frustrating once they had grasped the basics. A number of schools are moving on to *i*Movies. This allows greater flexibility and creativity for pupils, while still using the storyboard element of Kar2ouche to prepare the 'script'.

b. Staff development

Training was limited and the ITSU team were in considerable demand, often on a one-to-one basis, for further staff development or to manage (technically) video-conferencing events. While they were very helpful and supportive and their efforts much appreciated by the teachers and pupils, it must be questioned whether this is an effective use of their time and expertise. Most of the training appeared to be in connection with the applications and how they worked; staff development in the pedagogical implications appears to have been incidental.

A number of teachers were concerned about familiarity with the technology. They lacked confidence in using the technology and, while they were persuaded to try initially, problems with the apparatus or technology disillusioned and discouraged them. Only the most determined and enthusiastic persevered; confidence in one's ability to cope is required when things go wrong. Those who did and went on to develop effective uses for the programmes could be identified as 'champions' for the FLiC strands and used to disseminate the pedagogical aspects of their involvement, as opposed to the technical (which is what appears to have been ITSU's role).

c. Pupil involvement and confidence

Primary and secondary pupils appear to have been familiar with most of the technologies and confident in their ICT skills across a range of uses. Video-conferencing did cause anxiety in some pupils, who felt put on the spot and apprehensive. Greater familiarity with the technology may lead to a reduction in anxiety over time and a greater range of uses would help in this. Where whole classes were involved, there was difficulty in keeping all pupils involved and on-task.

Enthusiasm was high for the other two strands, where they were established.

Involvement in digitalbrain or Kar2ouche was very patchy within schools. Although several staff members may have undergone training, only a few used it regularly with their pupils. This raises an issue of continuity. For example, if a teacher at, say, Primary 6 has developed skills and used digitalbrain and K2 with the class, the likelihood is that when they move into Primary 7, their new teacher may not have the skills or experience to continue with the work. In addition, there is some evidence that pupils are more likely to experience the FLiC strands in primary than in secondary school.

d. Conclusions

FLiC was introduced with the aim of changing/augmenting aspects of the learning environment through information and communication technologies to provide:

- increased flexibility
- increased opportunities for pupils to learn
- enhanced teaching and learning through increased motivation, leading to improved levels of attainment.

The specific strands were intended to bring schools and other organisations into closer contact as well as provide improved links between schools and between home and school for pupils.

There are signs that these aims are being addressed with some success in small pockets of activity – some schools, some classes and some elements of FLiC – where there is an enthusiastic staff member who is determined to overcome the limitations of the technology and networks. Some have persevered with each of the three strands of FLiC. This has not developed to the extent that greater flexibility in learning has been achieved, e.g. very few pupils access the school website and digitalbrain from home.

One of the key obstacles to further development has been the technology, coupled with a lack of staff confidence to deal with difficulties. Unless the infrastructure has the confidence of the teachers (and pupils) and they have had sufficient staff development to feel that they understand the particular application sufficiently to respond to most of the pupils' questions, they will be easily discouraged when things go wrong (which they often did). In addition, teachers need to feel confident of the pedagogical dimension to working with ICT – how to use it effectively to support learning and teaching. This is an area that does not appear to have been addressed in sufficient detail with teachers.

The evidence gathered in this evaluation indicates that there are possibly three groups of teachers emerging:

1. The enthusiasts who have taken on the initiative and adapted it to suit their own pedagogical purposes to considerable effect. There were a few of those – on top of the technology as well as identifying a clear role for it in learning and teaching. These individuals, once they have identified how practice can best take advantage of the undoubted opportunities that ICT offers, could be used as 'champions', persuading and convincing other teachers that the time and commitment needed does pay off in the end.

2. Those teachers who struggle on because they believe it is ultimately worthwhile. They wanted trouble-free networks and hardware and more hands-on experience of the strands to give them confidence in using them with pupils.

3. Those who began with some enthusiasm, who saw promise in the technologies but who were discouraged and disappointed when they tried them, and gave up.

There is, of course, a fourth group – the ones who did not get involved in the first place. Given developments in ICT generally, it is doubtful that they will be able to remain disengaged for much longer.

The pupils had high expectations of technology in school and were enthusiastic about the developments, although irritated by the limitations they experienced. The FLiC initiative held considerable promise and its original aims are to be applauded. Greater investment in ensuring that the infrastructure was robust and configured to meet the demands of the strands would have increased the chances of success. Staff also need the opportunity to become familiar with the strands before using them in practice. In addition, staff development must tackle skills in using the application but, more importantly, explore and reflect upon the impact on learning and teaching and how to develop effective strategies in the classroom.

Appendix 1

The timetable for the evaluation was:

	Key tasks
2003 September	Contact Edinburgh local authority, then schools, re participation Write letters for parents Interview with L.A. Project Co-ordinator for FLiC
October	Construct and pilot questionnaires Distribute Seek existing evaluation data from project team
November	Prepare observation schedules and focus group materials Monitor return of questionnaires for key issues Identify possible dates for observation visits and begin
December	Analyse questionnaires and draft interim report Continue observation visits and focus groups Interview key personnel from L.A. and project team
2004 January	Analyse data from questionnaires Continue interviews and focus groups
February	Transcription of data Continue interviews and focus groups
March	Analysis of data from all sources Draft final report
April-June	Final analysis of data Complete writing of final report

Appendix 2

FLiC pupil and teacher questionnaires

The questionnaires for the first teacher and pupil survey were included in the FLIC Evaluation Interim Report. Copies can be obtained from the QIE office.

The pupil questionnaire for Kar2ouche is included in this Appendix as an example; the questionnaires for video-conferencing and digitalbrain followed the same pattern with questions modified to be relevant to the technology being addressed.

The second teacher questionnaire was similar to the first one with minor modifications. The headteacher/senior management representative questionnaire and the second teacher questionnaire, which were distributed at the end of the evaluation, are appended.