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The Connecting School and the Intranet Librarian

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A growing number of Scottish education authorities are providing intranet technology to schools. This article is based on grounded research investigating the role of the school librarian within an intranet environment. The evidence suggests that despite a lack of expectation by school library services and authority intranet officers, school librarians are taking on roles of intranet building, management, and content creation. It appears that far from distancing librarians from traditional areas of interest, their involvement in the intranet has promoted their relationship with whole-school resourcing and literacy support. Despite evidence that recent graduates are more likely to take on roles with the intranet, it is shown that a key factor is the attitude of the librarian and linking of the intranet to resource provision.

Introduction

The United Kingdom government, like other governments around the world, has set standards for information and communications technology (ICT) in education. Through the National Grid for Learning (NGfL) all pupils in UK schools should be connected to the Internet with their own e-mail addresses (Department for Education and Employment, 1997). The Scottish Office has promoted an intranet as one option for authorities and/or schools to follow in order to meet these requirements (SOEID, 1998). An intranet is defined as "an organization's internal communications system using Internet technology" (Blackmore, 1997, p. 23). The Schools Online Project found value in the relatively low costs, the security offered, and the potential for generating curricular materials (Department of Trade and Industry, 1998).

Aims

This research set out to investigate factors in intranet development in Scottish secondary schools and the role of the school librarian. This article deals with the key findings relating to the role of the school librarian. In particular, it aims to:

- identify the key roles of the school librarian in relation to intranets, and
- identify the critical factors affecting these roles.

Background of School Librarianship in Scotland

Scottish secondary schools take children for the six years from ages 12-18. School librarians in Scotland are not teacher qualified, but undertake a degree course or postgraduate qualification in librarianship/information

management. *The Standards for School Library Resource Services in Scotland* (Convention of Scottish Local Authorities [COSLA], 1999) highlighted the increased role of the school librarian with ICT. The document makes reference to the school librarian's involvement in using ICT in their information skills program. On the policy side, they advocate a role for the school librarian in developing good practice and acceptable use policies. In addition, they suggest that schools should "consider the role of the School Library Resource Centre in the context of network management" with other staff in the school (COSLA, 1999, 3.28, p. 29). The role and extent of involvement in areas such as Web site development and maintenance in relation to an intranet are not mentioned.

Potential Intranet Role as Seen in the Literature

The intranet has been called an opportunity for the school library (Clyde, 1998). Teacher librarians have been described as "logical partners in the development and management of a school information system or intranet" (Fankhauser, 2000, p. 204). At Hales Grammar School in Western Australia, the teacher librarians are involved in the design and management of their school intranet (Wake, 1999). Wake highlights a range of ways in which the librarians provide information literacy support via the intranet. Page (1999) outlines how three Australian schools are making use of intranets as a school-wide approach to information management and information use, with the libraries at the center. In one school, the catalogue is used to index "everything from Internet sites to PowerPoint presentations to scans of the newspaper" (p. 35). A role has also been suggested where librarians may package a range of information for networks so that users can find this information easily and quickly (Debowski, 1997).

There was a great deal of research in the 1980s and 1990s in the UK on the impact of curriculum changes and information skills on the role of the school librarian. The same attention has not been paid to how ICT has affected school librarians. A number of articles and books have indicated that UK school librarians are taking up the challenges of intranets. The Japan Project outlined one librarian's involvement with an instructional Web site on the school intranet (Wells, 1999). An instructional Web site is an interactive lesson developed using HTML or Web-editing software, which can then be accessed on an intranet or the Internet. The Japan Project was seen as having an effect on the resourcing role of the librarian, in collaborating with teachers, and strengthening the curricular input of the library. In this instance, the librarian's input was only in resourcing, not in the creation of materials on the intranet. Case studies of two Scottish schools preparing to introduce intranets provides evidence of one librarian in discussion with a teacher as creator of an instructional Web site (Herring, 1999). Both case studies suggest a potential role of Internet mediator in relation to evaluating and download-

ing Internet sites onto the intranet. Management of the intranet as a role for the school librarian is not addressed.

Theoretical Perspective

Hiltz (1992) has reviewed a number of perspectives utilized by researchers looking at the social impact of computing. These can be summarized as:

- technological determinists (characteristics of the system, e.g., technology design, access, software);
- individual differences (characteristics of the users, e.g., age, gender, education, skills, attitudes);
- human relations (characteristics of the groups and organizations within which systems are implemented, e.g., ICT groups, relationships with staff);
- interactionist or systems contingency (no single approach would fully account, so all of the above should be considered).

This was useful in considering a range of factors that could affect the role of the school librarian. Potentially, all could be relevant. It is recognized that innovations in education are complex and may require variables across a range of levels to occur if the innovation is to be successful (Fullan, 1982). Due to the lack of research in the field of ICT and school librarianship, and the fact that intranets as such are relatively new, it was decided to take a grounded approach to the research.

Methodology

Grounded theory concentrates on the generation of theory rather than the *verification* (Glaser & Strauss, 1967). Hence the researcher starts not with any preconceived theories or hypotheses, but with an open mind and early data collection that eventually leads to development of theory.

This development involved collecting data, asking questions of the data, comparing and contrasting the evidence, and starting to think about concepts (Strauss & Corbin, 1990). In the first year of research discussions were held via the listservs OZTL_NET and LM_NET and contacts made through the Library Association Record published in the UK. This, along with the literature review, allowed me to consider potential roles. The grounded approach then focused on the Scottish education system, with informal visits to Scottish secondary schools and Scottish education authorities. A questionnaire followed to all 32 Scottish education authorities to identify potential authorities and schools for use in the research. From the grounding visits in Scotland, a framework was developed for semistructured interviews that allowed for flexible exploration of topics. These were held in three Scottish education authorities in mid-2000 with the intranet development officer (hereinafter referred to as intranet officer) and head of school library services (or where none existed, the education officer responsible for school libraries, hereinafter referred to as library officer). Selection of authorities was based on the questionnaire, using critical case sample sites (Patton, 1990).

Following from the authority interviews, semistructured interviews were held in a total of 15 schools across Scotland from the end of 2000 through to 2002. The criteria were that the schools must have a qualified school librarian and an intranet (but could be at different stages of development and use of their intranets). The interviews were with a member of senior management, the ICT coordinator, and the school librarian. In order to assess local factors, three authorities with three schools each were included for comparison. It was essential for the grounded theory that initially the schools displayed as many variables as possible; later, this evolved into theoretical sampling as key concepts were tested (Miles & Huberman, 1994). As permission to interview in school was at the discretion of the head teacher, it was not always possible to get a particular school once identified.

Contact summary forms were written after each interview, and an ongoing analysis sheet was kept as interviews progressed (Miles & Huberman, 1994). This addressed key questions and allowed comparison of critical elements with previous interviews. Eventually, all materials including memos were analyzed using NUD*IST. This enabled me to compare either broad or specific codes across the range of interviews.

A brief summary is given of the education authorities interviews, followed by presentation of the findings from the interviews in schools. In order to get a range of schools to participate, it was necessary to give anonymity to those involved in the research.

Findings From the Authority Interviews

None of the intranet officers (leaders in the three authorities for implementing and developing the intranets) had had any direct involvement with school library services as part of their planning. They made no direct connection between the role of the school librarian and school intranets, for example,

- "It's not one that I've given a great deal of thought to and I think that would be fairly common at the moment at the early stages of where we go with it."
- "not more than another teacher."

The librarian was not considered to have a role in whole-school management of the intranet. One intranet officer stated, "the librarian has a role in what is happening on machines in the library, but not outwith." Another intranet officer considered that the librarian would manage anything in electronic format "specific to the library." Only one thought that with the appropriate skills, a librarian could have some management responsibility, but then he stated that it was more likely that departments would be responsible for their own areas. All agreed that librarians with skills could create Web pages for the intranet, but only relevant to the library. One intranet officer suggested that librarians could be involved with instructional Web sites depending on how teachers worked. If they were used to working

closely with the librarian, then there was the chance that the librarian might be involved; however, it could just as well be another teacher. He added that it would also depend on the skills and initiative of the school librarian.

Although the intranet officers agreed that library catalogues could be made available on the intranet, they were hesitant about the use of the catalogue to manage resources elsewhere in the school. Two intranet officers did not relate the librarian's role to CD-ROMs and online subscriptions, viewing these as authority decisions in purchasing for schools. Two intranet officers had not considered the role of the school librarian in relation to information skills, although both agreed on the importance of these. The third stated that this was the teacher's role, with the librarian's role being that of advising on resources.

The intranet officers talked of skills and attitude of the librarian (characteristics of the librarian) and how they work with teachers (human relations) as restricting factors on the librarian's role. The attitude shown by the intranet officers toward the library in separating it from the rest of the school and the lack of awareness of the school librarian as an information manager suggests that it may be the characteristics of others that will be important in relation to the librarian's role.

Library officers described school librarians as "positive" and "enthusiastic" toward the intranet. It was considered that despite heavy workloads they would set aside time "possibly at the expense of some other project" to be involved. When questioned about specific roles in relation to the intranet, the library officers considered it unlikely that many librarians would take on these roles. Initially enthusiastic about librarians operating at management level in connection with the intranet, all felt this would not happen. Reasons given were:

*Lack of time/consequences for running the library/lack of clerical support;
Need for financial reward to be given to school librarians.*

Although keen that librarians have their catalogue available on the intranet, the library officers also considered it unlikely to become a medium for accessing all resources across the school due to:

*Lack of time;
Teachers' desire to hold onto materials.*

As with the intranet officers, they considered that librarians would create library Web pages, but not departmental pages or even instructional Web pages. Barriers mentioned were:

*Lack of encouragement from senior management;
Librarians ICT skills.*

Library officers were positive about the role of school librarians in relation to information skills and of assisting pupils searching the Internet and

using CD-ROM. Beyond this there were no examples of how the intranet could be used to promote information skills.

Despite the library officers' enthusiasm for the intranet, it can be seen that they also do not expect the role of the school librarian to be extended beyond the library. The barriers given by the library officers restricting change to the role were not so much the characteristics of the individual school librarian, but of others in the school and of the library system and structure itself.

Findings From Interviews in Schools

School librarians saw themselves as having a variety of roles, for example, "I think there is a whole lot of roles for the professional librarian within school which keeps on extending really." Librarians are currently involved in a range of activities that vary across schools. These include careers libraries, homework club support, study support coordinator, flexible learning centers, and distance learning. Of the 15 schools involved in the research, the intranet has had a significant impact on the role of only five librarians. In order for the reader to compare details, these school librarians are identified by the letters A to E.

Intranet Builder

Despite the low expectations from the authority interviews, three school librarians have been involved in designing and building their school intranets. Librarian A, after receiving training on Frontpage, studied the structure of their intranet and decided it was inappropriate. With the ICT coordinators agreement, she rebuilt it. School B is the intranet pilot for their authority. Although the previous librarian had worked on populating the intranet, it had not gone "live" when the current librarian took over. He reorganized the structure, rebuilding much of it to simplify steps in accessing the information. The service provider provided training, although the librarian felt he had surpassed that level by the time he received it.

Librarian C states of his involvement in the intranet:

I kind of had to muscle in. The intranet front end is sitting there, it has been doing nothing for these past two years and the kids were looking at it and sort of not understanding why nothing was happening with it.

Currently, he has put together the front end, teaching himself from a book as he progressed.

Intranet Manager, Starting to Connect the School

Only librarians A, B, and C could be described as managers of all information on the school intranet. Librarian A uses groups of pupils to gather content from teachers. As the sole person able to upload pages, librarian B edits material from teachers into a suitable format. He talked of the difficulties in getting teachers to share materials on the intranet. Librarian C has only started to gather content. There will be change in this school as he is leaving

his post. The ICT coordinator was concerned and hoped that the next librarian would take on responsibility for managing the intranet.

Possible Managers

Librarian D has been in the school for six months. It had been felt that he needed time to get settled into the library post. ICT coordinator D stated that he now intended to give the librarian some responsibility for the intranet.

The senior management in two schools in the same authority as School A were keen to see their librarians take on the role of intranet manager. It was clear from comments made that they were aware of librarian A's involvement with the intranet. One of these ICT coordinators stated that the librarian would be the "obvious choice." Both librarians were reticent about the role, one clearly unhappy.

Intranet Mediator, a Resourcing Connection

Five school librarians supply evaluated URL support on the intranet, taking up the mediator role (Herring, 1999). Librarians C and D have only recently created library pages for this. Librarian B has set up an area covering all subject areas in the school divided by age range, thereby providing an element of scaffolding to help pupils. Librarian E had until recently kept URLs in the library (in bookmarked folders on computers and in printed lists in topic folders). Asked to create homework support pages for all departments in the school, he has now made this a focus for URL support. Librarian A has taken a more gradual approach. She talked of deliberately targeting departments, attending meetings, and working with teachers to provide project materials including the URL support on the intranet.

In one authority, it was clear that the school library services have been involved across the authority in promoting the role of the school librarian as mediator. Librarian A (and the other two librarian interviewed in this authority) have been identified as experts in one particular subject (e.g., Librarian A, science). The librarians are expected to evaluate Web sites in their subject area and coordinate with curriculum development officers for the information to go on the subject area of the authority intranet. All schools in that authority can access these pages. At the time of the interviews, there was concern about whether this would continue due to reorganization that has seen the curriculum officer posts disappear. To enable the librarians to create the support pages, they were given training in Frontpage. They are all recognized in their schools as experts in Internet searching. It was noticeable that no negative views were expressed by the ICT coordinators or the senior managers in these three schools concerning the librarian's role in relation to URLs.

Three ICT coordinators considered that departments, rather than the librarian, should focus on providing URL support to pupils. For example,

- "it would tend to be most sensibly done by the subject expert because they are the people that know."

- "it is good for the *librarian* to know Web links which the children will come along, or see in a free period or something like that, right, she should have a list of those things but departments will do that.... she could probably take a copy."

Among the librarians who are not using the intranet for curriculum support, five bookmark curriculum links on library computers, one contacts individual staff directly with lists of URLs, one adds the list to topic information packs, and another keeps a folder of URLs for project work by the computers. Reasons given for not putting the information on the intranet are:

- Lack of encouragement from teachers, for example, "I can spend as long as I like looking at sites or information I think would be really useful for departments, but if I can't get the departments to actually use them themselves, then it's a complete waste of time."
- Not wanting to "raise expectations."
- Lack of software.
- Lack of time.

This evidence comes from the six librarians who had received training and the basic skills to put information on the intranet. Four other librarians gave lack of skills as the main reason; however, they have yet to receive the ICT training that would provide them with the basic skills.

Non-Intranet Mediation

No school librarians were involved in downloading Internet sites onto their intranets. Copyright concerns and the introduction of faster Internet connections negating the need to download were given as reasons for not doing so.

As suggested in the authority interviews the role of provider of online information was limited. Only one librarian subscribes to an online service (librarian B, the Economist). School D mentioned a subscription to Eduweb through its managed service provider, and most schools accessed SCRAN (Scottish Cultural Resource Access Network). However, these are organized on an authority/school basis and are not decisions made by individual librarians. Lack of finance was frequently mentioned.

Schools used CD-ROMs on the network on separate applications, but not on the intranet itself. Concerns were raised about licenses and cost. Librarians tended to purchase general CD-ROMs of interest to all departments. There was still evidence that many schools follow a policy allowing departments to maintain collections.

None of the schools in this research currently have their entire catalogues available on the intranet. School A has a partial catalogue available and reported evidence of increased use of staff resources as a result of this. Only three librarians were positive about the catalogue being used to include information on a range of resources from departments across the school. One school is currently investigating this. However the Assistant Head made the point that responsibility should lie with subject departments to add content

to the catalogue, not necessarily the librarian. There was further evidence against a whole-school approach to resourcing from ICT coordinators, for example, "It is a possibility, but I can't see any use for it. Departments finance their own books out of an annual allocation."

Librarians as Content Creators

Six librarians out of the 15 interviewed have created content for the intranet. Two have developed limited content, both relating to general information on the front pages of the intranet.

Librarian D had to request Web-authoring rights. The ICT coordinator stated, "I gave him a shot of the intranet to see what he could do, and he has done super." The librarian considers that he is the first department to provide his own pages. He has created general information on the library and URL support. In preparation for the upcoming school centenary celebrations, he is building a history of the school using photographs and records housed in the library. Currently, he has limited terminals in the library and none at his desk, so he often has to wait for pupils to free a computer.

Librarians A, B, and E have created extensive pages on their intranets. Librarian B has created URL links, information skills (his courses), pupil reviews, doodles (artwork) pages, and an instructional Web site on the use of Microsoft Word. In School A, much of the information on the intranet comes from suggestions the librarian makes to departments. She talked of her role in speaking to staff and generating ideas. She is keen to develop instructional Web sites such as one created for National Holocaust Day. This included links to resources on the Internet, lists of library resources, information on events and exhibitions, and sets of work sheets written by a teacher. She also gave examples of using photographs of local churches in religious education materials and local data on ancient burghs in their history pages. She described herself as designer/creator, stating that the teacher provides the information. She talked of trying not to forget her more traditional role and so was creating reading databases. She encourages others to supply materials that reflect the culture of the school (e.g., PowerPoint presentation of school shows, clubs).

Unlike the two latter librarians, Librarian E did not build or design the intranet and has no management responsibility. He passes all his pages to either the ICT coordinator or the technician for uploading. But as a content creator, he has a key role in working with teachers putting together pages that have a strong "resourcing" element. He has created his own information skills course, a senior fiction site, the "Homework Pages" (topic pages with evaluated URL links), and is currently working with teachers on Issue topics used for discursive essays. He collaborated with a teacher in putting together photographs and their own data on a Scottish heritage site in a format suitable for pupil use—similar to librarian A. This is evidence of librarians

working not just as packagers of information, but as unique creators of information not otherwise available.

Information Skills Support

All librarians in the research were involved to some extent in information skills. Although most accessed the Internet and CD-ROMs as part of this, few made use of the intranet. This was despite complaints that the Internet highlighted the lack of pupil information skills. Currently, librarians A, B, D, and E have their information skills courses available on the intranet. These are specific courses for specific year groups. One of the other librarians was keen that once she started work on the intranet, she could provide information skills support for senior pupils to work on in their own time when they needed it.

Other than the evaluated Web links and their specific information courses, there is little evidence yet that school librarians are providing general information literacy support of the type suggested by Wake (1999). It could be argued that as builders of the intranet, they are supplying information support via the structure and access to information. One librarian talked of developing information on search engines on the intranet. Librarian D has set information on the search engines he promotes at the front of his library pages and hopes to extend this.

One major exception is librarian E. The Issues pages provide evidence of cooperative information literacy support. Teachers write the material, librarian E evaluates the resources, and then creates the pages. Pupils may use the materials in different subject areas. Different subjects require different approaches to writing essays. Hence in the topic of abortion, pupils will find an introduction describing different viewpoints and terminology, links to the resources, referencing information, and appropriate information skills support that will differ depending on which subject they are using the material for. By creating these pages for the intranet (a technical role), librarian E is bringing together both the resourcing and instructional elements of school librarianship.

Teaching Role

Librarian E trains staff on a one-to-one basis on using Dreamweaver and PowerPoint. He talked of his role in "cascading" the skills to other staff in the school. He emphasized that although he provided the resourcing elements for a number of the instructional Web sites on the intranet, he had also provided individual teachers with the skills to create their own pages. Librarian A is a mentor of staff NGfL training, but she did not specifically link this with developing the intranet.

Management of Computers: An Administrative Role

Some libraries support a complete suite of computers that are continually booked by classes. Senior managers, in talking of the intranet, made mention

of the librarian as having an important role in supervising and managing the booking of computers. Normally, teachers accompany classes when they are using these library suites. It is notable that the intranet has had little impact on the role of these librarians (i.e., none is involved in building, managing, or creating).

The Explanation of the Intranet Roles

The more recent graduates are the school librarians most involved in the building and managing of school intranets. Librarians A, B, C, and D have all graduated within the last 3-5 years. Although they are confident ICT users, only librarian D had any previous Web-authoring experience (but has the least technical role as he is not involved in the building). The other three required training, although there is evidence that they were willing to take on self-training. Librarian E is the only longer-serving librarian to be involved with the intranet, but in a different way than the others. His ICT skills are self-taught. There does appear to be evidence that librarians involved in intranets need not have all the skills, but they must be willing to self-train in ICT or, once provided with the basics, go beyond that training. It is not a simple question of skills that explains their roles.

This can be shown by looking at the other two librarians in the same authority as librarian A. All three have had the same recent ICT training. Yet the two longer-serving librarians have not welcomed intranets in the same way, despite it being clear that the management in their schools would like them to have more involvement. One of the main reasons they gave for lack of involvement was time. Yet both librarians had auxiliary support in the library, whereas librarian A did not. Despite their involvement in supplying evaluated Internet sites to the authority intranet, there is clear evidence of isolation within these two schools (e.g., working on the intranet on their own, no guarantee that teaching staff would use their materials, no intranet group that could be a focus for development). As with some of the other longer-serving librarians, it is this feeling of isolation and not wanting to lead the intranet development that is a major reason for noninvolvement.

The four recent graduates have had less time to build relationships with staff. Yet here were no negative comments in these interviews from either senior management or librarians relating to staff cooperation. It could be that what these librarians are providing on the intranet is actually connecting them, bringing them in closer contact with teachers, whether there has been previous collaboration or not. Librarian A is given an auxiliary as a direct consequence of her role in the intranet in order to have time away from the library to meet with departments. Librarian B states that his involvement in the intranet has made the senior management more aware of the library presence. The intranet by its very nature is a vehicle for making information public and hence promotes awareness.

Librarians A, C, and D were not immediately considered in relation to the intranet (e.g., C talks of "muscling in"). This links to the findings of the authority interviews. Despite this, it has not stopped the more recent graduates from becoming involved. This suggests that willing librarians can overcome many of the barriers suggested by school library officers. But no one in school C was prepared to work on the intranet, which sat unused for two years (the intranet technology was installed in all schools by the authority). School B as a pilot had to find someone to lead the intranet development. The librarian talks of a power vacuum where no one else in the school was prepared to take on the role. The Deputy Head had stated that others could take the role, but because of time commitments, they would not have done it in the *same way* as the librarian. This is an important distinction. School librarian D talks of how he is the first department to supply his own pages. There is information on this intranet, but it is flat, noninteractive information. There is controversy in another school where the ICT coordinator and the school intranet group disagree over the proposed content of the intranet. The coordinator wants departments to create interactive pages with curriculum support for learning. They provide the type of flat information found in the school handbook. It suggests that there may be a gap in relation to information and intranets. This research suggests that librarians can fill that gap by providing the type of URL support and research support for projects that librarians already provide to teachers.

Of the longer-serving graduates, only librarian E has made a significant contribution to the content of the intranet. Librarian E provides plenty evidence of "interest" and "willingness" to take on ICT, which many of the other longer-serving librarians do not. There is no power vacuum in relation to the management of the intranet with the ICT coordinator taking this role. But the request to create the homework pages with the URL support is an example of the information gap being filled. The other ICT coordinators, who stated that it was departments' role to provide subject support, appear unaware that librarians are accustomed to dealing with all departments and evaluating and providing resources for all departments. Librarians may not be subject specialists, but they are information specialists who are in a central position where, potentially, they connect with all departments across school. The one authority that has recognized this at authority level, funding the training for their school librarians as Internet specialists with content creating skills, provides evidence of how such support at the authority level can help to raise awareness at the school level.

Evidence is given by the four recent graduates of interest, willingness, and of looking for an area where they can make a personal contribution the school. Mention has been made of other initiatives in schools in which librarians are involved. The longer-serving librarians appear to be waiting for others in the school to prepare their intranet pages for them to work on. This suggests that they do not see themselves leading developments. In

addition, many are already involved in other activities in the school. It appears that there is flexibility with the role of the school librarian in Scottish schools that allows librarians to follow areas of interest.

Five male school librarians were included in this sample of 15. No statistics are available on gender of Scottish school librarians, but it is accepted that this is a higher-than-expected proportion. It was noticeable that three of the four recent graduates were male. The research also included one older male who had little ICT involvement, and one of the leading intranet builder/creators is female. There is not sufficient evidence to suggest that gender has any relation to the role of the school librarian and intranets.

Conclusion

The school librarian seems to have a range of roles, which includes builder/designers, managers, mediators and packagers, creators of unique content, trainers, and information skills supporters. There is no evidence that such roles distance librarians from traditional areas of interest such as literacy support. As can be seen in the findings, the leading content creators all included evidence of fiction and reading activities in their intranets.

It does appear that the intranet in Scottish schools is leading to increased variation in the role of the school librarian. Of concern is the realization that few of the librarians interviewed could walk into the posts of librarians A and B. Also of concern is that the recent ICT training provided has not much affected the role of longer-serving school librarians. Although more recent graduates have expanded their ICT roles, the longer-serving librarians appear only to have increased their general ICT skills such as Internet searching. There is a real need for confidence to be boosted in longer-serving graduates with continued ICT training. This must be done in relation to teacher cooperation. Despite the call for collaboration in UK research on school librarianship in the 1980s and 1990s, school librarians still appear to suffer isolation. There is need for much greater encouragement for a whole-school approach to resourcing if the potential of the intranet is to be realized. Involvement in the intranet can promote collaboration. There is strong evidence that the intranet naturally highlights the resourcing role of school librarians with potential for increasing the instructional role. This must be encouraged.

References

- Blackmore, P. (1997). Intranet: Considerations for the information services manager. *Information Service and Use*, 17(1), 23-30.
- Clyde, L. (1998). The school intranet: An opportunity for the school library. *Emergency Librarian*, 25(3), 36-38.
- Convention of Scottish Local Authorities (COSLA). (1999). *Standards for school library resource services in Scotland: A framework for developing services*. Report by a Task Group appointed by COSLA's Education and Cultural Services Forum. Edinburgh: Author.
- Debowski, S. (1997). Managing technological change. *Access*, 11(4), 30-33.

- Department for Education and Employment (DfEE). (1997). *Connecting the learning society: The National Grid for Learning*. London: Author.
- Department of Trade and Industry. (1998). *Schools online: Phase 1 and 2 final report*. London: Author.
- Fankhauser, R. (2000). Intranets: Building virtual communities. In L. Hay & J. Henri (Eds.), *Enter the millennium; Information services in schools. 1999 Online Conference Proceedings* (pp. 201-207). Wagga Wagga, NSW: Centre for Studies in Teacher Librarianship
- Fullan, M. (1982). *The meaning of educational change*. New York: Teachers College Press.
- Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. New York: Aldine.
- Herring, J.E. (1999). *Exploiting the Internet as an information resource in schools*. London: Library Association.
- Hiltz, S.R. (1992). Constructing and evaluating a virtual classroom. In M. Lea (Ed.), *Contexts of computer mediated communication* (pp. 188-208). Hemel Hempstead, UK: Harvester Wheatsheaf.
- Miles, M., & Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage.
- Page, C. (1999). Edtranets: Three schools tell their story. *Access*, 13(3), 34-35.
- Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.
- Scottish Office Education and Industry Department (SOEID) Superhighways Task Force. (1998). *Scottish schools: Using the superhighways: ICT and development planning*. Edinburgh: Author.
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Wake, R. (1999). Furthering the teacher librarian role: A school intranet. *Access*, 13(1), 13-16.
- Wells, A. (1999). The Japan project—Using a school-based intranet with Year 9. In G. Dubber (Ed.), *The Internet, the secondary school library and the independent learner* (pp. 15-19). Swindon, UK: School Library Association.

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