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**GUIDELINES FOR E-REFERENCE
LIBRARY SERVICES
FOR DISTANCE LEARNERS
*and other remote users***

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The authors also wish to acknowledge Graeme Baxter's thoroughness in undertaking the literature search, and the efforts of Claire Killen in reading, annotating and evaluating the documents that underpin these guidelines.

¹ The Virtual Reference Desk may be viewed at URL - <http://www.vrd.org/> [Accessed 19th February 2004]

² The Global Reference Network may be viewed at URL - <http://www.loc.gov/rr/digiref/> [Accessed 19th February 2004]

³ The IFLA Digital Reference Guidelines may be viewed at URL - <http://www.ifla.org/VII/s36/pubs/drg03.htm> [Accessed 19th February 2004]

Introduction

Until recently the provision of distance education was undertaken mainly by various professional associations and commercial agencies offering vocational training. Library provision to meet the needs of registered students was limited. Over the past 30 years, however, the delivery of higher and further education to students studying at a distance has become a core part of the activity of many academic institutions: a few specialist higher education institutions such as the Open Universities established in Britain and India, and some conventional universities that established teaching centres away from their main campuses.

Over the last 10 years, an expansion of distance education has been driven by social and economic imperatives. Equity of access to learning for those unable or unwilling to participate as full time or part time campus based students is increasingly recognised as important in serving the needs of not only rural or dispersed communities but also other disadvantaged groups in society. Distance education has been further stimulated by efforts to promote lifelong learning to ensure that the workforce has the skills required in a modern and changing economy, and to provide intellectual opportunities for an aging population. These factors have resulted in numerous initiatives, and some major distance teaching programmes have been initiated by conventional universities and new commercial competitors, using satellite television or the Internet. Similar international developments have been encouraged by agencies such as the Commonwealth of Learning⁴ and the World Bank.⁵ Distance education has thus become a feature of the work of an increasing number of further and higher education institutions.

Library provision and distance education

Much has been said and written about the promises of distance education. It is clear that, for it to succeed, students' access to and effective use of information resources to support their learning is essential.

Supporting their own institution's distance learners has become a core activity for a growing number of academic libraries. In addition many national and local governments are expecting the public library network to engage more effectively in fulfilling its role as a provider of support for lifelong learning. It is important, therefore, that libraries review the response that they are making to meet the needs of learners who may be restricted or no means of gaining access to print-based collections.

In traditional distance education, rudimentary efforts were made by the teaching institutions to ensure that collections of core texts and journals were accessible to registered students through, for example, postal loan services. Otherwise the student was dependent on buying textbooks (sometimes without an effective bookseller or postal service to assist them to acquire books from national or international sources), or using any relevant materials or services provided by a local public or academic library. However, the world we live in has changed significantly.

⁴ The Commonwealth of Learning website may be viewed at URL – <http://www.col.org> [Accessed 19th February 2004]

⁵ The World Bank Institute's distance learning programme may be viewed on the web at URL – <http://www.worldbank.org/wbi> [Accessed 19th February 2004]

A key enabling factor is new Information and Communication Technologies. Increasingly distance education is utilising e-mail and web-based facilities to deliver teaching materials and provide interactive tutorial support across the Internet in both the industrialised and developing world.⁶ Similarly, to meet the needs of distance learners, library services now include not only a traditional postal loan service, but also off-campus access to Internet databases, and online access to the full-text of electronic journals or specially digitised book chapters. However, such technologies can only be applied effectively if there is a clearly developed rationale and well-defined strategy which addresses the issues that libraries must engage with in order to best serve the needs of distance learners.

Reference services and information skills

In conventional libraries, reference services, reader's advisory services, and user education emerged quite some time after the establishment of collections and the provision of metadata about collections. The paradigm has been the same in the development of digital library services: the collections generally arrived first, followed by a concern for metadata, and lastly by a concern for public services in online environments.

Electronic reference, e-reference, services are Internet-based question and answer services that connect users with experts in the information sources in a variety of subject areas through web forms and/or e-mail. E-reference can be interpreted to cover support via direct contact with reference librarians through e-mail, telephone, video-conferencing, and dedicated pages on the World Wide Web. E-reference provides an extra choice for users, and may take some of the load off a busy reference desk, although it does not lessen the overall workload for the library. Using e-reference could be a time saver for users, and using the Internet is generally cheaper than a telephone. E-reference may also provide the user with a degree of anonymity, or at least minimises any embarrassment that they might feel in a face to face reference interview. The growing use of the Internet for information storage, retrieval and communication is perhaps the most significant development shaping library and information services today. The advantages of developing e-reference services using the facilities of the Internet include 24 hour access for users, and the potential for easier referral of questions to services with more substantial collections or higher levels of expertise.

Libraries' experience in providing these services has been enhanced by the widespread implementation by academic institutions of the wired-up campus and off-campus access to electronic resources, and by the increasing attention to the development of web portals and the development of e-reference services not only by academic libraries but also by public libraries and specialist information centres. In an increasingly wired-up society, the volume of reference enquiries received by libraries by e-mail will grow rapidly, but the importance of the transaction is not lessened by the medium, and analysing the enquiry and providing a rapid and unambiguous response will demand new skills. Reference librarians supporting distance-learning students will need to adapt to the new environment, and to define and implement internationally recognised quality standards for new services to supersede any existing national and local standards.⁷

⁶ See, e.g. GOMEZ, J.S. *Communication and Information Technologies development: a system of distance education for Colombia's Caribbean region*. 1999. Ph.D. thesis. U.S.A.: University of Utah

⁷ CONSORTIUM FOR EDUCATIONAL TECHNOLOGY FOR UNIVERSITY SYSTEMS. *Information resources and library services for distance learners: a framework for quality*. 1997. Seal Beach, California, U.S.A.: The California State University. Available at: http://www.cetus.org/dist_lrn.pdf [Accessed 19th February 2004]

The first e-reference services evolved in the early 1980s, but they came to prominence in the 1990s, mainly so far in the U.S.A. where some 10% to 15% of public libraries and some 50% of university libraries are now providing e-reference services. As distance education moves more classrooms into a virtual world, the remote user is more likely to make use of digital information without seeking the intervention of the librarian. Subject gateways and navigational tools are making it increasingly easy for end-users to find the answers to their own enquiries without the assistance of library professionals. This, together with the fact that over 60% of reference enquiries may now be easily answered using the internet⁸, highlights the importance for libraries and information services of examining the efficiency and effectiveness of their e-reference provision if they are to meet the users' expectations of a higher level of competence. Developing high standards in students' information seeking skills for the networked environment also becomes even more crucial, and presents new challenges for library staff.⁹ The design, development, and evaluation of instructional materials in these new formats raises many issues including the application of cognitive psychology in helping learners to conceptualise unfamiliar content; in semiotics and the effects of text design, text density, and visual design; and in the effects of the media on motivation. These are clearly major challenges ahead for information professionals if they are to play an effective role in the modern learning environment.

Developing e-reference services presents libraries with opportunities to extend access to their services and enrich the quality of their provision. These guidelines are intended to assist service managers planning to enter this new environment, and may act as an *aide-memoire* for those who have already become active in providing e-reference support, not only for distance learners but also for the increasing number of other users of libraries and information services who are likely to make remote use of their services.

These guidelines cannot convey in their entirety the experiences and insights of these researchers and those libraries who have implemented e-reference services. Examine the Bibliography compiled for the authors of these guidelines, and scan the professional horizon for new publications, concepts and practices. Surfing the web sites of similar and different organisations can suggest worthwhile ideas. LibRef-L, a discussion list dealing with issues in reference services is also a potential source of information and advice.¹⁰ There is no guilt attached to utilising the work that has already been done by others, particularly in emerging areas where sharing experience is vital to successful development.

Terminology is fluid in this new area. E-reference (electronic reference), Digital Reference (DR), Virtual Reference (VR), and Reference at a Distance (RAD) are used almost interchangeably in the professional literature. Online reference, real-time reference and chat reference are also sometimes found in the literature. These guidelines will use the term e-reference.

⁸ ZUMALT, J. and PASICZNYUK, R. The Internet and Reference Services: A Real-World Test of Internet Utility. *Reference and User Services Quarterly*, 38(2), 1998, 165 -- 172

⁹ MACKLIN, A.S., REYNOLDS, L.J., CURL, S.R., and MAI, B.A. Distance education in virtual classrooms: the model and the assessment *in Proceedings of 21st Annual National Online Meeting, 16-18 May 2000, New York, NY, U.S.A., edited by Williams, M.E.* 2000. Medford, NJ, U.S.A.: Information Today. pp. 407-412

¹⁰ To subscribe to the list, contact the list owner at LIBREF-L-request@LISTSERV.KENT.EDU

Literature search methodology

Any systematic literature review is required to be open to scrutiny, and should employ standardised procedures to enable the search and evaluation process to be carried out in a consistent manner. The bibliography appended to this report was compiled by Graeme Baxter by searching, according to a pre-defined format to ensure reliability and rigour, through the appropriate bibliographies, subject gateways and databases.

The systematic literature search was conducted online in a number of appropriate electronic databases in the education and library and information fields, namely:-

- Library and Information Science Abstracts, Information Science Abstracts, and Library Literature.
- Education-related databases such as ERIC, British Education Index, and Education Abstracts.

The search was restricted to English-language items published during the last 10 years (i.e. from 1992 onwards), and was based largely on the following search terms, where ? indicates the use of truncation:

(electronic OR virtual OR digital) AND (reference AND (service? OR desk?))

This search revealed 468 unique, relevant items. A small number of these documents were literature reviews or bibliographies, and these were examined for additional items of relevance. Of greater significance, however, were existing web-based bibliographies on the subject of digital/electronic/virtual reference, particularly those compiled by Sloan (over 500 entries), Richardson (over 270), and Wasik (over 190) which appear to be updated regularly. These allowed a useful cross-check of the material found in the database searches, but also provided details of (and, in many cases, links to) additional websites, online papers, reports and other 'grey literature' that might otherwise have proved difficult to find.

Particular attention was also paid to two websites. Firstly, the Virtual Reference Desk website which, as well as hosting Wasik's bibliography, contains a variety of relevant reports, consultation papers, guidelines and presentations, including those from the Virtual Reference Desk annual conferences. Secondly, that of the Information Institute of Syracuse¹¹, whose Executive Director is David Lankes, a prolific author on e-reference issues. This site provided links to several of Lankes's reports and conference presentations. It should be noted, though, that the vast majority of the items appearing on these two sites also appeared in one or more of the web-based subject bibliographies already identified. It should also be noted that several of the conference presentations provided were in the form of PowerPoint slides only. These were somewhat lacking in detail and therefore not considered in this current study.

Web portals that provided a useful reference point for individual institutions, organisations and subject gateways (such as DLib¹², the BUBL Link¹³, and the UNESCO Education and

¹¹ Available at: <http://iis.syr.edu/> [Accessed 19th February 2004]

¹² Available at: <http://www.dlib.org/> [Accessed 19th February 2004]

¹³ Available at: <http://bubl.ac.uk/link/lis.html> [Accessed 19th February 2004]

Libraries Portals¹⁴) were also examined, and search engines were systematically used to identify other relevant web sites, including academic institutions offering distance learning; public libraries and academic institutions offering e-reference services; and international and national agencies, such as the World Bank, the Institute of Museum and Library Services (U.S.A.), and the National Library of Australia which, although not the major focus of the review, provided potentially interesting links within the sector.

Additional items obtained during the web-based element of the literature search, brought the total number of documents reviewed in the study to 658.

The cut-off date for the literature searching was August 2003. All the documents were read to identify and evaluate the content. Additional abstracts and annotations were added by the research team, as necessary. Much of the literature proved to be repetitive, and anecdotal rather than based on rigorous research.

A management system, using ProCite, was set up to maintain the documents during the research process. This enabled a standardised format to be applied to each document record and provide the ability to track the progress of document acquisition and analysis.

The items identified are detailed in the Bibliography appended to this report, and which may be available on the web in due course.

¹⁴ Available at:

http://portal.unesco.org/ci/ev.php?URL_ID=6513&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1041937729 [Accessed 19th February 2004]

1. Policy statements and planning for e-reference services

Whilst supporting the functionality of the Internet requires some technical knowledge of computing and telecommunications, the real challenge for the managers of libraries and information services is to make a fundamental reconsideration of how distance affects the library's relations with the community it serves and to assess whether and how new Information and Communication Technologies could add value to their services. To re-orient existing services and develop new ones to enable the users of their libraries to take full advantage of the new medium requires them to put in place a set of policies and procedures which parallel those that are applied in the management of print-based services. The key issues to be considered are:

- identifying and targeting the various segments of the user community;
- integrating the e-reference service with existing services;
- allocating and managing the resources required;
- identifying and integrating relevant subject expertise external to the library;
- defining policies and procedures.

Policy statements on the role of libraries in the provision of e-reference services

The e-reference service will be used most by people who have integrated computing into all aspects of their work and communication. The availability of personal computers and access to the Internet vary from country to country, but their use is increasing globally. As familiarity with these facilities increases, librarians must recognise that their users will derive many of the answers to their information needs directly from these sources, and will expect their libraries and information services to satisfy information problems that they are not able to resolve for themselves within a given time or through an acceptable level of effort or expenditure. This places a greater emphasis that hitherto not only on the librarian's professional expertise, but also on the librarian's role in managing the expectations of his clients. In the networked environment, it is increasingly important that libraries provide an explicit statement of the aims of the reference service that they provide.

Mission

The starting point for any new e-reference service is a clear definition of its intended purpose and core values. The e-reference service should be framed within the overall mission and goals of the library, and designed so that it is seamless part of the range of reference service options, offering the same quality as that delivered face to face or through correspondence. This should be outlined in a mission statement which may linked to a general statement of reference service philosophy such as

'Our commitment to providing a quality information service will be demonstrated each time we interact with you by providing you promptly and courteously with accurate information regardless of whether it is in person, via the telephone or via e-mail.'

The mission statement should also acknowledge the disparate groups that the library serves, and the library's obligation to meet their differing needs. Questions that can or cannot be answered and any arrangements for referral of clients to other cooperating information services or selected subjected experts should be noted, as well as any commitments that the organisation wishes to make to provide user education, or in respect of a back-up document

delivery service, services to patrons with special needs, or services in special subjects.

Timeline for developing and piloting the service

The global nature of e-reference services will, for the first time, put many libraries in a quasi-competitive situation, in which they will be judged on the quality of their service. An ill-prepared service launch will jeopardise service quality.

When setting up a new e-reference service, there are a number of steps that have to be taken to ensure that the service can be successfully launched and delivered. In common with any other activity, these need to be identified and ordered into a logical sequence. It is then possible for the manager to determine reasonable periods of time for each step to be completed, and to monitor progress towards these goals.

This implementation process should allow for piloting the service before it is formally launched. Controlling the user base at the initiation of the service, and expanding it as experience develops, may eliminate minor, but potentially embarrassing procedural problems. Staff will need not only training, but also practice time, in any new procedures that are to be adopted by the service. Similarly, any new software tools will need to be tried and tested to ensure that the installation is robust.

Similarly, the initial proposals for the service should anticipate and plan for the growth of the service, and identify levels of demand that will trigger an expansion of the range of services that will be provided and the resources available to support the service.

Planning for implementation

As with any new service, it is essential to shape consciously the e-reference service rather than just let it evolve. With proper planning e-reference services can become valued and effective additions to a library's services, managing high volumes of questions, enhancing the library's public relations and raising its visibility in its community and perhaps further afield.

This new service cannot be implemented successfully without the commitment of a wide range of staff, and this can only be engaged effectively from the very beginning, through the establishment of a planning committee representing all the stakeholders. The committee should have an active role in outlining policy, determining procedures, and preparing for the introduction of the service. Its role would eventually shift to monitoring the service once it had been implemented, reviewing and revising policies, provision and procedures as necessary.

Planning will need to take account of a number of different elements:

- Development of appropriate user entitlement statements
- Physical and virtual locations of the e-reference service
- Collection development and access
- Legal issues - privacy, copyright and licensing
- Procedures for use of online reference services
- Defining service tiers and service level statements
- Finding library partners and external experts
- Linking with an e-reference consortium
- Marketing and building customer relations

- Integration with teaching
- User orientation
- Staffing issues
- Management and co-ordination of the service
- Cost implications
- Determining quality standards and establishing evaluation mechanisms

Development of appropriate user entitlement statements

Although any service should be designed around the needs of the community served by the provider, e.g. as a resident of the community whose taxes support the library, as a registered student of the institution, or as an employee of the company concerned, the Internet can also bring users into libraries with which they may have no formal affiliation. Traditional barriers such as distance and communication time or costs have restricted the volume of such use, but the Internet breaks down these barriers. It is important that the library's managing body defines and agrees who is entitled to e-reference service by the library, where and when they may obtain it, and what, if any, restrictions are to be placed on their access to the library's collection of electronic resources. The policy statement should therefore define the levels of service available to users, differentiating if necessary between categories of users such as academic staff, registered students, and enquirers with no formal association with the institution, and if appropriate setting out tiered response times. Any restrictions on the use of the service should be clearly indicated on the library's web pages.

According to the UNESCO Public Library Manifesto¹⁵, the public library's services should in principle be free of charge. Other libraries may decide to restrict free services to the community that they are intended to serve. Entitlement to services may, however, be extended to users of other library services with which there are formal agreements.

A user's entitlement to service may be limited to a simple e-reference enquiry response service, or extended to include access to the electronic resources of the library. However, experience indicates that users ask similar questions whether in person or via an e-mail reference service. A full range of questions, generic to specific, are asked, and therefore limiting e-reference service to 'ready reference' questions alone does not adequately meet users' needs.

A global community of potential users may result in rapid changes in the population that the library serves. There should therefore be arrangements in place for regular monitoring of time-expired authorisations to use restricted services, and for cancelling or changing passwords as necessary.

Taking account of the workload required to answer enquiries, the service managers may need to establish a daily quota, and a protocol for dealing with enquiries that are received after the daily limit has been reached. The priorities that will determine whose questions may be answered should the quota be exceeded must be publicised.

Physical and virtual locations of the e-reference service

¹⁵ Available at <http://www.unesco.org/webworld/libraries/manifestos/libraman.html> [Accessed 19th February 2004]

There should be a clear policy on the location of the e-reference service.

During the library's normal service hours the e-reference service should normally be based within the library. If the e-reference service is to be augmented by after-hours service, a prior decision is needed as to how that can best be achieved, taking account of all the implications, limitations and potential of alternative approaches.

Physical location

The location of the reference service's e-mail terminal(s) and the physical layout of the working environment should be determined in a way that facilitates staff access and use.

In those libraries in which specialist resources are distributed at a number of separate service points, consideration would need to be given to the location of the e-reference service point, particularly in the early stages of implementation when demand may be limited and may not justify the additional costs of multiple e-reference service points.

The reference desk, exposing staff to continual face to face contact with users, is generally not considered to be a suitable environment for e-reference service because it may exacerbate clashes of priorities for service. Location in an area away from the public may be desirable, and a separate, soundproof telephone reference point will be necessary if video telecommunication becomes common.

However, there may be advantages in designing the area so that it is visible to users of the library, as a means of raising public awareness of the service and so that librarians who are not immediately engaged in providing the e-reference service can see if there are members of the public awaiting personal attention.

Virtual location

The increased use of wireless technology and mobile devices may liberate the e-reference librarian from a fixed point in a building.

An early policy decision needs to be taken about the service delivery model to be adopted, and the nature of the service to be provided needs to be made clear in the policy statement. Asynchronous (e-mail & web forms) and synchronous transactions (chat, video-conferencing and e-reference robots) have different features and make different demands on skills and resource budgets for e.g. staff and training. Evidence on the use of e-reference services indicates that they are likely to be used on a 24/7 basis, although there is a clear decline in the volume of enquiries received during the night, as might be expected. Research results do not appear to indicate any particular user preferences for synchronous (real-time) or asynchronous services; rather they report positive response to use of video-conferencing, but also support the sufficiency of asynchronous service. Whichever mode is adopted, it should be supported only during those hours when demand warrants it and when staff can be afforded. The ultimate decision should be based on an assessment of local needs, financial resources, and technical capacities.

Planning for the virtual location of the e-reference service also needs to include the preparation of an effective web site to act as the front end of the service. Guidelines will cover both the overall structure of the web site and a simple departmental style sheet, for

example requiring each web page to be described clearly in the title and the first header, prescribing the optimum size of the individual documents on the web site, and instructing designers and content providers to avoid large image files that will download slowly onto the computers of users who do not have broadband telecommunications. For those without previous experience of developing web sites, it may be useful to look at a site that provides links to information and instruction on writing, editing WWW pages, such as the Library of Congress World Wide Web style guide.¹⁶

Preparation for the new service may involve acquiring one of the numerous specialist software packages now available for handling reference transactions. Clear purchasing criteria should be determined taking account of the library's technical infrastructure and service plans.

Collection development and access

Policy guidelines would also need to be reviewed in respect of the organisation's collection policy for information resources. The review would need to consider the range of e-reference services to be provided, and the implications for the scope of the collection, for any existing guidelines for selection of reference materials (particularly the choice of print or electronic formats), and for arrangements to access externally hosted electronic resources of reference materials.

Collection development should continue to reflect the needs of the potential users of the service, but recognise the potential offered by a networked environment to draw on other libraries' resources and expertise. Issues such as copyright and licensing of electronic services take on a new dimension when a library is supporting virtual users, and require libraries to be particularly careful to ensure that they are operating within the law in providing material in electronic formats to remote users (see below). Licensing electronic media may be best done through consortial arrangements, which are not only an effective approach to resource sharing but also likely to be a less expensive way of negotiating the desired level of access for remote users.

Collection development in the traditional sense of library activity will need to be complemented by content development: identifying and organising electronic resources, and preparing and maintaining guides and information pages on how to use the electronic resources.

The collection could ultimately include the archive of the service's transaction. An early decision is required on what will be archived, whether it should be searchable, and by whom.

There will need to be a reliable document delivery service in place to back up the e-reference service. Its capabilities and limitations would need to be made clear to users. The issues surrounding the provision of historical and extensive statistical data would need to be considered carefully.

Legal issues - privacy, copyright and licensing

¹⁶ Available at: <http://www.loc.gov/loc/webstyle/> [Accessed 19th February 2004]

Legal issues such as privacy, confidentiality, and data protection are highlighted in the networked environment. The service provider needs a clear policy statement on these issues, on intellectual property rights and the re-use of information obtained from or on behalf of clients, and on transaction and content licence compliance. These should be reflected in a contractual understanding with the users about any warranty on information provided, and with staff regarding liability for third party claims arising from information that they communicate.

Privacy

Few library systems operate in a secure network environment, and the e-reference interview produces a digital log of the entire transaction. Both these features raise issues about confidentiality for the user, particularly in those countries where Data Protection and/or Freedom of Information legislation has been enacted. Whilst the use of electronic systems does permit easier logging and statistical reporting of the volume and nature of enquiries received, to evaluate overall effectiveness of the service and to develop a FAQ (Frequently Asked Questions) web page to minimise the need for human assistance, it also raises the need for the policy statement to assure the users that their enquiries will be treated confidentially. Users should be given a clear understanding of how the confidentiality of transaction records will be assured. Some libraries deal with this, as they in effect do with many conventional enquiries, by permitting the user to remain anonymous, but this possibility may be restricted by the software, particularly software developed initially for commercial call centres. Others retain archives of transactions only for a stated, limited period. A further approach might be removing identifying information from the transaction records before they are archived. This is possible, but time-consuming.

The potential uses of the transaction records may also raise librarians' concerns about the way in which their work can be monitored and the potential for punitive consequences if the standard of their work appears deficient. It is important that, from the beginning, it is clearly understood that, while transactions may be monitored, the intention would be solely to improve customer service and to provide a basis for staff development.

Many countries have passed legislation to protect against the misuse of personal data, and libraries providing e-reference services should ensure that they operate within the law as it applies in their country. Many national library associations have also established codes of professional ethics, which refer to these issues, and members should observe these.

Copyright

The legal position on copyright is complicated and uncertain. It varies from country to country according to the legislation in force, and librarians operating an e-reference service should be familiar with and comply with the relevant laws of their own country.

Licence compliance

The use of electronic databases and journals by unauthorised users may violate the licence agreed with the vendor. At present, not all vendors offer licences that are compatible with the open nature of e-reference services. Careful review of existing licences is essential to avoid violating the licence agreement, and as a basis for future re-negotiation of licences.

If access to certain electronic resources is restricted, consideration must be given to how to control access to them (usually by means of a password). If access is password controlled, a secure method must be in place for distributing passwords to authorised users, and for updating them as necessary.

Procedures for use of online reference services

The use of new Communication and Information Technologies provides the library with another means of reinforcing the image of its contemporary relevance, whilst using e-mail or web pages to support its reference service offers several practical advantages. However, promising and then not delivering will create only negative publicity for the service. Sometimes the new technology may fail. Always give users an alternative way to contact the reference service.

E-reference services also present a number of operational challenges that need to be overcome by careful planning and staff development. These are discussed in detail in Chapter 2)

Defining service tiers and service level statements

Librarians have long since recognised that few if any libraries can meet all the expectations of their user community. The introduction of an e-reference service may enable libraries not only to raise awareness of the wider resources on which they can draw, but also to introduce added-value services, hitherto beyond their resources or expertise, such as describing and evaluating the information and the source from which it was drawn, or providing services in more than one language.

At the same time, the library may wish to clarify and define a variety of service levels, and make explicit its priorities for dealing with enquiries, depending on their nature and origin and the time that providing an answer or finding a document might take.

The nature of the communication medium demands that the library establish a protocol for answering questions, making referrals, and answering questions from users not affiliated with the institution. It is also important that the policy statement should be realistic about the level of information likely to be required by particular kinds of users (e.g. by a secondary school pupil as compared with a university professor), and the time likely to be required to respond to enquiries.

A central part of the provision of e-references services has to be making unambiguous and transparent statements about the types of questions to be answered, the users to be served and the service indicators that they can expect in terms of the turnaround time for responses:

- what sort of questions will be answered?
- what turn-around time can be reasonably expected (often a commitment to unrealistically short turn-around times can cause as many problems as an over long one)
- who will respond to the enquiry (a named individual or an anonymous team)
- what sort of question **will not** be answered (this may depend on the length and complexity of the research involved)
- what referral mechanism will be in place to pass enquiries on to other bodies or organisations that may be capable of providing a response.

Equality of access to the service must be assured from the outset.

Finding library partners and external experts

The e-reference service should act as a clearing house and referral point for users who do not know an appropriate specialist to contact.

The process whereby libraries have made use of experts or specialist services has not always been transparent to the user, except in instances where documents have been obtained for the user from a third party. In a networked environment, libraries may be by-passed by their community unless they are clearly established as the principal access point for information. This may require the library to be more explicit in making more visible a service model that not only provides for immediate action at the point of enquiry, but also includes referral to selected experts or a consortium for collaborative resolution.

Inter-library cooperative agreements may also provide a basis for improvements in document supply through inter-library loan services.

Linking with an e-reference consortium

The impact of providing an e-reference service on the range of resources required to answer enquiries fully and accurately should not be underestimated. Meeting all this demand will not be possible within most libraries' budgets. In order to respond to the range of enquiries that could arise, serious attention must be given to assuring access to the critical mass of resources that are required.

The benefits and opportunities associated with working together with other library and information services far outweigh the challenges of planning and introducing a collaborative e-reference service. Consortia may be established by libraries serving similar communities, and /or by groups of libraries that come together on a regional or geographical basis. A consortium based on libraries with similar interests and capacities but located in different time zones has the potential to dramatically reduce the staffing costs that individual libraries might otherwise incur in operating across an extended working day.

The global reach of the Internet raises expectations that the e-reference service will be available on a 24/7 basis (24 hours each day; 7 days each week). Few libraries have the resources to operate on a 24/7 basis, but collaborative agreements between comparable libraries in different countries may, however, make it possible to provide a 24/7 service. A wide array of reference styles and expertise as well as copyright, licensing and technical issues has to be harmonised, but users appear to like the level of service offered by global e-reference support.

In establishing a consortium, the issues to be considered are similar to those in establishing the e-reference service itself: levels and modes of service; response times; clientele; personnel; infrastructure and facilities; administration and management; finances; and evaluation.

In establishing such a consortium, preliminary steps might include selecting a common e-reference software package, and establishing guidelines for the operation and staffing of the service. It will be necessary to define who might use the e-reference service, and whether and

how they would be required to authenticate their entitlement to it. Specific policies may be needed to address issues surrounding access to database subscriptions.

In addition, it is also necessary to clarify which questions will be transferred between libraries, when and how that will be done; how quality will be monitored and maintained; and what should happen if a member of the cooperative fails to meet its agreed obligations. Achieving a balance between members with differing collections and capabilities may initially appear contentious, but can usually be resolved by prior agreement about how many enquiries from the consortium each library will answer, and how many enquiries it may send to the consortium in return. Typically, the number of enquiries permitted to be sent to the consortium by an individual member is twice the number that is answered by that member.

The development of a collaborative e-reference service is an ongoing process, and regular communication among all members of the consortium is critical. Creating and maintaining effective lines of communication to develop a shared vision and mutual confidence between all the staff of project participants is essential. Dealing with several independent libraries requires a strong project leader. It may also require a degree of flexibility in accepting variations between partners.

There should be adequate arrangements in place to enable the managements of each of the participating library services to assess the contribution that they are making and the benefits that their user community is receiving, to reduce concerns that scarce resources may be being diverted to meeting the demands of other member libraries' users. This should be done in such a way that it does not become a significant additional burden for the staff providing the service.

Evaluation and assessment must be an ongoing aspect to re-assure all concerned of the continuing value of making the effort to participate, as well as to fine-tune the service. This is discussed in more detail in Chapter 4.

Marketing and building customer relations

There is little to be gained by launching a new service without proper marketing. Since the goal is presumably to improve on the present range of services, preliminary market research should be undertaken to try to identify needs that are currently unmet, so that the service can be focused on these needs. This requires not only an investigation of how and by whom the library is currently used, and who might use the new e-reference service and for what purpose, but also a self-critical appraisal of the existing policies, procedures, and resources of the library, as a basis for further development.

Promotional marketing lets users know where you are, whether any specially targeted services have been developed, and how to use the service. Promotional activities to ensure that the potential users are aware of its existence are essential. To be successful, e-reference services require a lot of publicity. There is no single promotional activity that can be guaranteed to be effective. Marketing a new e-reference service is not a one-time process, particularly in the academic environment with its regularly changing student community. It is important to identify not only who the primary users will be, but also the media through which the service can be promoted to them. Experience suggests that continual efforts are required through exhibitions, library instructional sessions, advertising in the public media and on the web pages of the library, and distributing brochures and other materials. It can also be useful to

take the service to users, by for example putting links on key pages of an Intranet or community web site that users are likely to visit frequently. It is equally important to keep regular and potential clients informed of all subsequent changes that may impact on their use of the service. However, publicity should not create more demand than the service can handle, but should be closely linked to plans for the development and expansion of the service.

Giving the service a special name can help to create a brand identity for marketing purposes. 'Ask a Librarian' is one that has been used by a number of existing e-reference services in different countries to establish their identity. A registered Internet domain name can provide a recognisable e-mail address and web page URL.¹⁷

Integration with teaching

In academic institutions providing online courses, librarians should begin by convincing the teacher that they should take an active role, not only in providing e-reference support, but also ideally seeking to become a teaching partner, collaborating on providing course readings, or developing remote students' information searching skills and information literacy. The library's support for the course and the availability of the e-reference service should be visible in all the course material and assignments. This is discussed in Chapter 3.

User orientation

Central to effective promotion of the new service is developing users' ability to make effective use of it. What kind of 'bibliographic' instruction will be provided and how it will be delivered should be clearly identified in the policy statement, based on a realistic assessment of the needs of the primary group of users for whom the service is provided. Users are likely to be unfamiliar with the new methodology, and will require a thorough introduction to it as much as to any specific subject needs. This is discussed in more detail in Chapter 3.

Staffing issues

Establishing and maintaining positive attitudes among the staff regarding e-reference is fundamental to its success. Introducing an e-reference service represents a major initiative for any library. Growth in the demand for e-reference services is certain but unpredictable. The associated organisational change is likely to prove far more challenging than the implementation of the technology. From the beginning, therefore, policy statements should emphasise the confidence of the library's executive management in the professional expertise and commitment of their staff, make a commitment to developing strategies to deal with the likely increase in usage, and encourage creative approaches to meeting the new demands posed by a networked environment.

This would need to be supplemented by a statement of where organisational responsibility for the provision of e-reference services is assigned, what type of reference service will be available at each service point, how questions will be dealt with, who will answer them and when, and whether the remote electronic reference service will be provided online direct to the end user or must be mediated through staff at other service points.

¹⁷ The Internet Assigned Numbers Authority may be viewed at <http://www.iana.org> [Accessed 19th February 2004]

Generally, the introduction of the service needs to be 'owned' by all the staff of the library, and the responsibilities for delivering it need to be formally recognised. For example, promoting the service is one of the key duties that need to be written into job descriptions. Other duties that need to be clearly assigned include the management of licensing and copyright issues, and the coordination of database acquisition. Consideration may need to be given to the creation of new job titles that reflect the enhanced range of work being undertaken.

E-reference service might improve efficiency by addressing 2 long-standing problems with the reference process: reference librarians typically spend only a small portion of their time at the reference desk actually answering questions, and many of the questions that they do answer could be handled by paraprofessionals. E-reference permits the creation of a clearer delineation of responsibility, based on a 3-tier model: Level 1 - minimum human intervention, e.g. FAQs (Frequently Asked Questions); Level 2 - paraprofessional staff; Level 3 - librarians, subject specialists and other experts. E-reference service also offers the potential to deploy specialist expertise across all the locations at which the library operates.

Library managers should recognise the need to reconfigure their reference services to commit time and resources to the online reference process. Planning for the new service should therefore identify when staff will be expected to take responsibility for answering e-reference enquiries, and establish shift rotas as necessary.

Any new service needs a committed team of entrepreneurial staff, and consideration should be given to the creation of a 'virtual' team to manage the service. At the same time, the e-reference service should not be isolated from other services, but should be integrated in such a way that those providing the service at any particular time also have a support network within the institution. The policy and operational framework for the service should recognise how staff with the insights from recent exposure to professional education and those with experience gained from years of professional practice could be integrated in a way that allows individual team members to build on their strengths to contribute to optimum group performance.

Staff cannot be assigned to sit by an e-mail terminal awaiting messages, particularly when demand for the new service is still limited, and may therefore be assigned to a variety of duties including e-reference. Prior arrangements are needed to determine when these staff should check for incoming enquiries, or how they might be alerted to incoming enquiries by colleagues or electronic means.

The absence of visual clues may mean that additional time is necessary to negotiate questions, and using a keyboard takes longer than verbal communication. It is therefore important to plan for additional time-related demands on the service. In the medium term, these may be offset by the time saved when clients use the FAQ web site that should be developed.

Expanding services may demand increased resources for staffing. E-mail still conveys a sense of immediacy as a form of communication, and it is important to provide adequate staff so that provide responses can be made to enquiries received within the timescale set out in the library's policy statement.

If the service is to be open to all, even with conditions or limitations applied to certain kinds of users, concerns with language differences and cultural communication in dealing with an international clientele may require the recruitment of specialist staff, or at least special training to sensitise staff to these issues. An alternative solution may be found in joining an international collaborative network.

Consideration should also be given to the potential for the librarians themselves to work from home. Telecommuting may offer some opportunity to reduce personal and institutional overheads, but needs to be managed within a framework that clearly identifies the responsibilities of both parties.

Full account should be taken of the need for adequate technical support. Policies on technical support should address:-

- the software, hardware and troubleshooting issues that the library will encounter;
- when problems might arise;
- whether the support could or should be provided by librarians or technical specialists;
- what kind of support the library's users will need;
- the priorities for this support;
- how this support will be provided (e.g. by telephone or through a web site);
- when requests for support need to be referred to a third party, e.g. the vendor of specialist e-reference software.

In establishing a new e-reference service, consideration would also need to be given to a number of broader Human Resources policy issues that carry implications for the standard of service. These would include contractual responsibilities for e-reference service, the scheduling of staff hours for e-reference service, the priority to be given to e-reference in relation to other operations, workloads, shift lengths, and staffing levels, commitments to staff training and professional development, and the inclusion of relevant activities in any regular individual staff evaluation. The intensity of use of some already operational e-reference services indicates that the organisation's Human Resource function may also need to review its arrangements for providing supportive counselling in the event of staff suffering from stress.

Cost implications

Planning for the service should recognise the financial implications. It is unrealistic to expect existing services to relinquish willingly resources to support the establishment of a new service.

It should be anticipated that there may be a need for additional types of communication, e.g. telephone calls, to supplement the electronic process. Salary savings from efficiencies in operating some aspects of e-reference cannot be assumed because of the increased demand which could potentially result from the introduction of a networked service

E-resources constitute one of the most volatile dimensions in acquisitions budgeting, and the development of e-reference raises the potential for spiralling electronic licensing costs. An analysis of the resources required to meet the library's needs is an essential preliminary to establishing the e-reference service and any collaborative provision.

Users of e-reference services also appear more likely to demand that they be supplied with the full text documents for all citations retrieved in response to their enquiry, or to support the answer provided by the librarian.

An appropriate methodology for costing the service should be devised, and in the case of commercial organisations (and academic institutions operating distance learning courses on a cost-recovery basis) for charging for the time of reference librarians.

Determining quality standards and establishing evaluation mechanisms

The effectiveness of e-reference services will rest heavily on the development of standards that all participants can utilise. However, best practice standards for e-reference have yet to be developed, and there are as yet no generally accepted benchmarks against which the performance of individual services can be measured. Nonetheless, a commitment to evaluation and review through regular analysis of effectiveness in relation to user requirements, and efficiency in comparison with other libraries will help underpin the successful development of the service.

Before the service begins, library managers should make some provision for collecting statistics identifying usage patterns to aid the day-to-day organisation and control of the service, to provide a basis for identifying needed improvements and developing forward plans, and to justify the benefits of the service to the funding agency. These should include the four facets of e-reference that lend themselves to quantitative measurement, providing the Performance Indicators that assist managers to evaluate their service:

- outcome measures - to review the quality of responses to enquiries;
- user satisfaction measures - to assess the effectiveness of the service;
- process measures - to evaluate the efficiency of the process;
- economic measures - to underpin the costing and cost effectiveness of the service.

However, any review of the quality of an e-reference service should not only take account of quantitative Performance Indicators, but also consider how effectively policies and other decisions are communicated to users as a way to reduce confusion throughout the process. It is also important to put in place arrangements for regularly evaluating the overall service and its components such as related information resources, supporting technology, marketing and promotional activities, staff training programmes, the selection and use of external experts, and the arrangements for maintaining users' privacy and confidentiality. This is discussed further in Chapter 4.

2. Provision, operation and management of electronic library resources

The introduction of e-reference services for distance learners (or indeed any remote users) necessitates rethinking approaches to a variety of different aspects of reference and enquiry service provision, not least the introduction of virtual reference interviews, online reference services and the adoption of web-based contact centre software and knowledge-based systems.

The incorporation of electronic resources into the library is an issue that has never been without problems. However, the development of e-reference services presents many new challenges in terms of the provision, operation and management of services. It cannot be said that as yet there is sufficient research evidence or consistency amongst those libraries offering e-reference service to definitively identify best practice.

These guidelines offers an introduction to the issues associated with the provision, operation and management of e-reference services, but acknowledge that there remain a number of key issues which require to be explored further in order to achieve beneficial service provision.

There may be said to be three key concepts from an operational perspective in the provision of e-reference services which must be considered at the outset:

- the extent of website provision and content and its ease of use for remote users;
- the definition of what the characteristics of a e-reference service are
- the overcoming of technological barriers to e-enable both the service provision and the user groups

The following checklist will help librarians think through the operational and managerial issues relevant to the provision of e-reference services:

- Develop and articulate a service plan
- Determine how to staff the service
- Review what equipment, hardware and software would be required and at what cost
- Consider what kind of bibliographic instruction will be provided and how it will be delivered
- Consider the risks - software stability; staff and user interest
- Consider international aspects of registration (language differences and cultural communication concerns)
- Consider technical and licensing implications
- Consider the potential for consortia and other co-operative agreements
- Consider carefully issues surrounding the provision of historical and extensive statistical data
- Instigate a high-level link to the service off the library's main web page
- Evaluate web presence for ease of use at a distance
- Make provision for collecting statistics and evaluating services

Provision

The web interface between the user and the e-reference service is a particularly important element in assuring that the service can be used effectively and successfully. It should:

- Be user friendly
- Be easy to navigate, with a standard structure and design throughout the site;
- State how long users can expect to wait for a response to their inquiries;
- Provide links to relevant internal and external online resources;
- Provide a link to the institution's general reference service policy and guidelines;
- Provide information on other ways of contacting library staff.

Other key areas essential to good practice in the provision of e-reference services include:

- Topic-oriented research guides that provide overviews of major subject areas;
- Core collection of evaluated, authoritative, content-rich Internet resources;
- Bibliographic instruction - online tutorials to help students develop their library and research skills, based on reviewing patterns of questions;
- Team of on-call reference librarians to provide e-mail reference assistance.

New industries have developed which involve the provision of software and services that enable organisations to deliver personal assistance to remote customers or patrons. Examples of such may be said to include systems such as eGain¹⁸, LivePerson¹⁹, WebLine²⁰, or LSSI.²¹

Instant Messaging or Online Chat has become a popular format although still in its infancy. The introduction of chat facilities can prove to be a low cost option for many students and also provides students with an additional method of communicating with their peers and with staff. The low cost is often particularly important in international distance learning, but that may be the very environment where the potential uses of telecommunications are most limited. Moreover, it is acknowledged that interactive chat cannot take users to information and is not designed for high-volume question-answering services and more lengthy information enquiries.

The provision, operation and management of instant messaging have significant implications for staffing. Those involved would require formalised training and extended practice. It is advisable to involve individuals with an interest in / knowledge of virtual formats. Instant messaging or online chat mechanisms can become repetitive and shift patterns need to be monitored carefully.

Studies suggest that response accuracy using chat reference services is higher than for in-library reference service, although answers often consist only of referral to one or more web sites. Down time and lag time seem to influence perceptions of user satisfaction with the overall encounter. There is therefore a need to record these, as well as average session length, queuing time, and number of turns per session, so that quantitative measures can be compared across services and questions.

Operation

Consideration must particularly be given to:

¹⁸ Available at <http://www.egain.com/> [Accessed 19th February 2004]

¹⁹ Available at <http://www.liveperson.com/> [Accessed 19th February 2004]

²⁰ Available at <http://www.webline.co.uk/> [Accessed 19th February 2004]

²¹ Available at <http://www.lssi.com/> [Accessed 19th February 2004]

- Teaching students how to develop effective keyword searches and advising them about which databases to use and how to search them effectively
- Templates for answers to enable responses to be customised for each individual
- Document delivery at minimal cost for materials not available electronically

In terms of the operation of e-reference services for distance learners one of the most important primary steps must be to consider information literacy and the need for library (and / or bibliographic) instruction to enable users to assess and critically evaluate information. Library instruction programmes will always be at their most effective if they are taken to the user and take into account the variability of individual learning styles. Instruction programmes for virtual distance learners have the advantages that many of the students are already familiar with the types of technologies being used. This is discussed in detail in Chapter 3.

The operation of remote reference services can sometimes cause isolation both in terms of users and in terms of the library staff working on e-reference services. Technological developments that tend to isolate patrons from library staff can also be employed to overcome the difficulties inherent in supporting remote library users. For example, web-based tutorials, video capture programmes, videoconferencing systems and desktop video systems and can play a role in providing library instruction to remote users. However, caution needs to be expressed about some of these techniques.

Technological issues affecting the operation of e-reference services raise a number of issues and concerns:

- Video-conferencing is a tool is both expensive and complicated. In many cases the provision of video-conferencing does not bring benefits to e-reference services that cannot be achieved in other ways using different technologies. It can also be time-consuming and is not sufficiently inclusive as a technique (disadvantaging those without the necessary hard- and software). In particular, video streaming and videoconferencing may not be practical for many remote users because of technological restriction (e.g. the absence of webcam facilities or because of the speed of dial-up modems or telecommunications systems in some countries).
- Many of the existing web-based courseware programmes are not well adapted for one-to-one reference use. The link between pedagogical software and virtual reference software needs to be fully explored before purchase decisions are made. Many technologies present a limited ability to share content online, often with little or no provision for knowledge bases, scripted chat messages and even the provision of simple (but very necessary) features such as book-marking.
- Although e-mail reference services may prove phenomenally popular and widely-used, they do not provide instantaneous responses (which are often what users expect). There are potential problems with the conduct of any kind of meaningful or effective e-reference interview; although this can largely be overcome if thorough preparatory work is undertaken prior to launching the service and reference interview templates are created. With e-mail reference services, however, the burden of answering the question often falls squarely on the shoulders of the librarian.

It is important to show professional courtesy and respect to all users, and not interject personal value judgments about subject matter or the nature of the question into the transaction. Communication with users should:

- Use a neutral questioning interview technique, and provide users with accurate answers, appropriate in length, level, and completeness;
- Select and cite only from authoritative resources;
- Provide accurate responses: check facts, validate URLs, and check spelling;
- Avoid using jargon or acronyms;
- Provide a well-structured written response which has a heading to indicate the originating institution, and a closure that indicates who has provided the answer.

A number of these issues can be overcome by the adoption of web-based contact centre software which is designed expressly for answering questions and providing live, interactive customer service on very high-traffic e-commerce sites. In this respect, libraries can learn from organisations currently using such facilities. Contact centre software often features the facility to develop built-in knowledge bases, the ability to include extensive customer profiling, and system reporting and analysis tools. It may also include software such as VoIP (Voice over Internet Protocol) that enables the librarian and user to hold a conversation over the same internet connection. The *Virtual Reference Toolkit* (developed by LSSi) is specifically designed software for libraries to make e-reference services quick, easy and efficient, allowing librarians to provide remote reference assistance to remote learners and live, one-on-one instruction.

The Library of Congress's Public Service Collections Directorate and OCLC, the Online Computer Library Center in Dublin, Ohio, have launched *QuestionPoint*.²² This is a collaborative network of reference librarians in the United States and elsewhere. The scheme involves public, private, national and academic libraries. *QuestionPoint* offers a number of useful indicators on the provision, operation and management of e-reference services. It sets out to:

- Respond to, track and manage reference questions from patrons via the web
- Refer unanswered questions to other libraries in the library's cooperative as needed based on availability and expertise
- Refer still-unanswered questions to expert resources through a global web-based network in which an automated "request manager" routes questions from one library to another, based on metadata about the question and predefined profiles of the collection, subject and staff strengths of members of the network, etc.
- Provide libraries with tools to add simple links from any page in their library portal to support a locally branded and customizable question-asking service including: web-based submission forms, e-mail-based interaction, and live chat for their patrons.
- Integrate *QuestionPoint's* global reference network with alternative service providers the library might be using to address their local needs.
- Search a global knowledge base of previously asked and answered reference questions.

A number of other points that are essential to the operation of e-reference services may be summarised in following way:

²² Available at <http://www.questionpoint.org/> [Accessed 19th February 2004]

- Creating a personalised environment should be a priority
- Effective virtual reference services require a lot of publicity

It is important that quality criteria accommodate the wide range of possibilities of various services and their readiness to meet certain expectations. This is discussed in Chapter 4.

Trained information specialists are one of the most important aspects of reference service provision and operation, and their training is discussed in Chapter 5.

In many cases effective e-reference operations will be contingent upon the development of new models to deal with staffing issues. In precisely the same way as distance learning education has witnessed the creation and training of online tutors (who may be remote from the institution and work only in the virtual environment), so too e-reference services may result in the creation of online reference staff. The move to reference online has meant there is less of a need to have some staff physically within the building.

Some institutions may choose to take this even further by moving towards the concept of 'subscribing' to libraries as they currently do to electronic databases. The role of the physical library as a warehouse for books staffed by professional and para-professional staff may change, as a result of the wider introduction of e-reference services and further outsourcing.

Management of e-reference services

Various models for the efficient and effective on-going management of e-reference services currently exist. Six critical issues, particularly relevant to large institutions, include:

- Integrating e-reference service with existing reference provision. This requires to be done by identifying the current gaps within the service; identifying the changing patterns of use (something particularly significant with the expansion of distance learning education and the widespread introduction of Virtual Learning Environments). Policies may require to be adapted or replaced in order to achieve this integration.
- Allocation of dedicated resources whilst also retaining administrative authority and budgetary flexibility. Resources also include staffing and the potential for collaboration outside the institution or organisation in question.
- Securing organisational support - this must include securing staff support, through articulating clear goals. Evaluation is another essential tool in securing organisational support. It must demonstrate that the service provides an outstanding service to users and that it is meeting a critical need, thus justifying the continued allocation of resources.
- The development of a distributed service model integrating specialised subject expertise. The concept of the 'one-stop shop' as a central gateway to e-reference service is becoming increasingly prevalent and has been recognised as a worthwhile approach. It is also important to integrate not only subject expertise but also a structure for referral to other sources, services and levels of expertise where appropriate. In terms of the development of an integrated model, it is vital to set (and achieve) response objectives.

- Staff training and development in order to facilitate an understanding of the software/IT being used to support operations and the specific goals, policies and guidelines for the service is also essential as a mechanism to ensure the quality of service provision.
- Targeting and serving disparate segments of the user community is particularly important within the academic sector and increasingly this has been reinforced with advances in distance learning and the developments of Virtual Learning Environments. Full user needs analysis is particularly significant for large bodies of remote students whose needs should be clearly identified.

The management of e-reference services is not restricted simply to the staff within the library. Financial considerations mean that the parent organisation and its senior managers at an institutional have a role to play. However, day-to-day management of e-reference services should recognise that:

- It is necessary to ensure there is continuous assessment of the resource requirements for both traditional and digital library service and that this meets the needs of both on-campus and distance learning students and that appropriate resources are both available and utilized.
- It is important to prepare a written demographic profile of the distance learning students and the wider distance learning community which includes their information and skills needs.
- The development of a written statement of immediate and longer term aims and objectives for both distance learning and e-reference services is essential. Part of this should include the methods by which progress can be achieved and performance of service can be measured.
- It is advisable to ensure participation of the distance learning community in the formation of the objectives and the regular evaluation of their achievement.

Assessing the existing library support for distance learning, its availability, appropriateness, and effectiveness, using qualitative, quantitative, and outcomes measurement devices, as well as the written profile of needs all need to be considered. Examples of these measures include, but are not limited to:

- conducting general library knowledge surveys of beginning students, re-offered at a mid-point in the students' careers and again near graduation, to assess whether the library's program of instruction is producing more information-literate students;
- using evaluation checklists for librarian and tutorial instruction to gather feedback from students, other librarians, and teaching faculty;
- tracking student library use through student journal entries or information literacy diaries;
- asking focus groups of students, faculty, staff, and alumni to comment on their experiences using distance learning library services over a period of time;
- employing assessment and evaluation by librarians from other institutions and/or other appropriate consultants, including those in communities where the institution has concentrations of distance learners;
- conducting reviews of specific library and information service areas and/or operations which support distance learning library services;
- considering distance learning library services in the assessment strategies related to institutional accreditation;

- comparing the library as a provider of distance learning library services with its peers through self study efforts of the originating institution.

In addition to the aspects mentioned above, it is necessary to ensure the participation of administrators, library subject specialists, and teaching staff in the curriculum development process and in course planning for distance learning to ensure that appropriate library resources and services are available.

The promotion of the service to the distance learning community can be done in a number of ways. Firstly, identify named members of staff who can deal with the support issues (such as membership, password allocation and the like). Distance learning students resent being made to feel isolated and dealing with named individuals helps to overcome this. It is likewise essential to take regular surveys of distance learning library users to monitor and assess both the appropriateness of their use of services and resources and the degree to which needs are being met and skills acquired. User profiling is also required in order to ensure that collection development and acquisitions policies reflect the profile of needs.

It is also essential to investigate the potential for network solutions with partner institutions and to initiate dialogue leading to cooperative agreements and possible resource sharing with other libraries and institutions. This final point is likely to be one of the most significant developments in the future of the provision of e-reference services to distance learning communities.

3. The development of relevant information seeking skills by distance learners

The recent efforts, particularly in the industrialised countries, to ensure that all schools are connected to the Internet will bring a new generation of library users with greater expectations of remote access to library and information services, but it cannot be expected that they will necessarily be fully information literate. There will be a need for the library service to provide support for them, often in the form of tools that they can also access remotely.

Clarity of Vision and Mission

The starting point for consideration of the teaching and learning strategies which have to be adopted when implementing e-reference support for distance learners is the mission and vision of the institution. At no point must we lose sight of the fact that the service which is being developed has, as its ultimate goal, the facilitation of objectives which contribute to the overall mission of the institution.

In terms of support for distance learners it is likely that this will involve recognition of the basic premise that library services must meet the needs of users of the service irrespective of where the users are located. Whilst this is a laudable aim the achievement of this requires very careful articulation of goals and objectives which have to be sensitive to the fact that the needs and expectations of learners who are remote from the campus may differ from those of on-campus students. The goal should not be simply to replicate services which are currently offered to support on campus students but to develop appropriate strategies to support the educational development of all students.

Inevitably there will be a number of policies which arise because of a commonality of purpose within a particular institution. However, it is important that in an educational environment in which there is a marked shift in the both the student body and the method of delivery of the curriculum that the information service re-evaluates itself in the light of changes in the learning environment. The service must anticipate and address the opportunities offered by distance learning and establish leadership and responsibility roles for staff who are involved in supporting what is effectively a paradigm shift in terms of the definition of its user community. An important part of that leadership must be to promote and develop the role of the library in provision of expertise to assist in learning rather than simply the resources to facilitate the learning process.

Integration of library support in planning and designing the curriculum for distance learning students

Librarians are uniquely qualified to provide the blended skills which are required to address the challenges which are posed as users begin to grapple with the problems of making sense of the increasing mass of electronic information which is at their disposal (or in some cases tantalisingly just outwith their grasp). Specifically, with respect to users who are pursuing an accredited course or are seeking to find and use information to achieve set educational objectives, the librarian is often operating in the role of intermediary between the teachers or academics who have designed the course and set specific tasks to test learning and the student who is seeking to gather together a pool of useful information to accomplish the task. In e-learning, close liaison between the teacher and the librarian is critically important and can not

only reduce the opportunity for misinterpretation of the specific requirements of the user but may also assist in the process of anticipating these requirements.

It is, unfortunately, all too often the case that, in the planning of changes in the curriculum, the information service is consulted at a fairly late stage. It is vitally important when considering distance learning provision that the library should be pro-active in seeking to be involved from the outset and that there is a shared awareness of the support required for off campus students – both in terms of additional physical resources which may need to be provided for such students (e.g. digitised readings, external access to datasets and databases, and clear guidance on how to access the physical resources which may be provided) and also in terms of the advice and guidance which such students may require to help them to gain access to information resources and develop skills to enable the independent access to and evaluation of relevant information. In terms of provision of e-reference support it is the latter consideration which is more important.

Best practice in course development is for the librarian to work fully with the academic department which is offering a particular course and as a minimum contribution have an input to the course by providing some form of virtual induction and support for distance learners in order to introduce them to the library service and raise awareness of services which are available. Ideally the library should be in the position where it takes part in formal teaching and assessment which contributes to the student's credit for a particular award. The library staff who are responsible for providing such support should be familiar with the structure of each course which has to be provided and this should include a detailed knowledge of the course aims, learning outcomes and assessment methods. This means that there must be an awareness of the educational imperative to engender critical thinking and reflection which builds on the existing knowledge students and extends their development of key transferable skills. There must be an awareness of assessment methods for both individual and collaborative work which can accurately measure the development of these skills.

Generally the librarian is not operating at a level which involves full responsibility for teaching and summatively assessing information skills as an integral part of the students' programme of study. Where e-learners are seeking advice on assessment, the mechanism for referral to academics for support should be clearly established and there should be no confusion between the support role provided by academic tutor and the librarian.

A consequence of moves towards making quality enhancement and quality management much more explicit within education has been that the documentation to support course development and delivery is much more detailed and accessible. Access to this material facilitates the planning of support activities, and the course development team should be encouraged to provide it to the information service staff who will support the course. Whilst most institutions have procedures to inform the library of new and developing courses they are seldom rigorously adhered to. This problem is compounded because conversion of courses to distance learning mode may not entail the same route for approval and validation which apply to new course developments, and the librarian must be alert to the specific mechanisms within their own institution whereby initial developments in distance learning provision are initiated.

Much of the discussion above has been concerned with higher education. However, e-reference support can also be valuable in supporting learners at school level. There is still scope for librarians to become more involved in the detailed planning of the curriculum –

particularly with respect to supporting changes in the curriculum which are concerned with enhancing aspects of information searching and support for project work. Involvement may depend on decisions about school library provision taken at a national level. At local level, school librarians must be proactive in putting forward plans within their own institutions which demonstrate the contribution which the library service can make to delivery of the skills required for independent learning and resource discovery. Again the aim should be to demonstrate the integration of library support in teaching, and practical collaboration between teachers and library staff to perform a dual function – direct instruction of the students and instructional support for teaching staff on the potential offered by electronic resources. Understanding the curriculum and in particular the scheduling of project work on which students are likely to be engaged feeds into the planning process and facilitates anticipation of likely queries by the librarians who are involved in operating the e-reference service.

Brophy's²³ exhortation to the library community made in 1997 is still valid today;

'Librarians need to redouble their efforts to understand the educational momentum behind off-campus developments and to develop closer relationships with those who are designing and delivering such courses'

Establishing who the user community is and what services are being offered

The closer integration of information services in development and delivery of the curriculum is important in addressing another of the debates which often arises when examining the literature dealing with e-reference services. This issue surrounds problems associated with anonymity of users and the dilemma posed by queries which are very obviously ill-disguised (or sometimes quite open) requests for librarians to complete a student assignment. Whilst the issue of control over who may use the service may present an ethical dilemma to some librarians, it is clearly important that some form of mechanism is required to ensure that it is possible to identify the originator of a particular query or at least to be able to categorise queries within a broad user community identified by particular user characteristics.

This is important both from the point of view of assisting the librarian to contextualise the enquiry and also, more pragmatically, to ensure that given the inevitable need imposed by budgetary restrictions to concentrate on the primary audience for which the service is intended (almost invariably identified with respect to the main sources of funding for the service) authorised users of the service are given priority.

Thus, careful attention must be given to the design of the first stage of the interface with the e-reference service in order to ensure that the learner provides a succinct description which allows the librarian to quickly establish eligibility to use the service and the level at which the request for information has been framed. This is true of approaches to e-reference services which rely on e-mail or web based forms to initiate an enquiry or to chat based services and, in the case of the latter, a formal protocol should ideally be established and implemented as the first step when engaging in a dialogue with a user of the service.

²³ Brophy, P. (1997) Off campus library services: a model for the future. *The Journal of Library Services for Distance Education*. 1 (1) Available at URL: <http://www.westga.edu/~library/jlsde/> [Accessed 19th February 2004]

It should also be noted in this context that it is important (given the complex legislative framework associated with this) to ensure that users are informed of any data being gathered about them as individuals. Thus a strategically placed privacy statement must be provided to inform them of what information is retained and how it will be used. In terms of adopting appropriate strategies to respond to the request the minimum amount of information required to identify the learner's course of study, level attained and specific module or topic being studied should suffice to help establish the educational context of the enquiry.

The initial interface with the user must also clearly indicate the level of service which can be provided and alternative avenues for dealing with commonly recurring queries which are best addressed elsewhere (e.g. issues related to course administration or specific queries related to academic content which may have been provided by academic or teaching staff). Also, some potential questions may require lengthy research such as compilation of bibliographies or investigative research to establish or verify facts which require expert opinion to determine the relative value of competing theories. Within the initial dialogue with the user there must be a way of providing succinct but explicit guidelines on the nature of the questions which can reasonably be answered.

If there are restrictions, then it is vitally important that these are provided 'up front'. The librarian can then concentrate on the real issues which concern the process of eliciting a concise statement of the user's information need and providing an appropriate response.

Educational principles supporting a model for delivering e-reference services

'The instructional role of reference librarians will become even more important in the future, with an increased need for formal information literacy instruction, more time required for detailed one-on-one point-of-use instruction, and the challenges of taking high quality instruction to remote users'²⁴

An important starting point when considering the interaction between librarian and distance learners to note that the dialogue should be framed in the context of an overall aim to support the educational development of the learner. It is not peculiar to digital reference services but the increasing application of e-references services has highlighted the fact that an important role of the librarian is to educate the user to interact effectively with a range of information sources and services. The ability of the end user to engage easily in the procedure of searching for information through 'intuitive' interfaces to search electronic databases or the web has, paradoxically, strengthened rather than diminished the role of the librarian or information officer as an intermediary. Thus, in the context of operating an e-reference service for distance learners there is an inherent need to see the role of the librarian as educator and to approach the process as a learning situation. This being the case it is important that librarians and information officers are acquainted with educational theory in general and in particular the manner in which educational theory is implemented in practice within the curricula which are being supported.

In terms of the debate on whether the role of the information service is to provide answers to specific questions or to direct the user to finding the information which provides this answer the position when dealing with support for learners is quite clear. Current educational theory

²⁴ Tenopir, C. (1999) Electronic reference and reference librarians: a look through the 1990s. *Reference Services Review*. 27 (3), pp. 276-279.

clearly supports the use of cognitivist principles and strategies for developing a situation in which the learner is given full opportunity to consider the information and draw conclusions based on independent examination and deliberation on this. Indeed in modern educational theory constructivism goes beyond this and asserts that to a large extent learning has to be entirely self constructed.

At the institutional level, and indeed at the level of individual courses, the manner in which educational principles are applied can vary enormously. As has already been noted, the librarian must be conversant with the content and expected learning outcomes of the curriculum but they must also be familiar with the manner in which delivery of these learning outcomes is supported.

A knowledge of the learning outcomes which students are expected to achieve and the means of testing these through formal assessment will inform the librarian on how to deal with specific queries. Assistance in interpretation of queries is enhanced greatly if the librarian is familiar with the material and circumstances which have given rise to the query.

The interaction will also be informed by a general awareness of educational themes which are currently informing educational practice notably the importance of developing independent learning, development of transferable skills (in particular within the context of information literacy) and inculcating a culture of lifelong learning.

The key role of developing information competencies

Much of the literature which deals with the future reference environment stresses the vital role of teaching effective information literacy skills, some indeed going so far as to contend that it is success in this area which will mean effective professional survival.

Rader quotes Quinn who comments,

*'Making information available is not enough. Making information useful is the key. Personalized attention, training, and after service responsiveness are now competitive requirements. Using communication and information technologies to make people more information literate is a viable approach.'*²⁵

It is during the reference interview that the librarian is best placed to be able to determine the information skills 'gap' and the requirements for training which need to be provided in order to ensure that the user can make effective use of information provided or extrapolate from that information to find other relevant material.

Educationalists have long recognised and valued the importance of 'situated learning' i.e. providing learning within the actual environment and context in which the learner is seeking to develop or apply skills to solve a real life problem. One of the values of electronic reference services is that increasingly the setting for problem solving in 'real life' will be very much similar to that encountered when using remote reference services i.e. increasingly in the

²⁵ Quinn, K.T. (1991) Information Literacy in the workplace: education/training considerations. *in Information Literacy: learning how to learn*. Edited by Jana Varlejs. Jefferson. N.C., U.S.A.: McFarland, 1991. p.19 quoted in: Rader. H. (2000) Information Literacy in the reference environment: preparing for the future. *The Reference Librarian*, 71, pp. 25-33.

workplace environment users are having to deal with using online support and web based reference services to ask questions at the point of need in order to solve practical problems. This is therefore an ideal environment in which to nurture and support a range of information competencies – not only information literacy but also communication and information technology literacies.

There is obviously a conflict which arises out of what has been said above. The user may be concerned, in some cases, simply to gain a rapid response to a specific query rather than engage in discussion and explanation as to how to develop autonomous skills in finding and using information. This may well be compounded by the fact that the user's 'point-of-need' may well coincide with an urgent impending deadline for completion of assessments. In addition, research has shown that in general there is an expectation among users that they will receive an instant response or an answer to their enquiries in a very short turn-around period. The librarian or information officer must exercise careful judgement on how to handle particular cases, but generally the opportunity should be used to do more than simply provide information. As a minimum, however, even the most basic response to an information enquiry needs to be supplemented by information to ensure that the user knows the various caveats which apply concerning the reliability of web based resources (which do not have the same guaranteed authority established for many print based works).

There is also a potential workload issue concerned with provision of individualized instruction, and it should be emphasized that it is not suggested that e-reference support should be seen as a replacement for traditional user instruction programmes. What is important, however, is that in the digital environment reference services and information skills instruction need to become integrated to offer library users and information seekers the most convenient and supportive learning environment.

The importance of this aspect of the student learning experience is increasingly being seen in benchmark standards for assessing the quality of educational provision. These are discussed in Chapter 4.

The attitudes and aptitudes of a good educator

As well as an understanding of the principles and theories which underpin education it is also important that librarians who are involved in providing educational support through e-reference services should exhibit the qualities which one would expect in a good teacher – notably a desire to share information, to be confident in using a variety of training methods to instil confidence in learners, a capacity to communicate clearly and react appropriately to questions posed by the learner. In addition, the librarian as teacher must be open to adopting new methods and keeping abreast of an increasing range of materials which form the basis of their own domain of subject expertise.

In this respect published behavioural guidelines for reference services (e.g. the RUSA guidelines²⁶) although designed for face to face interaction are just as important in an online environment. It is essential to design an interface, which as far as possible, allows the user to feel that their efforts are being directly put in to actions which help the query to be answered rather than becoming bogged down in the bureaucracy of the process.

²⁶ ALA's Reference and User Services Association. Available at: <http://www.ala.org/ala/rusa/rusaprotocols/referenceguide/Default2277.htm> [Accessed 19th February 2004]

It is also important to note that all of the issues surrounding cultural sensitivity, and equality of treatment of students with disabilities and special needs are just as applicable to behaviour which is demonstrated in an e-learning environment.

Most important of all in a teaching situation is the need to understand the needs and expectations of learners. For librarians as well as academics involved with this group of students this means demonstrating an appreciation of the constraints and frustrations which are inherent in distance learning. Distance education always runs the risk of engendering a feeling of isolation and frustration in the learner and thus interactions with the learner need to be carefully managed to ensure that they appreciate the fact that the problems and issues they are facing are not unique.

The communication medium and its effect

Online distance learning is a relatively new phenomenon in education and has not yet received the attention which it requires in terms of basic research on the ideal models and procedures which should be adopted to ensure that students are supported in this particular learning environment. Nor do we yet know in any great detail the perceptions and affective issues which concern distance learning students. There is a body of work on how they interact with the learning material and with academic staff but very little on how they interact with support staff and services. Experience in delivery of distance learning, however, demonstrates that these will have a marked impact on the quality of the learning experience and on student perception of the overall value of the courses on which they enrol. However, we can use the limited experience which has been reported in the literature and augment this with some general principles derived from research into CSCW (Computer Supported Collaborative Working) environments and in the increasing number of publications which deal with development and delivery of distance learning from the point of view of academic staff to derive some general guidelines.

The most important point to understand when working in e-reference is that the communication medium itself changes the manner in which an educational dialogue with the user can be facilitated. It has already been noted that a feature of e-mail communication is that there is a tendency towards expecting 'instant gratification'. The communication itself is also more terse and often less polite and more demanding.

The lack of 'body language' and eye contact is often seen as a problem in respect of this but it is important not to over-emphasize the problem. The loss of face-to-face communication can be seen in one respect as a serious problem when considering the traditional reference enquiry process. Librarians need to appreciate the higher user expectations which are challenging the 'basic level of service' and be careful to ensure that the performance targets for the service are communicated to the end user and to academic staff supervising students.

It is important to note that this can be moderated to a large extent by taking advantage of some of the other aspects and potentials for communication within an online environment. In particular there should always be some facility for the user or the librarian to switch to a different approach if any particular communications medium is proving problematic. A number of research studies point up the frequent need for users to follow up e-mail communications by telephone (where this is feasible).

The impact of different media in an education environment has always been the subject of considerable debate. There is no real consensus on the issue of appropriate use of particular media types to achieve specific objectives. What is not disputed is that using a variety of different media and communication channels to support transfer of knowledge or learning is beneficial as the user can self select the most appropriate mode of instruction.

The ideal of accurate and authoritative interface from a single computer interface is still not a reality and the need for intermediaries to direct and control a search across a number of different systems is still the norm for complex queries. Thus rather than seeing the delivery of e-reference services as being e-mail, web-based or chat-based it is more profitable to develop a service which incorporates the appropriate use of all approaches.

Integration of e-reference with other on-line and off-line services

In any educational setting, the size and diversity of the group to be taught are bound to have an impact on what is possible and the methods which need to be used to achieve optimum results. It is apparent from the literature on the subject that the use of electronic resources and specifically their integration into e-reference services and user training have increased staff time spent in supporting a range of information seeking needs. Some of these needs may be simple requests for technical support to use online resources but some are more complex and are related to the need for assistance in information search strategies or in filtering and evaluating information which has been identified. In order to deal efficiently with this increase in service demand the e-reference enquiries need to be categorised and appropriate types of support identified for different categories. Some types of enquiry may require simple referral to standard information provided on the web.

The ability to use the resources and capabilities of the web to provide quality teaching and training materials has been apparent for many years now and the integration of such facilities should be explored when considering how best to support the multiplicity of enquiries which can arise from a diverse user group.

That this must be done is very much supported by the view that while the demand for ready reference support is likely to decrease in reference work (because users are increasingly finding that they can independently find the answer to simple questions by using the web) there will be an increasing demand on the reference librarians to deal with more complex questions, support the verification of information, or use their expertise to deal efficiently with the appropriate referral of information.

Library web pages (including those designed to help the development of information skills) are very important in providing a focal point for providing supporting information. Research into archived queries from e-reference services in fact supports the view that the majority of queries can be answered easily from library web sites or links from the site. This is an area in which there is scope for collaboration and a brief trawl of the web demonstrates the breadth of coverage of sites which deal with specific subject guidance or offer general tutorials to support information seeking. The important point here is that, given the wealth of material available, it is sometimes tempting for the library simply to provide a list of these. It is much better practice to provide an explanation which briefly describes the linked resource and when it is appropriate to use it. If there are several resources which perform the same function then it is more important to be selective rather than comprehensive as the objective is to educate the user not to present an exhaustive bibliography of web resources. (It should be noted that

this comment applies equally to links to services such as search engines – there should be some form of brief explanation which covers the circumstances in which particular search engines should be selected). Librarians thus need to take a proactive role in assessing tutorial learning packages and categorising these according to the needs of different subject communities and according to the level of expertise required to use them. Ideally such packages should have clearly defined learning objectives and, if this is not the case, the library as intermediary should provide this as part of the e-reference service.

Links to other services and collaborative arrangements for providing support for an enquiry if it cannot be provided within the constraints of the service being offered are important but care must be taken when implementing external links to ensure that the user is aware that this is a service offered outwith the library itself. (This type of referral may either be because of eligibility restrictions pertaining to the user or because of lack of subject specific expertise or materials held within the library providing the service).

If the policy is to permit distance learners to have access to document delivery services, this needs to be very clearly defined. Any restrictions or costs must be clearly stated. The objective of the service should be to ensure that heightened expectation in respect of resource provision is backed up by the capacity to deliver.

FAQs should be compiled as part of an ongoing review of the types of questions being asked and should be an integral part of a document control process which tracks the activity of the e-reference site. Chat and e-mail are not an efficient way to deal with repetitive queries. It should be noted that this aspect of the provision is not only of benefit to users but can be important as a learning tool for staff who have to provide the service and thus there must also be a clear mechanism in place to ensure that staff are conversant with the organisation and content of all of the support materials provided to facilitate the enquiry process. This may be supported by the implementation of customer relations software (with a dedicated knowledge base to support compilation and updating of frequently asked question, control features to capture answers and re-use them and customer profiling to ensure appropriate targeting of automatic responses). More typically this is a role which must be manually controlled by the librarians involved in delivering the e-reference service.

Ongoing monitoring of queries should be undertaken with a view to changing the mechanism for dealing with these. Thus for example, if analysis finds that routine ‘reference enquiries’ commonly relate to passwords (a frequent cause of difficulty in e-learning environments) it is more profitable to deal with this issues through selective filtering and automatic response rather than continuing to deal with these using a ‘standard’ procedure which is intended to deal with a range of general enquiries. Establishing the enquiry context is thus of critical importance in developing an efficient e-reference service as it can potentially segregate routine enquiries which require a simple response from those which require interaction.

Use of more advanced technologies such as expert systems and fully automated decision support systems are experimental and the technologies have not yet been integrated into e-reference functions. It should be noted, however, that promising developments in this area are reported in the literature. Partially automated decision support systems have been used to assist with routine enquiries. A good example of a system which provides decision support for routine queries is *Question Master*.²⁷ Using this system the user is provided with a series

²⁷ Available at <http://skipper.gseis.ucla.edu/faculty/jrichardson/html/FirstQUEST/> [Accessed 19th February 2004]

of web pages which assist in the selection of relevant print and electronic resources for a particular query. In addition it should be noted that some systems, such as *OPAL* – Online Personal Academic Librarian²⁸ (developed in the UK by the Open University in collaboration with Birkbeck College in London and the University of Leicester Distance Learning Unit), are seeking to develop an ‘artificial librarian’, which will involve building a software system that will provide responses to complex technical questions which users may pose of an e-reference service.

From the perspective of training and education it would appear that there is scope for linking developments in e-reference services with intelligent tutoring systems but the implementation of web enabled ITS is currently experimental. More common (and particularly in connection with assistance with technology problems) is the application of tools developed to support commercial help desk support functions. Libraries which have recently begun to experiment using web based contact centre software report that this is a promising avenue for supporting e-reference services and the best of these technologies allow for enhanced interaction with the user which is essential to support distance education.

Whilst the blending of techniques derived from research in information retrieval, knowledge engineering and natural language processing may eventually prove beneficial in assisting automated responses to queries in the current educational setting in which we are considering their implementation the situation mirrors very closely the current situation with respect to delivering education generally. That is, the need for a human intermediary is still essential but we need to consider the way in which technology can be used to assist in delivery even if it cannot replace it. Whilst there is increasing use of high end technologies such as interactive video conferencing and use of interactive video in web based platforms such as WebCT²⁹ and Blackboard³⁰ to support learning at the desktop it has to be recognised that currently such technologies may be too expensive to be widely applied and not well suited to e-reference services.

The most important of the standard technologies which should be implemented if the e-reference services are to provide a credible training function is the ability to assist users by walking inquirers through particular databases or applications. For assistance with technical queries consideration should be made to implement software which incorporates co-browsing and escort capabilities. This ideally provides the ability to emulate the user’s interactions and guide the user through a particular application or database search. In addition Voice over Internet Protocols (VoIPs) could be implemented to allow the librarian to conduct a conversation over the same Internet connection. All of these solutions are at the heart of tackling the issue of integrating e-reference into a learner’s overall educational experience and are important because communication and interaction is at the heart of all learning. One of the most prominent models of the learning process indeed stresses this and, just as academics have to guard against using distance learning as a platform for simply pushing content out to learners, librarians have to guard against using e-reference as simply a vehicle for pushing out ‘answers’.

Finally, the design of the web site needs to be carefully considered with the needs of the distance learners in mind, rather than simply adding some options for distance learners on to the existing web site. Flexible web site design that pays attention to the needs of the students

²⁸ Available at <http://library.open.ac.uk/aboutus/opal/> [Accessed 19th February 2004]

²⁹ Available at <http://www.webct.com/> [Accessed 19th February 2004]

³⁰ Available at <http://www.blackboard.com/> [Accessed 19th February 2004]

is required. Prominent attention needs to be given to resources such as electronic full texts for which the library has negotiated appropriate licences and it is a relatively easy matter to ensure that these are linked to the appropriate student cohorts in order to allow quick identification by students who will almost certainly see these as one of the key sources of information to support their studies.

The challenge in making use of additional materials to materials to supplement direct support provided in teaching interactions is exactly comparable with the problems experienced by academics in making learners aware of those support materials and encouraging them to use them as appropriate.

Staff training in pedagogy

Staff obviously need to be trained in a broad spectrum of reference tools but, with specific regard to teaching and learning, it is important to bear in mind that they should also be skilled in the manner in which to convey effectively to the end user when such tools are appropriate and how to develop the skills to use them independently.

The common problem reported in this is very much related to time to allow for adequate training in user education and in the practical aspects of supporting remote users. As with many other areas of activity there tends to be a presumption that the automation of a particular task or procedure only impacts on the person who has to work within the new environment in terms of that person having to gain the requisite skills to function effectively with the technology. Obviously, as the complexity of the technology increases the need for staff training on software becomes a more important priority. However, there is in fact a much more complex dimension to training and supporting librarians who are moving from a traditional service towards providing some form of electronic reference support. It should be noted that whilst many libraries are experimenting with the use of chat technology there is a training gap which must be filled to provide those involved with skills on conducting an effective reference interview in this environment particularly if the objective is to use chat services as the primary means of dealing with enquiries from distance learners.

Inevitably in the reference interview there is a need to balance the use of open and close questioning of enquirer and this is akin to approaches taken in education to elicit information about the limits of a student's knowledge and to formulating the best approach to dealing with this. This is particularly important when trying to encourage the student to engage in independent action with information resources. Research has shown that a feature of reference interviews conducted during chat sessions is that there is a tendency to take longer to reach the real question because of the tendency to drop natural speech and the need to await a response. Because of the delays in the interchange of question and response there can be a tendency for the librarian to drop open questions in order to minimise this delay caused by response times. This obviously militates against the reference interview forming the basis for a training or educational experience for the end user.

There is also a skill to be learned in terms of chat etiquette. One of the key elements in working in any reference environment relates to the need to exhibit good writing skills and to provide an organised and logical response concisely. However, recent research has noted that in transcripts of e-reference sessions there is a tendency to subvert the normal sequence of question then response which characterises a logical structure for a conversation in an attempt to speed up the communication. Training in communications skills and also in

communications etiquette and the legal and ethical issues to which any information provider is exposed when operating an e-reference service should now be a compulsory element in training programmes for reference services.

Evaluation of e-reference services in an educational context

One of the least understood features of e-reference services is the manner in which they should be evaluated. Evaluation questions must be fitted around the objectives of the service being offered and thus if the aim is to find out about the impact on learning then the important questions must address the issue of whether there has been benefit in terms of enhancing the student learning experience. Thus typical questions for example seek to find out from the student:

- Did this provide a benefit for you in terms of allowing you to operate independently and perform a task or function which you could not otherwise have done?
- Did the service provide a change in your perception of the value of finding and evaluating information as a skill to enhance your learning?
- Did the service change your attitudes towards the research process?

In addition the evaluation must incorporate an assessment of individual differences and the affective and attitudinal factors which may have had an impact on the evaluation process.

The whole area of evaluation of education is extremely complex and whilst such questions may be difficult to frame, and the responses difficult to interpret, it is important that if we are attempting to evaluate e-reference services in an educational context then the thrust of the evaluation has to examine the impact on learning rather than simply measure the extent of activity generated by providing the service.

4. Quality Standards for e-reference services for distance learners

Evaluation must be integrated into the library's operations and built into the implementation of any new service. The identification of quality standards for e-reference for distance learners is central to the evaluation and development of the service. However, a significant problem stems from the lack of a common definition of what represents *success* and *quality* in e-reference services.

While interest in e-reference is strong, progress is hampered by a lack of economic models, strong evaluative research and a lack of user input in defining quality standards. There is as yet an unmet need for quality criteria for various library types (including academic) and for the various approaches to e-reference services (e-mail, instant messaging, chat, CRM and so on) as well as for assessing the role of reference services as a whole within particular organisations.

The Virtual Reference Desk Expert Panel in 1997 identified initial 'facets of quality'³¹ for e-reference services for all audiences including academic ones. These facets are intended to be viewed as the standards which organisations should strive to attain. They are divided into two main categories: user transaction, and service development or management. User transaction includes those components that occur during the question-answering process i.e. accessibility, prompt turnaround, clear response policy, interaction and instruction. Service development or management involves decisions in creating and maintaining the service that affect the overall quality and user satisfaction, e.g. use of authoritative, trained experts; provision of access to related information; and effective publicity. Each facet is presented at three different levels:

- Base (representing the minimum acceptable level)
- Current practice
- Goal (representing the desired objective)

Such an approach, using tiered objectives to represent service development outcomes, is useful in terms of identifying goals, sustaining quality enhancement and measuring performance indicators.

Methods of evaluation

Evaluation of e-reference services must look beyond simple numerical or statistical analysis of the number questions received and answers given. Such basic methods of evaluation often conspicuously fail to examine major issues such as the ease with which the response is provided, the staff time and cost incurred in providing a response and the levels of user satisfaction (or otherwise). Attention should also be paid to user demographics, frequency and type of use, costs and how to track them over time, and the effect of e-reference services on the organisation and its staff. Such data must be measured against benchmarks in order to be useful.

Quantitative measures are probably the most widely used approach to assessing electronic reference services. Traditional research methods (including surveys, questionnaires, observation, interviews and case studies) can be used effectively when evaluating reference

³¹ Updated version, June 2003, available at <http://www.vrd.org/facets-10-00.shtml> [Accessed 19th February 2004]

services in the electronic environment. Other methods are cost-benefit analysis, usability studies, web log statistics analysis. The most widely used methodologies to date are case studies, focus groups, individual interviews and surveys. Techniques and approaches must be considered when deciding upon methods of evaluation.

Surveys and Questionnaires

Although useful mechanisms for data collection, they do present technical problems such as the potential for bias, low response rates, questionable validity. Additionally, in the electronic environment, there are issues to be considered about 'comfort levels' with the Internet survey forms. However, given that many distance learning programmes are now supported by either full Virtual Learning Environments or plain websites, and the prevalence of course and module evaluation such online survey forms should not present a significant problem and can result in easily collected data returns.

Observation

Such techniques can examine information on e-reference transactions, covering content analysis of questions, issues of user privacy and the analysis of library web sites. Observational methods are useful for testing the effectiveness of different types of reference sources and for determining the difficulty that users encounter with online reference tools. However, in the context of distance learning, observational techniques are, by their very nature, restricted to examining the role of the information professional rather than the enquirer. Other techniques need to be combined in order to examine the latter.

Interviews

There are difficulties in reaching users but, as technologies develop, more use could be made of online focus groups (utilizing real-time chat technologies). However, these are still problematic in technological terms.

Case Studies

Case studies offer great potential to improve our understanding of the quality of e-reference services, the effectiveness of such services and the combination of methods best suited to evaluate them. However, much of the evidence from case studies reported to date remains anecdotal, and they often fail to address issues from an evaluative perspective.

Electronic data gathering methods

Libraries may use more advanced technological solutions for data gathering, such as the introduction of weblogs, the adoption of log server analysis software, and/or URL analysis. Web usage analysis, location of users, portions of site accessed, number of documents downloaded and errors encountered by users can all be analysed in this way to obtain valuable data indicating the performance of the service.

Criteria for evaluation

To evaluate a service, it is necessary to gauge the quality of what is being offered as well as the quantity.

The evaluation of e-reference services is widely acknowledged to be an under-developed area. While there is considerable activity in terms of conceptual analyses, relatively little appears in the form of practical work on the ground. There is disagreement on the most effective means by which evaluation can be undertaken, with some considering that techniques for evaluation

of e-reference services can be borrowed from traditional reference services whilst others consider that only the creation of new criteria will suffice.

One approach to quality assessment for e-reference has suggested that it can be divided into a number of measurement components, concentrating on four main areas:-

- Outcome measures (quality of answers): accuracy of responses, appropriateness to user audience, opportunities for interactivity, instructiveness, and impacts resulting from the e-reference process.
- Process measures (effectiveness and efficiency of process): service accessibility, timeliness of response, clarity of service procedures, service extensiveness (percentage of questions answered), staff training and review, service review and evaluation, privacy of user information, user awareness (publicity).
- Economic measures (costing and cost effectiveness of e-reference): the cost to conduct an e-reference session, infrastructure needed to support quality e-reference services, and impact of these costs on other library expenditures.
- User satisfaction (degree to which users engaged in e-reference services are satisfied with the process and the results): satisfaction indicators can include accuracy, timeliness, behaviour of the staff, technical considerations, physical facilities, and others.

Before meaningful evaluation of e-reference services can be carried out, it is necessary to look more holistically at service provision. The importance that understanding audiences, appropriately using technology, and working cooperatively can have for libraries in e-reference highlights a number of key areas:-

- Library values – There can be said to be eight principal values or concepts of librarianship, namely, stewardship, service, intellectual freedom, rationalism, literacy and learning, equity of access to recorded knowledge and information, privacy and democracy.
- User needs - goals for e-reference must link to target audience and the context and conditions of those using an e-reference service. There is, for example, a very strong need to develop a technology profile about target patrons.
- Library issues
 - E-reference workflow e.g. question assignment, fulfilment, question management, archiving
 - Co-operation (internal, informal, formal, affinity or subject led and anonymous based on expertise or availability); there is a need to plan and develop technology with an understanding of the levels of co-operation in mind.
 - Technical standards for interoperability and service quality standards and best practices.

Novotny (2001) brings together evaluation criteria from a range of sources into a convenient table.³² To his version can be added McClure's 2002 criteria³³:

Ferguson and Bunge	RUSA Electronic Information Guidelines	RUSA Behavioural Guidelines	McClure and Lapota	Serqvual	McClure (2002)
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32 Novotny, E. 2001. Evaluating electronic reference services: issues, approaches and criteria. *The Reference Librarian*, (74):103-120.

33 McClure, C. R.; Lankes, R. D.; Gross, M., and Choltco-Devlin, B. 2002. *Statistics, measures and quality standards for assessing digital reference library services: guidelines and procedures*. Syracuse, N.Y., U.S.A.: ERIC Clearinghouse on Information & Technology

Access	Response time	Approachability	Extensiveness	Reliability	Courtesy of staff
Equity	Accessibility/ convenience	Interest	Efficiency	Assurance	Accuracy of answer
Personalized service	Value	Listening / enquiring	Effectiveness	Empathy	User satisfaction with service
	Effectiveness in meeting needs	Involves patron in search	Service Quality	Responsiveness	Rate of repeat users
	Effectiveness in anticipating needs	Follow-ups	Impact	Tangibles	Awareness that service exists
			Usefulness		Cost per digital transaction
					Completion time
					Accessibility
					Role of technology

Taken collectively, this table presents perhaps the best current outline of evaluation criteria.

There is also a need to examine various examples of web site rankings and ratings. Diaz (1999) takes this approach and notes the need to identify:

- The ranker's identity, authority and purpose as a key to evaluating and trusting the sites that evaluate (although this may be argued imposes a very subjective element to the evaluation process)
- Popularity
- Clear selection criteria
- Clear rating criteria³⁴

In addition, it is important to confirm that behavioural characteristics which are established by application of guidelines for interaction are supported by the adoption of appropriately designed documents to support the administration of the service. The interaction between the librarian and end user should be centred and focussed around responding to the user need as quickly as possible and procedural issues need to be kept to a minimum. This is particularly important in the initial stages of interaction. Researchers who have examined transcripts from a number of e-reference interactions consistently report an inordinate amount of time being spent in simple identification and validation issues rather than quickly getting to the heart of the enquiry. This points to the need to assess whether there are:

- Obvious and clear instructions on the basics of using the service
- Clear definition of eligibility to use the service
- Clear indications of the limitations of the service
- User friendly templates to allow users to engage in recording their enquiry (if the service requires that this should be recorded).

Development of standards

Standards are a touchstone for planning and designing e-reference services. The design of standards should be part of the planning process, as individual libraries construct their own

³⁴ Diaz, K. R. 1999. The best of the best: ranking and rating digital reference resources. *Reference & User Services Quarterly*, 39(1):17-21.

policies and guidelines, defining what the service will do, deciding what user needs will be met, and figuring out how the e-reference service will operate in the context of other modes of reference assistance available at the library (reference desk, telephone, office consultations, etc. Amongst other things, the role of standards can be said to be as an aid to planning service provision and evaluation, ensuring quality reference assistance, underpinning staff training, and identifying the role and scope of consortia.

A particularly important aspect of quality measures, but sometimes one which is overlooked, is the need to ensure a level of information literacy amongst the student body. Information literacy is dealt with in Chapter Three. However, it is useful to mention here five requirements that are the key outcomes of support for developing information literacy, namely that the user should be able to:

- Determine the nature and extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically and incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand many of the economic, legal and social issues surrounding the use of information and access and use information ethically and legally

Quality Measures

As mentioned earlier, a variety of different interpretations of quality measures exists. An extensive body of literature has been created suggesting various quality indicators and factors which require measuring in order to assess the performance of e-reference services. Designing methods for the evaluation of quality is one of the principal areas for future research into e-reference services, and those planning or operating services should closely follow progress in this.

Quality standards and indicators must reflect the various stages implicit within e-reference services. Wider e-reference guidelines would help ensure quality reference assistance by establishing baselines for services and thereby aiding both staff training and evaluation. Broad guidelines would also be invaluable for libraries that form a consortia or informal alliances so that they can provide reference assistance to their combined pool of users. There are particular quality issues to be considered by libraries participating in a consortium. It may be a useful approach for a consortium to define the basic standards required for admission to membership; to acknowledge the existing variations in current standards achieved by the members; and to set goals that represent the optimal level towards which members are expected to develop.

Performance indicators may be categorised in terms of managerial tasks:

- operational management - day-to-day organisation and control
- forward planning - medium to long term trends; 'what-if' contingencies
- evaluation and review - analysis of activity in relation to user requirements, comparison with other libraries

Alternatively, they may be categorised in terms of

- input measures (staff, material, funds)

- output measures (document supply, specially digitised texts, reference enquiries, new reference sources)
- outcome or impact measures (customer satisfaction, effect on users)

Implementation: quality indicators

Library management should set separate objectives and standards covering the planning, implementation and evaluation of e-reference services. Whilst there are merits in integrating e-reference service into general reference and enquiry work, research suggests that there is an undeniable need to establish discrete goals for this aspect of service provision.

Accessing the service: quality indicators

E-reference services must be viewed as being socially inclusive for all members of the community they serve, regardless of equipment, capability, or language. Current trends indicate a move to more sophisticated technologies (e.g. the move away from e-mail and towards synchronous interaction between user and librarian such as video conferencing and chat services), and these must be accompanied by continued provision for those users not able to take advantage of these media.

Response Policy: quality indicators

The procedures for answering questions must be clearly stated in an accessible and obvious part of the website. Alternatively such instructions on the policy may be contained in acknowledgement messages sent to enquirers. Particular care must be taken to ensure that enquiry services are not being abused by students seeking answers to questions that are intrinsically part of coursework submissions. A useful mechanism to outline the questions that can be asked and the types of answers provided may be the inclusion of specimen examples. It is also advantageous to record user's question and librarian's response; this is useful for developing a knowledge base and evaluation purposes, and can be taken further if a weblog is created for dissemination to a wider audience.

Timescales: quality indicators

Response time needs to be clearly indicated to users. This is largely an institutional decision but it must be based on (a) a reasonable and attainable time-period for staff and (b) a useful and beneficial time period for users. Questions should, however, be answered as quickly as possible or at least acknowledged if the answer is, perhaps, going to require more lengthy investigation. Virtual Reference Desk suggests that 10% of incoming questions should be answered with two working days. This would seem to be a rather disappointingly low level of attainment compared with what is normally expected at the reference desk. However, it is important that an agreed goal needs to be set by each library in the light of the nature of the questions asked and users' expectations of response times. Performance against these goals should be monitored. Raising targets beyond consistently achieved levels should be preceded by a thorough review of the enquiries that have been received, the responses provided, and the level of user satisfaction. Appropriate adjustments to staff levels and resource acquisition should be made to support revised targets.

Staffing issues: quality indicators

The distribution of the e-reference workload is often integrated with general reference service management. However, e-reference services create their own issues and problems, and separate staffing considerations should be identified. In exactly the same way as many distance learning providers are recognising the potential of 'outsourcing' tutoring or mentoring to remote employees, so too might the library consider the potential of outsourcing reference and enquiry services.

Staff training: quality indicators

Training and experience in reference work ensure the possession of a range of transferable skills which are equally compatible with working in the virtual environment. However, e-reference support also creates a demand for additional skills and training focused exclusively on the unique aspects of e-reference services, e.g. chat services or weblogs. It should be recognised that there is a link between staff and user training needs in terms of the use of applicable technology. With users this is potentially much more difficult to accomplish, and consequently online instruction tutorials should be prepared.

Economics of e-reference services: quality indicators

The measurement of the efficiency and effectiveness of e-reference services is often compromised by the lack of appropriate economic models to generate evidence, a point widely noted in the literature. Cost-effectiveness and cost-benefit analyses could be used to assess the potential use of the service against the time, expertise and cost required to create and maintain it. Additionally, collaborative relationships with other libraries could spread costs. Further research is required in this field.

Library managers may also need to consider the issues associated with competing with commercial services.

5. Training staff in the support of electronically delivered reference services

Policy issues in staff development

Any library is measured by its service to its community. Maintaining consistent quality in e-reference service requires the provision of appropriate and knowledgeable staff in adequate numbers. Training the staff is one of the most important aspects of planning and operating a virtual reference service, and adequate provision for supporting training should be made in the library's budget. Skill in responding to e-reference enquiries, and the ability to work quickly and effectively within an electronic environment should become a stated expectation for all reference librarians.

Reference librarians' personal service will continue to be valued in the electronic environment. E-reference service lends itself to a tiered staffing structure, with trained paraprofessional staff receiving all enquiries and referring to subject specialist librarians those that are not well defined or cannot be quickly and easily answered. However, training for e-reference should not be focused solely on those staff selected to deal with enquiries, but should encompass the needs of all those technical, clerical, administrative, and professional staff whose efforts support and promote the service. E-reference service can only function effectively if the reference, acquisitions and collection development, and technical services of the library work closely together. Indeed, it may compel changing the library's organisational structure to give individual staff a broader remit that encompasses all these activities, with major consequences for the training that they need.

Training needs to emphasise both the technological aspects of the service, the various electronic resources, and the special communication and critical thinking skills that are required in online reference work. Library staff competencies needed to survive in the e-reference environment include the ability to respond quickly, because the immediacy of sending an e-mail message raises the sender's expectation of an equally rapid response. Staff training is needed to enhance their reference techniques, as well as to develop other competencies such as speed and accuracy in good written communication skills, keyboard skills, and technical troubleshooting. It is essential to ensure that staff are comfortable in offering the service.

Training for e-reference, like any other form of training, can take the form of group or individual sessions. Group sessions should allow ample opportunity for all participants to gain hands-on experience of any software or database that is the focus of instruction. Hands on training could include simulated questions, and can be used to develop skills not only in using the software and the databases, but also to provide an adequate response within any prescribed time periods. As with any training, it may be useful to summarise the training required into a regularly updated checklist, so that nothing is overlooked when new staff are brought into support the service. The checklist is likely to refer to the service's procedures manual. E-mail lends itself to supplementing formal training sessions, through for example the use of internal electronic discussion lists.

Providing time, space and other facilities for training is essential. It is important to provide staff with ample time to practice their skills before going online, and to provide them with support for their first few shifts. Once learned, the new skills and techniques need to be maintained through practice. However, it should not be assumed that training is only needed

before the service is introduced. Experience suggests that it needs to be an ongoing part of supporting the service as it develops. Increased learning time will be required by the librarians expected to support this new service. Mini-training sessions offered regularly can also become a forum for sharing experience, for example by reviewing transaction logs.

This chapter highlights the broad areas in which training is required. It does not seek to be prescriptive about the methods that might be used to develop the required knowledge, technical skills, and personal competences. Specific training needs should be identified through job analysis, through asking the intended trainees to define their needs, and through unobtrusive observation of staff delivering the e-reference service.

Vendors of reference software products may provide training in the use of the software, employing trainers who may be librarians familiar with reference work. However, this is not necessarily free of charge, and tends to focus on aspects of using their products. It is always useful to identify potential in-house trainers and develop their expertise in training methods. Experience in training for e-reference can be enhanced by contact with others working in the field, not only through professional publications and by attending specialist conferences but also by examining their web sites.

Some training materials are available from the Virtual Reference Desk.³⁵

Reference skills for dealing with online enquiries

The stages of an e-reference interview are very similar to the stages in face-to-face reference interviews:-

1. Introduction and problem statement
2. Negotiate question
3. Formulate a search strategy
4. Summarise understanding of problem and proposed approach
5. Search
6. Feedback.

There are, however, a number of features of e-reference work that require additional training. The technology itself creates a new dimension. In addition to the expected mixture of users with well developed or limited information skills and experience, e-reference staff will encounter users who are technologically skilled or who have limited technical competence, as well as the challenges of communicating in a new medium and working within the particular constraints that apply to the use of electronic information resources.

Interpersonal communication

E-mail and online enquiry templates are often an extraordinarily poor communication medium for deciphering information needs. Working in an online environment requires a unique vocabulary, etiquette, and set of behaviours, as well as the ability to deal with ambiguous or sensitive questions and special skills in exchanging information to define the subject of the enquiry. Librarians need to be aware of the differing communication requirements of the e-reference environment, and must be assisted to develop the interpersonal interaction and

³⁵ Available at <http://www.vrd.org/training.shtml> [Accessed 19th February 2004]

communication skills required to put patrons at ease with the new technologies and to elicit their enquiries effectively.

Unlike a conventional reference interview, conducted by face to face or telephonic conversation, there are no visual and other non-verbal cues. The online reference interview can take an extended period to negotiate, and requires the reference librarian to be sensitive to the means of undertaking this in an online environment. .

Training therefore needs to reinforce awareness that e-reference requires the librarian to spend more time explaining, and to create an environment in which users feel free to ask questions. They will need to understand how to create a climate in which the enquirer feels respected through a careful choice of language, listening to them, prompting responses, and continuously asking for feedback. Training also needs to be given in interview closure skills, and in follow up. Just as, in a face-to-face situation, a good librarian will attempt to develop a personalised service for individual users by passing along additional information, this can also be done by e-mail.

Training needs to take account of the particular needs of the users. Adult distance learners may exhibit a need for a strong level of emotional support, because it may have been a long time since they were in full-time education and lack self confidence, and because they may have a variety of other personal responsibilities.

Any contact with the library's users represents a potential opportunity for market analysis. Staff training should cover not only asking users about their needs, but also their role in collating the evidence that they gather to guide the development of new services.

The library's management may have established clear guidelines about the use of the service, but enquiries may be received that do not comply with any limitations that have been prescribed. Staff operating the e-reference service will need to be trained in how to differentiate between different types of users and questions, and how to deal with those that are outside the scope of the service.

User instruction

The introduction of e-reference services places an enhanced emphasis on the teaching role of librarians, particularly librarians working in all levels of the education system. Reference functions may appear to have remained constant, but the tools have changed. User instruction has thus become a more necessary part of role. The interactive nature of e-reference provides the means to offer in-depth library instruction, teaching users effective searching techniques.

Making information useful is more important than making it available. Users' direct access to the increasing range of electronic information will raise the need for them to become more information literate, i.e. possessing the skills not only to find and retrieve required information, but also making them aware that the web is not the only source of information, developing their ability to evaluate the relevance and quality of what they have found, helping them to avoid information overload, and teaching them to make effective use of information. This will place an increasing responsibility on librarians to assist their users to develop appropriate information literacy skills. At the same time, it is also important that they should have the skills to make users aware of the limitations of the sources and systems available.

Assisting users with enquiries should not be seen as an end in itself, but part of a process of providing the user with the transferable skills required to underpin continuous learning. Librarians should be capable of offering not only web-based library orientation and bibliographic instruction for users, but also aiding the user in the selection of good e-resources, recommending sources and search strategies, for example by explaining the reasons for referral to one or more web sites. This assistance should become a part of almost every transaction.

Staff supporting distance learners through e-reference will need to connect directly with what the users are being taught, and closely relate to the subject. An understanding of the range of each distance learning course may be a useful part of their preparation for e-reference, enabling them to develop customised units of information skills training which can be embedded into course content.

Staff training should encompass approaches to developing users' deeper information literacy skills, empowering libraries' users to become increasingly independent through creative instruction methods. This will require librarians to become skilled in developing, or working with developers of, self-directed, self-paced online tutorials and interactive web-based modules.

Training should also enable librarians to develop strategies for the challenges of dealing with 'problem patron' phenomena in a virtual environment. Patrons with mental or emotional problems are as likely to be found in this environment as elsewhere, but the medium does facilitate emotional detachment and a calmer response.

Newer and better tools will be developed, and the demand for instruction in their use will continue. To assure the effectiveness of their instructional activities, librarians will need to develop a deeper understanding of the learning processes, and the ability to prepare suitable assessment instruments to evaluate the success of their work.

Systems and software

Librarians must be able not only to choose the resources necessary to meet information needs, but also have the ability to help users with the intricacies of using the various systems, providing clear and concise instructions on, for example, how to connect to a proxy server to use a particular database service, or the different methods of capturing and downloading data. If custom software is in use, some training may be available from the vendor for the staff of the library that purchases the system. The in-built help system may on its own be sufficient to meet the needs of many users, and may also provide a basis for developing more user-friendly help tools. Librarians working with these systems must be permitted ample time to become familiar with them before they are assigned to work on the e-reference service. Any failure to use the system effectively may damage the users' confidence in the service. Training the library staff may also be useful in identifying potential difficulties that users may encounter in using these systems.

Training in new communication channels such as chat is essential if it is to be used effectively to recreate the interactive nature of face-to-face communication.

Librarians working in e-reference services must have a degree of technical knowledge in order to be able to troubleshoot, and to help users cope with the technology in use. Staff will

also need to be able to assist users to cope with 'technostress', for example by preparing carefully designed and written support materials on how to use the e-reference system or by making available a web page detailing the contacts for the help desks vendors of software and hardware. Staff training and policy guidelines also need to clarify what staff should support and what they should refer to the vendors.

The dynamic nature of the World Wide web emphasises the need for regular checks to ensure that links remain live, and for training staff to regularly verify whether links are live and to use software that automatically does this.

Use of search engines and awareness of their limitations

Training should develop their ability to analyse the capabilities of search engines and meta-search engines so that they can select the one most likely to lead them quickly to the required information, and so that they can advise users which search engine is most likely to meet their continuing information needs. Staff will also need to be in complete command of the search language, using appropriate vocabulary and keywords.

Identification and evaluation of web based resources

Familiarity with the range of web-based information sources, and with using them, is held to be the most important skills in e-reference service, closely followed by the ability to make effective referrals. Training in the identification and evaluation of web based resources plays an increasingly important part in enhancing the library's ability to support reference work. The rapid, continual increase in the availability of electronic information challenges e-reference librarians to find enough time to properly learn not only to identify emerging sources on the Internet, but also to maintain awareness of the continual changes in the structure of web sites (whose format tends not to be as stable as earlier print-based information sources), so that they can confidently and effectively instruct patrons about utilising information sources.

Many web-based resources do not have such a stable existence as print based information resources. Librarians working in e-reference need to be reminded of this, and develop skills required to identify resources 'at risk' and (subject to copyright) to archive material likely to have a lasting use because of the specialist requirements of their users.

Licensing and copyright issues

Whilst recent graduates from schools of librarianship and information sciences may be expected to have some familiarity with licensing and copyright issues, existing staff will need to be reminded of the significance of these in the networked environment. National copyright legislation may change and stimulate the need for training only infrequently, but vendors of electronic information are likely to change their licences with greater frequency, adapting to market conditions, and creating regular training needs amongst libraries' staff.

Cataloguing and indexing of Internet resources

Most libraries will select from the vast range of information resources on the web only those relevant to their users' needs. Internet-based resources, in common with any other material in the library, need to be organised for efficient retrieval when required. Training in cataloguing

and indexing these web based resources, creating information gateways, or integrating electronic resources into the catalogue will be need to organise the library's collection to best effect. This process can be assisted by identifying existing subject gateways to the web, or by purchasing software that integrates into the catalogue those electronic journal titles to which the library subscribes.

Development of web sites

As users' familiarity with the web increases, the demands made on libraries' reference services for factual information will decrease. To promote access to online information and reduce direct support required by library staff, librarians will need to become information generators rather than merely information conservators.

The technology used in e-reference also lends itself to supporting staff training. For example, it may be considered desirable to offer an electronic demonstration with hands-on components added to simulate use of the system. A web-based system could be developed that details how to use the e-reference software, protocols for communication and for answering questions, guidelines on eligible users and uses, and other policy and procedural matters. This could be equally useful as a tool for training or supporting users.

Documentation

To complement and support staff and user training, there will also be an enhanced need for documentation, both printed and web-based, beyond any that may be provided with e-reference software. These might include:

- statements of the e-reference service's purpose, policies, regulations, and procedures;
- summaries of key collections;
- user guides and instructional materials;
- guides to computing services;
- summaries of agreements for collaborative and referral services; and
- reports on library evaluation studies and the subsequent action.

In addition, particularly to support staff training, there is likely to be a need for step-by-step training manuals, including guides to the software in use and to regularly used databases.

Training in writing and presentation skills, and the design of screen-based information will be needed to underpin this activity. These skills would be equally applicable in answering questions received by the service, and in the preparation and design of the content of a web-based request form.

Management of e-reference services

The importance of the contribution of all the library staff to the success of the e-reference service should be stressed in general training sessions.

Training in evaluating the impact of the service (and the effectiveness of the training provided) will be needed by those managing and seeking to develop it.

Librarians will need to learn negotiation skills to deal with the constantly changing marketplace for electronic information sources. These skills will be required not only in

dealing with vendors of e-reference software and online databases, but also in securing resources for an expanding service and in establishing agreements for collaborative services.

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The cut off date for the literature search was 8th August 2003. The data is held as a ProCite[®] file.

Some of the annotations are from the abstracting service from which the document was identified; others were contributed by Claire Killen who read all the papers on behalf of the research team.

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This bibliography was compiled by Graeme Baxter by searching, according to a pre-defined format to ensure reliability and rigour, through the appropriate bibliographies, subject gateways and databases including:

- electronic databases such as DIALOG, Library and Information Science Abstracts (LISA), and Library Literature Online;
- web portals that provide a useful reference point for individual institutions, organisations and subject gateways for searching, such as VRD, DLib, the BUBL Link, and the UNESCO Education and Libraries Portals;
- systematic use of search engines to identify relevant web sites, including academic institutions offering distance learning; public libraries and academic institutions offering e-reference services; and international and national agencies, such as the World Bank, the Institute of Museum and Library Services (U.S.A.), and the National Library of Australia which, although not the major focus of the review, provided potentially interesting links within the sector.

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Abstract: This document is designed to provide a framework and guide to develop a comprehensive Information /Reference Services Policy Manual. Topics include:

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2) **Organisational structure for ref services**

3) **Services and service philosophy** - i. General statement of service philosophy, ii. Ref service at Service Points, iii. Ref service via telephone, e-mail, written correspondence, by appointment, iv. On-site and remote end user electronic ref service, v. mediated electronic ref service, vi. referral and cooperative ref, vii. user education, viii. document delivery, ix. services to patrons with special needs, x. services in special subjects.

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 - 1) Fishman:
 - i. outlines criteria used to make decisions re choice of chat software;
 - ii. issues to consider when setting up service (training staff/practice time, naming service, marketing service, piloting service);
 - iii. **staffing issues** - hours, double staffing, where to carry service out, priority given to chat in relation to other operations, staff stress.
 - 2) Coffman:
 - i. **Marketing** - recommends: let users know where you are, how to use you etc; cover adequate numbers of hours; take service to students (put links on course pages); make links thro campus web sites on pages that students frequent; make links inside databases students use; develop target services (e.g. how to cite sources) and link chat to that.
12. Reference 24/7: libraries test Collaborative Digital Reference Service. Library of Congress Information Bulletin. 2000; 59(10):229.
Keywords: e-reference/ CDRS/ USA

Abstract: A short news item announcing the testing of the Library of Congress Collaborative Digital Reference Service.

13. Serving the Internet public: the Internet Public Library. *The Electronic Library*. 1996; 14(2):122-126.
Keywords: e-reference/ Internet Public Library/ USA
Abstract: An anonymous article based on a conference presentation by Joseph Janes about the first year of the University of Michigan's Internet Public Library. Includes a section on lessons learned.
14. Virtual reference service coming to Indiana libraries. *OCLC Newsletter*. 2001; (252):13.
Keywords: e-reference/ USA
Abstract: Brief news article announcing an Indiana Cooperative Library Services Authority electronic reference initiative.
15. Where in the world is all the information? New opportunities for reference services. *National Library of Australia Gateways*. 2000; (43).
Keywords: e-reference/ national libraries/ Australia
Abstract: Discusses the public's move to electronic methods of reference inquiry using statistics from the National Library of Australia.
16. Abdoulaye, K. and Majid, S. Use of the Internet for reference services in Malaysian academic libraries. *Online Information Review*. 2000; 24(5):381-388.
Keywords: e-reference / academic libraries/ Malaysia
Abstract: A study of the effect of the Internet on reference services in Malaysian academic libraries. The objective of the study was to find out how the integration of the Internet has affected reference professionals and services. Based on a questionnaire survey of 40 library professionals in nine Malaysian academic libraries.
Conclusions:-
 - (1) The Internet has contributed positively in providing quality reference services.
 - (2) The Internet has improved librarians performance.
 - (3) The need to improve librarians surfing skills recognised.
 - (4) The dubious quality of information on the Internet also recognised.
 - (5) The Internet cannot replace traditional reference tools.
17. Abels, E. G. The e-mail reference interview. *Reference Quarterly*. 1996; 35(3):345-358.
Keywords: e-reference/ reference interview/ academic libraries/ USA/ delivery technology
Abstract: Based on a three-phased project at the College of Library and Information Services at the University of Maryland which explored the e-mail reference process. The results suggest that ref interviews can be conducted via e-mail for some complex questions but that very broad requests that lack specificity are better suited to a real-time verbal means of communication. Includes discussion of the request form design and content and outlines the **stages in a model remote e-mail ref interview**. These stages are:-
 - 1) Introduction and problem statement
 - 2) Question negotiation
 - 3) Summary
 - 4) FeedbackNotes that these stages are very similar to the stages in face-to-face ref interviews.
18. Abels, E. G. and Liebscher, P. Intermediary-client communication: provision of remote reference services. Cibbarelli, P. R., Ed. *IOLS '94: Proceedings of the 9th Annual Conference on Integrated Online Library Systems* Medford, NJ: Information Today, Inc.; 1994: 1-7.
Keywords: e-reference/ academic libraries/ reference interview/ USA/ staff training
Abstract: Discusses a cooperative research and teaching project at the University of Maryland and at Long Island University which sought to identify factors that determine success or failure in provision of remote electronic reference services and to develop effective methods to educate and train reference intermediaries to work in this environment.
Problems:-
 - Unreliable/unfriendly technology - having negative impact on electronic communications.
 - Lack of understanding/expertise of electronic mail amongst students.

- Cost implications e.g. time charged by reference librarians.

Findings:-

- ◆ Interactive ‘talk’ facility underused due in the main to scheduling problems. Also prohibited by complex series of commands required to establish a connection.
- ◆ Excessive cost of implementing remote reference services.
- ◆ Users demand full text documents for all retrieved citations.
- ◆ Concern that remote services would be available only to those who had sufficient resources and expertise to use them.
- ◆ Search skills of the intermediaries were lacking.
- ◆ Failure on behalf of the client to formulate clear and/or timely query statements.
- ◆ Lack of non-verbal communication clues impact on communication positive and negative.
- ◆ Need for additional types of communication e.g. phone call, to supplement electronic process.

Conclusions:-

- ◆ Clear need for a reliable system to support the remote process.
- ◆ Combining both face-to-face interviews with electronic follow-up and feedback may enhance reference services.
- ◆ Remote reference services using data communications networks are desirable services that should be offered.
- ◆ Substantial training in the basic concepts of network technology and electronic communications is desirable.
- ◆ Critical role of library’s education to ensure that information professionals are adequately prepared to offer remote reference services.

19. ---. A new challenge for intermediary-client communication: the electronic network. *The Reference Librarian*. 1994; (41/42):185-196.
Keywords: e-reference/ academic libraries/ reference interview/ USA
Abstract: Describes a collaborative project between two library schools to develop tools for electronic reference services and to educate new information professionals in the provision of remote reference services. First part of a two part article which addresses the background to the project.
Addresses the reference interview process including follow-up interactions and expounds the benefits of e-mail.
20. Abram, S. Planning for the next wave of convergence. *Computers in Libraries*. 2000; 20(4):46-53.
Keywords: collaboration/ delivery technology
Abstract: Discusses the potential uses and impact of collaboration software tools in libraries. Provides examples of what these applications can support and what such collaborative tools do. Also lists a number of assumptions relating to the future of libraries and librarianship and suggests that these should be incorporated into any strategic planning.
21. Ackerman, M. and McDonald, D. W. (University of California, Irvine). Answer Garden 2: merging organizational memory with collaborative help. *Proceedings of the ACM Conference on Computer-Supported Cooperative Work*; 1996.
Keywords: e-reference/ collaboration/ USA/ delivery technology
Abstract: Discusses research which examines a collaborative solution, developed at the University of California, to providing help to distributed users. Focuses on the Answer Garden 2 system, which provides a second-generation architecture for organizational and community memory applications. Answer Garden supports organizational memory in two ways: by making recorded knowledge retrievable and by making individuals with knowledge accessible. Answers can be obtained from chat systems, bulletin boards, software agents or other people.
22. Albano, J. Digital reference report. 1999.
Keywords: e-reference/ academic libraries/ USA
Abstract: A summary report of the results of a survey of selected US university libraries' e-mail reference services.
23. Albano, J.; Hall, A., and O'English, L. The electronic information desk: communication made virtual. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
Keywords: e-reference/ academic libraries/ USA/ electronic help desks

Abstract: Discusses LibQuest, an electronic information desk service at the University of Washington libraries.

24. Ammentorp, S. and Hummelshoj, M. Ask a Librarian: Web-based reference question services. A model for development. 11th Nordic Conference on Information and Documentation; Reykjavik. 2001.
Keywords: e-reference/ public libraries/ Scandinavia/ information need/ reference interview/ information literacy
Abstract: Presents the results of a survey of web-based reference question services in 15 Scandinavian public libraries based on a triangular model for the interactions of the patron's information need and information literacy with a web-based reference question form. The model is based on the theories of the nature of the information need, question negotiation and communications problems within the traditional patron-intermediary dialogue. It consists of 3 parts which interact (1) the patron's information literacy (2) the patron's information need (3) the reference question service.
Elements of the traditional reference interview and problems encountered are detailed e.g. difficulties identifying the user's information need(s).
Electronic reference services in the form of e-mail are briefly discussed.
Conclusion - considering the elements within the model when offering a Web-Based Reference Question Service will improve the service.
25. Anderson, B. Librarians and digital environments. Behavioral & Social Sciences Librarian. 1998; 17(1):95-97.
Keywords: e-reference/ role of librarian
Abstract: Addresses some of the key roles librarians play in the emerging digital environment. These are:-
1) Librarians help users find meaning when the quantity of information becomes uncontrollable.
2) Librarians have the expertise and skill necessary to understand how data is organised and what the most effective method of searching is.
3) Librarians help users frame their research questions and direct them to the best sources perhaps with accompanying search tips and alternate strategies.
4) Librarians create metadata, they build structures that address authority and quality, they push for and help create the interoperability necessary for disparate systems to communicate and interact with one another.
26. Anderson, C. R. Quo vadimus? Reference & User Services Quarterly. 1998; 37(3):253-257.
Keywords: e-reference
Abstract: Some thoughts on how reference service is evolving in an electronic environment.
27. Anderson, C. R. Reference librarianship: a guide for the 21st century. The Reference Librarian . 2001; (72):5-19.
Keywords: delivery technology
Abstract: Discusses changes in the practice of reference librarianship and provides brief summaries of specific elements of technological change - high performance networking; neural networks; virtual reality; high-definition imaging with miniaturised displays, artificial intelligence programmes and nanotechnology - that quite likely will have major impacts on service delivery.
28. Anderson, E. ; Boyer, J., and Ciccone, K. Remote reference services at the North Carolina State University Libraries. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: An overview of the NCSU service, which incorporates telephone, e-mail and online chat reference services.
Recommendations for telephone reference:-
(1) Remove telephone from reference desk
(2) Provide a toll-free number
(3) Create written procedures for dealing with phone enquiries
Recommendations for e-mail reference:-
(1) Provide adequate staff so that provide quick responses
(2) Maintain statistics for evaluation purposes

(3) Establish a system of quality control and staff training for answering e-mail reference questions

Recommendations for chat service:-

(1) Simple to use

(2) Collaborative Web-browsing feature

Web site - includes a policy document for responding to questions from non-NCSU patrons.

29. Anhang, A. and Coffman, S. The great reference debate. *American Libraries*. 2002; 33(3):50-54.
Keywords: e-reference/ information seeking skills
Abstract: Summaries of speeches at a debate about the future of reference librarians held during the Ontario Library Association Super Conference in 2001.
Users needs when on the Web - (1) help when search engines fail (2) help finding authoritative information (3) help finding unbiased information (4) help when the information they need is not freely accessible (5) help when they aren't really sure what they want (6) need to be able to get all these services for free.
30. Antonelli, M. and Tarlton, M. The University of North Texas Libraries' Online Reference Help Desk. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers; 2000; pp. 197-206.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ reference interview/ implementation/ electronic help desks/ staffing/ staff training/ marketing/ information seeking skills
Abstract: Discusses an online reference help desk service. Topics covered include: choice of chat software; staffing and training of volunteers; comparison with telephone reference; the question-answering process; reference transactions; marketing and ideas for future improvements.
31. Archer, S. B. et al. Going where the questions are: using media to maintain personalized contact in reference service in medium-sized academic libraries. *The Reference Librarian*. 1999; (65):39-50.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ e-resources/ role of librarian/ reference interview/ Internet Public Library
Abstract: Describes how media can be useful in assisting reference librarians in 'going where the questions are' while still maintaining the personal element in creating real-time reference transactions in a technological environment.
Introduces the idea of the '**roving librarian' model** - going to where help is needed.
Models for the management of electronic information requests also discussed e.g. Internet Public Library's QRC system.
Libraries need to state the level of reference service they provide.
Conclusion -to continue to serve patrons with different needs, librarians must walk across the library, access the computer screen from across the campus intranet system, answer email and explore other interactive tools for reaching patrons in a personalised manner.
32. Arnold, J. and Kaske, N. Chat with a librarian Nixon, C., Ed. *Proceedings of the 17th Annual Computers in Libraries Conference*; Washington, DC. Medford, NJ: Information Today, Inc.; 2002: 1-6.
Keywords: e-reference/ academic libraries/ USA
Abstract: Describes a pilot real-time interactive reference service, 'Chat with a Librarian', at the University of Maryland Libraries. 225 'chat' sessions were logged and evaluated.
33. Arnoldy, B. Paying for answers online. *The Christian Science Monitor*. 2002; (22 July).
Keywords: e-reference/ USA/ expert services
Abstract: A brief overview of Ask an Expert services.
34. Association of College and Research Libraries. *ACRL guidelines for distance learning library services: draft revision*. n.d.
Keywords: distance learning/ service guidelines/ USA
Abstract: Provides numerous reasons for adapting and expanding the Guidelines e.g. nontraditional study rapidly becoming a major element in higher education.
❖ Most recent editions of guidelines found at <http://www.ala.org/acrl>

- ❖Details precepts assumed by the guidelines
- ❖Guidelines in relation to: 1) Management 2) Finances 3) Personnel 4) Facilities 5) Resources 6) Services 7) Documentation 8) Library education
- ❖History behind the development of the guidelines detailed

35. --. Guidelines for distance learning library services. 2000.
Keywords: distance learning/ service guidelines/ USA
Abstract: Identical to draft version.
36. Association of Southeastern Research Libraries. ASERL virtual reference membership survey complete results (preliminary results). ASERL; 2002.
Keywords: e-reference/ academic libraries/ USA/ marketing/ staffing/ staff training/ service guidelines/ collaboration / delivery technology
Abstract: The results of a survey of the membership of the Association of Southeastern Research Libraries, which sought to determine their current virtual reference practices, needs and interests. Areas covered include software; communication channels; service hours; service promotion/publicity; service response times; staffing; training; operational management; policies; funding; statistical analysis of data; consortial activities.
37. --. Working outline for ASERL Cooperative Virtual Reference Service. ASERL; 2002.
Keywords: e-reference/ academic libraries/ USA/ implementation/ collaboration/ service guidelines/ staffing/ marketing/ staff training/ evaluation / e-resources/ delivery technology
Abstract: An outline of **issues and tasks pertinent to the development and implementation of a cooperatively staffed chat-based virtual reference service**. This outline is based on relevant best practices being used by academic library consortia. Topics covered: (1) Governance/project management/infrastructure (2) Service policies and guidelines (3) Staffing and scheduling (4) Marketing and publicity (5) Training (6) Evaluation (7) Web resources. A number of issues and tasks are listed under each topic.
38. Bains, S. Testing collaborative electronic reference services: the experience of UK university research libraries in the use of OCLC's QuestionPoint. Virtual Reference Desk Conference 2002; Chicago. 2002.
Keywords: e-reference/ academic libraries/ delivery technology/ UK/ QuestionPoint
Abstract: Discusses the beta-testing of the QuestionPoint e-reference system by seven members of the Consortium of University Research Libraries (CURL).
39. Bakker, T. Virtual reference service: connecting users with experts and supporting the development of skills. *Liber Quarterly: the Journal of European Research Libraries*. 2002; 12(2/3):124-137.
Keywords: e-reference / academic libraries/ electronic help desks/ Netherlands/ delivery technology/ implementation/ staffing/ service guidelines/ staff training/ marketing
Abstract: Discusses e-reference in general before discussing the situation in the Netherlands, where 7 of the 13 university libraries and the Royal Library have a basic 'virtual helpdesk'. Details: (1) the pros and cons of using e-mail and chat including Web-based contact centre software (VoIP); (2) Virtual Reference Toolkit - allows librarians to provide remote reference assistance to remote learners and as a live, one-on-one instruction; (3) Networked Reference Services - lists issues to address (QuestionPoint discussed); (4) Overall design and staffing considerations - lists issues to be addressed; (5) Policy and procedures - **a reference policy** should include detailed information regarding how questions will be dealt with, who will answer them, what questions cannot be answered and why the information is worth the wait.
Conclusions:-
(1) Creating a personalised environment should be a priority
(2) It is important that quality criteria accommodate the wide range of possibilities of various services and their readiness to meet certain expectations
(3) Training information specialists is one of the most important aspects of planning and operating a virtual reference service
(4) Effective virtual reference services require a lot of publicity
40. Balas, J. Building virtual libraries. *Computers in Libraries*. 1996; 16(2):48-50.
Keywords: e-reference/ Internet Public Library
Abstract: An overview of the Internet Public Library.

41. Balas, J. The Internet and reference services. *Computers in Libraries*. 1995; 15(6):39-41.
 Keywords: e-reference/ e-resources
 Abstract: Looks at some of the Internet resources librarians can use in reference services including resource guides on the Internet, subject guides to resources and mailing lists.
42. Balas, J. L. Is the reference librarian real or virtual? *Computers in Libraries*. 2003; 23(4):48-51.
 Keywords: e-reference/ USA
 Abstract: An overview of some digital reference developments and initiatives.
43. Balleste, R. and Russell, G. Implementing virtual reference: Hollywood technology in real life. *Computers in Libraries*. 2003; 23(4):14-16, 18.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology/ staff training
 Abstract: Discusses the implementation of a collaborative virtual reference service at the St. Thomas University Law Library and the Nova Southeastern Law Library in Florida.
Software - considerations when choosing vendor e.g. ease of navigation and technical support; vendor (Convey Systems) features e.g. chat, co-browsing, VoIP.
Staff training - in relation to software.
44. Barber, P. and Wallace, L. 10 tips for marketing virtual reference services (VRS). 2002.
 Keywords: e-reference/ marketing
 Abstract: Single page list of tips for marketing virtual reference services, adapted from a paper presented at the 2002 ALA Annual Conference.
45. Barcellos, S. Understanding intermediation in a digital environment: an exploratory case study. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
 Keywords: e-reference/ delivery technology/ hospital library
 Abstract: Details the design of research which investigates intermediation that occurs through an asynchronous text-based computer-mediated method, such as e-mail and Web forms. Its main objectives were (1) to investigate how and under what circumstances digital user-intermediary interactions occur and (2) to identify factors that might affect these interactions.
46. Barkley, D. C. Public service guidelines in an electronic environment. *Government Information Quarterly*. 1998; 15(1):73-85.
 Keywords: government libraries/ service guidelines/ USA
 Abstract: Proposes a new set of service guidelines for public information provision in US Federal Deposit Libraries based on suggested guidelines of a ref oriented literature. The mission statement offers new service guidelines, all of which are linked to the statement 'Our commitment to quality public service will be demonstrated each time we interact with our clients by' e.g. providing you prompt, courteous and accurate information provision regardless of whether it is in person, via the telephone or via e-mail.
47. Baruth, B. Missing pieces that fill in the academic library puzzle: cutting-edge technologies can assure our place in the big picture. *American Libraries*. 2002; 33(6):58-.
 Keywords: academic libraries/ USA/ delivery technology
 Abstract: Considers the impact of new technologies on the academic library. Briefly discusses virtual reference services.
48. Basch, R. It's all in what you know: Internet information and expert referral services. *EContent* . 2002; 25(11):34-38.
 Keywords: e-reference/ USA/ expert services/ role of librarian
 Abstract: Presents an overview of Web-based expert referral services [i.e. ask an expert services], which tackle anything from quick reference questions to complex and specialised consulting assignments.
 Author states that **automated expertise works best when** it operates on a controlled and predictable knowledge base in which the language is well-defined and ther relationships among concepts are known and can readily be mapped. **Where it falls short is where** bona fide human experts excel - in grasping complex ideas instinctively, transcending the lockstep logical reasoning processes that can readily be programmed and making the intuitive leaps that no software-based 'intelligent' system has yet been able to replicate.

49. Beales, D. I. Cyber libraries: building the perfect beast. *Medical Reference Services Quarterly*. 2002; 21(4):49-56.
 Keywords: e-reference/ medical libraries/ USA/ web site design/ library instruction / information need
 Abstract: Discusses the development of a 'cybrary' or Web library, including a 24/7 reference service, at the Lowell General Hospital Health Science Library, MA. Cybrary developed to address the dual concerns of inaccessibility and after-hours usage.
Web site design - suggested improvements to enhance accessibility.
User education and training - hands-on interactive training offered.
50. Bell, M. M. Managing reference e-mail in an archival setting. *College & Research Libraries News*. 2002; 63(2):99-101.
 Keywords: e-reference/ archives/ USA/ delivery technology
 Abstract: Discusses the e-mail reference service at the University of Louisville's University Archives and Records Centre.
51. Bennett, B. Developing an Internet-based reference service. Ensor, P., Ed. *The cybrarian's manual 2*. Chicago: American Library Association; 2000; pp. 159-169.
 Keywords: e-reference/ quality standards/ implementation/ service guidelines/ staffing/ staff training/ evaluation
 Abstract: Presents developmental issues, budgeting considerations, technology and staffing concerns, common or recurring problems, and evaluation methods for an Internet-based question and answer service. Lists questions which need to be considered when implementing such a service.
Quality indicators - user transactions and service development and management.
Implementation - first step: decide what your mission and goals are i.e. audience, service scope, response policy, fee-based or free service.
Guiding policies - confidentiality, response management, non-affiliated usage.
52. ---. Training manual for VRD Network Information Specialists. n.d.
 Keywords: e-reference / Virtual Reference Desk/ service guidelines/ staff training / e-resources/ service manual
 Abstract: Virtual Reference Desk guidelines for responding to patron inquiries.
53. Bennett, B. A. Gendered questions: asking for directions on the information highway. *Knowledge Quest*. 1998; 26(2):24-25.
54. ---. Handling the quirky questions: a model for reference service. *Knowledge Quest*. 1998; 26(2):59-60.
55. ---. Virtual Reference Desk Incubator: a demo. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
 Keywords: e-reference/ delivery technology/ expert services/ Virtual Reference Desk
 Abstract: Discusses the Virtual Reference Desk Incubator software developed by the Information Institute of Syracuse and designed for start-up AskA services that accept, route and answer questions via the Web. This paper describes the 'front end' for the public view, the 'enhanced view' for experts answering questions and the 'back end' for the administrators of the service.
56. Bennett, B. A.; Kasowitz, A., and Lankes, R. D. Digital reference quality criteria. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers ; 2000; pp. 69-80.
 Keywords: e-reference/ quality standards
 Abstract: Identifies and describes a set of quality criteria for digital reference services. The criteria presented are designed for the Virtual Reference Desk Network and represent a revision of Kasowitz et al's (1999) 'Facets of Quality.' Each of the criteria are defined and examples of how each can be met are detailed.
 (1) **User transaction** - accessible; prompt turnaround; clear response policy; interactive; instructive.
 (2) **Service development and management** - authoritative; trained experts; private; reviewed; provides access to related information and publicise.
 One key issue reflected in each version of the quality criteria is that any AskA service must

communicate policies and other decisions to users as a way to reduce confusion throughout the process. Also stressed is the importance of evaluating the overall service and its components such as staff training programmes, staff performance and service-related resources.

57. Bennett, T. M. G. Appalachian State University Libraries' Ask A Librarian: a reference service for ASU students, faculty, staff, and alumni. *Internet Reference Service Quarterly*. 2002; 7(1/2):89-98.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the e-reference service at the Appalachian State University Libraries. They use Zope, the PostgreSQL database, e-mail and the Web to offer patrons the opportunity to receive guidance from reference librarians whilst at a remote location.
58. Berube, L. Digital reference overview [Web Page]. 2003. Available at:
<http://www.ukoln.ac.uk/public/nsptg/virtual/>.
Keywords: e-reference/implementation/delivery technology/staff training
Abstract: An issue paper from the UK Networked Services Policy Task group providing an overview of digital reference issues.
❖ **Planning for implementation** - components:
◆ staff training (advanced web skills, reference interview and procedure),
◆ user orientation,
◆ development of appropriate use and service level agreements,
◆ identification of target audience,
◆ user and use evaluation,
◆ management and co-ordination of the service e.g physical and virtual locations, quality control, data collection for evaluation
❖ **Service delivery models** - asynchronous (e-mail & web forms) and synchronous transactions (chat, video-conferencing and digital reference robots): features and demands on resources e.g. training, staffing, e-reference skills, budgets
❖ **Staff training** - effective and efficient info research skills; service delivery; e-resource expertise; mgt of user expectations and demands.
❖ **Privacy and Legal issues** - data protection; confidentiality; re-use of info; transaction and content compliance; intellectual property rights; liability/third party claims and warranty of info.
59. Billings, H. Remote reference assistance for electronic information resources over networked workstations. *Library Hi Tech*. 1994; 12(1):77-86.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Describes the implementation of a reference service to remote users of the University of Texas at Austin General Libraries. The testbed for the project was a CD-ROM network delivering US government information.
Project concept - the provision of remote reference librarian intervention to assist the user by demonstrating the effective usage of software and data.
Evaluation - concept of remote reference assistance proved viable but several improvements and modifications of the functional prototype would be useful. These are listed.
60. Bivens-Tatum, W. Expert services on the Web. *College & Research Libraries News*. 2001; 62(7):714-716.
Keywords: e-reference/ expert services
Abstract: Discusses some AskA services.
61. Blumenstyk, G. Libraries offer online reference services to one another. *The Chronicle of Higher Education*. 2001; (22 May).
Keywords: e-reference/ CDRS
Abstract: A brief news item discussing the Library of Congress Collaborative Digital Reference Service.
62. Bodmer, B. Network of online librarians can provide answers, 24/7. *The Princeton Packet*. 2002; (15 March).
Keywords: e-reference/ public libraries/ USA
Abstract: A news item reporting the introduction of Q and A New Jersey, the e-reference service of the New Jersey Library Network.

63. Bolger, P. Redefining the library website. *Library & Information Update*. 2003; 2(1):42-43.
 Keywords: e-reference/ public libraries/ UK/ staff training
 Abstract: Discusses the Gateshead Libraries' website, including its ASAP Live! real-time digital reference service.
- Staff training** - key training requirements lie in teaching agents how to buy time and how to close enquiries. Need to bring staff up to speed with SMS protocols to respond in tune to the Txxing style increasingly adopted by younger users.
Recommends developing a collaborative and distributed library weblog.
64. Borhardt, K. and Croud, J. Digital reference service: a new service, or the next logical step? *Educause in Australia 2001*; Gold Coast, Queensland. 2001.
 Keywords: e-reference/ academic libraries/ Australia/ implementation/ marketing/ staffing/ staff training
 Abstract: Discusses the steps in establishing a digital reference service, and describes the University of Queensland's Ask-a-Cybrarian service. Includes examples of various digital reference desk projects.
Issues:-
 (1) Parameters
 (2) Promotion
 (3) Staffing
 (4) Management
 (5) Administration - includes section on quality, statistical maintenance
65. Borisovets, N. Ask a Librarian annual report 1998/1999. 1999.
 Keywords: e-reference/ academic libraries/ USA/ service guidelines
 Abstract: Annual report of the Rutgers University Libraries electronic reference service.
 ❖ Creation of a 'virtual team' to manage the service
 ❖ Ask a Librarian guidelines and procedures at <http://newark.rutgers.edu/~natalieb/askguide.htm>
 ❖ Use of a standard submission form and FAQs
 ❖ Analysis of questions submitted
66. Borisovets, N. Ask a Librarian annual report 1999-2000. 2000.
 Keywords: e-reference/ academic libraries/ USA
 Abstract: The annual report of the Rutgers University Libraries electronic reference service.
67. --. Ask a Librarian annual report 2001-2002. 2002.
 Keywords: e-reference/ academic libraries/ USA
 Abstract: The annual report of the Rutgers University Libraries electronic reference service.
68. Borisovets, N. Ask a Librarian LIVE pilot project report. 2002.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology
 Abstract: A report of a pilot project in which Rutgers Libraries allowed users to ask questions in real time using Live Assistance, a web-based call centre product. Issues raised related to: (1) Equipment (2) Network problems (3) Software (4) Librarian/User interaction and a number of recommendations made.
69. Bosseau, D. L. Digital reference services: virtual or real? *Information Management Report*. 2001; (October 2001):1-4.
 Keywords: e-reference/ quality standards/ technical standards
 Abstract: An overview of digital reference developments. Brief section on quality standards - reference made to one standard referred to as 'knowbit' designed to help structure the records to help facilitate indexing and retrieval. Article stresses that the effectiveness of digital reference will rest heavily on the development of standards that all participants can utilise.
70. Boston Library Consortium. 24 x7 Reference Task Force final report. 2002.
 Keywords: e-reference/ academic libraries/ USA/ collaboration/ delivery technology/ service guidelines/ evaluation / quality standards
 Abstract: Final report of a task force charged with building a 24/7/365 information service for the

Boston Library Consortium, an association of academic and research libraries.

Recommendations: (1) Software features (2) Management structure and responsibilities - includes section on service policies, standards and guidelines (3) Evaluation - statistical analysis, transcripts study, patron surveys and librarian surveys.

71. Botts, C. and Bauerschmidt, R. Reference issues exploration: electronic mail reference service. 1999.
Keywords: e-reference/ academic libraries/ USA/ service guidelines/ staffing
Abstract: A study addressing e-mail reference services in academic libraries, drawing on the literature and a survey of academic libraries in the western US.
Conclusions from survey
❖ Expanding usage will demand increased resources for staffing
❖ Specific guidelines will need to be put in place to ensure effective service
72. Bowman, V. The virtual librarian and the electronic reference interview. *Internet Reference Services Quarterly*. 2002; 7(3):3-14.
Keywords: e-reference/ academic libraries/ reference interview/ USA/ web site design/ role of librarian
Abstract: Discusses the use of the library home page as a reference tool and its importance in the online reference interview process. Details techniques based on common sense and good manners which should be used to conduct an effective reference interview - (1) Greet the student - home page should use clear language and provide information students most frequently use to make the page inviting (2) Ask the right questions - librarian's role in anticipating the most frequently asked questions that will meet the needs of the majority of the users (3) Help locate the best information - making the language used to describe databases as clear as possible, providing links to tutorials and pathfinders
73. Boyer, J. Virtual reference at North Carolina State: the first one hundred days. *Information Technology and Libraries*. 2001; 20(3):122-128.
Keywords: e-reference/ academic libraries/ USA/ staffing/ staff training/ service guidelines/ information seeking skills
Abstract: Discusses the North Carolina State University Libraries online chat reference service using LSSI's Virtual Reference Desk.
1) **Operation and management** - staffing the service (physicality issues); need to move to 24/7 service; need for improved Web sites, catalogues, online services and tools.
2) **Librarians reactions to 'chat sessions'** - lack of non-verbal cues; slowness; juggling other reference demands (overload)
3) **Training issues** - multi-tasking and accuracy
4) **Policies** - confidentiality policy for user records
5) **Info seeking skills** - library tutorials required
74. Bradbury, D. and Payne, G. The OPAL Project: developing an online digital reference service for distance learners. *Library Hi Tech News*. 2001; 18(9):28-29.
Keywords: e-reference/ academic libraries/ distance learning/ UK/ OPAL/ delivery technology
Abstract: Introduces the Open University's OPAL (Online Personal Academic Librarian) project. Remit was to develop some form of 24/7 automated system that could answer a significant proportion of repeat and routine enquiries and possibly also link students to relevant info held on library Web pages. 3 interfaces are being considered - e-mail based, web-based and chat-based.
75. Bradbury, D.; Payne, G.; Perrott, M., and Lunsford, J. The OPAL Project: executive summary . The Open University; 2002.
Keywords: e-reference/ academic libraries/ distance learning/ UK/ staffing/ OPAL
Abstract: The executive summary of The Open University's OPAL project, which developed a fully automated 24-hour question-answer service by distance learning students.
Includes a **cost-benefit analysis**: Staffed helpdesk vs OPAL. OPAL provides immediate responses and is available 24/7 but not a replacement for the Learner Support Team. Also has potential to dramatically reduce out-of-hours staffing costs.
76. Bradbury, D. C. and Payne, G. F. Building a generic framework for virtual Web assistance: OPAL. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp.

137-147.

Keywords: e-reference/ distance learning/ academic libraries/ UK/ delivery technology/ evaluation / OPAL

Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.

Abstract: Discusses the OPAL (Online Personal Academic Librarian) virtual reference project at the UK Open University.

Aims:-

- ❖ To develop an automated question-answer system
- ❖ To develop a service capable of responding to user questions posed in natural language
- ❖ To build an application that helps to make the library site experience simpler and more rewarding
- ❖ To ensure the system reduces the repeat and routine inquiry workload of staff, freeing them up for more complex tasks
- ❖ To ensure the system can be seamlessly and beneficially integrate with existing and future OU Library electronic services
- ❖ To develop a generic system that is transferable to other libraries supporting distance students

Software - discussion of various types e.g. NERD (Newcastle Electronic Reference Desk), Answer Garden and START. None deemed suitable and so pursuing the development of own prototype.

Evaluation - aspects of the system to be evaluated: 1) Response accuracy 2) Comparison with staffed Helpdesk 3) Usability and acceptability.

Implementation stage planned once evaluation completed July 2002.

77. Breck, E.; Burger, J.; House, D.; Light, M., and Mani, I. Question answering from large document collections. AAAI Fall Symposium on Question Answering Systems; North Falmouth, MA. Menlo Park, CA: AAAI Press; 1999: 26-31.
Keywords: e-reference/ delivery technology
Abstract: Presents a question answering system (Qanda) with a hybrid design, combining techniques from knowledge representation, information retrieval, and natural language processing.
78. Breeding, M. Providing virtual reference service. *Information Today*. 2001; 18(4):42-43.
Keywords: e-reference/ USA/ staffing/ service guidelines/ collaboration/ delivery technology/ CDRS
Abstract: Discusses examples and features of virtual reference services.
1) Customer Relationship Management (CRM) - a new industry which involves software and services that enable organisations to deliver personal assistance to remote customers. Examples of systems are eGain, LivePerson and WebLine.
2) **Features which need to be included in a virtual reference service:** (1) Knowledge base e.g. database of FAQs (2) Online chat/instant messaging (3) E-mail (4) Co-browsing: the ability to interact and control the user's Web browser (5) Pre-constructed messages (6) Logging and statistical reporting to evaluate overall effectiveness
3) Impact of providing virtual reference on resources - potential for collaboration. Example of CDRS given.
4) **Staffing issues** - linked to hours service operates, few libraries have the resources to operate 24/7.
5) LSSI Virtual Reference Desk - based on eGain and customised to meet library requirements.
79. Bristow, A. Academic reference service over electronic mail. *College and Research Libraries News* . 1992; 53(10):631-632.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ service guidelines
Abstract: Discusses the e-mail reference service at Indiana University. Includes a section on useful tips.
1) The e-mail ref service must be part of a larger electronic framework
2) The service will be used most by people who have integrated computing into all aspects of their work and communication
3) Describe the service as clearly and succinctly as you can
4) Include a description of service parameters
5) Describe pick-up times

- 6) Pick up the messages regularly and monitor that responses have been sent
- 7) Cite the source your 'fact' comes from
- 8) This service will likely stimulate demand for other library services

80. Bristow, A. and Buechley, M. Academic reference service over e-mail: an update. *College and Research Libraries News*. 1995; 56(7):459-462.
 Keywords: e-reference/ academic libraries/ USA/ service guidelines
 Abstract: A further report on the e-mail reference service at Indiana University, Bloomington. See article written by Bristow entitled 'Academic reference service over electronic mail' (1992).
Recommendations:-
 1) Consider closely your own campus networked information environment. Success in offering ref assistance will be tied directly to how well-positioned and integrated your service is to the multiple points of entry a student may be offered to networked information systems.
 2) If you move to more open networked environments such as the World Wide Web as your primary information environment, define your primary clientele and make it clear to all who may see your offer of assistance, who is actually eligible to receive it.
81. Bristow, A. and Liu, J. Academic reference service in the web environment. Portions of this paper were presented at IOLUG Fall Program, October 1999, and at CIC Reference Services Workshop, May 2001.; 1999.
 Keywords: e-reference/ academic libraries/ USA
 Abstract: A further report on the e-mail reference service at Indiana University, Bloomington, offering some numbers and facts, a few technical and design matters, and some policy issues and questions.
82. Bromberg, P. Managing a statewide virtual reference service: how Q and A NJ works. *Computers in Libraries*. 2003; 23(4):26-31.
 Keywords: e-reference/ public libraries/ USA/ staff training/ library instruction/ evaluation
 Abstract: Describes the development and management of New Jersey's live virtual reference service, Q and A NJ, which involves 33 participating libraries.
 ❖ **Staff training** - online practices
 ❖ **Evaluation** - via use of the transcripts (identify quality and good practice measures) and pop up survey.
 ❖ **User support** - live tutor support
83. Broughton, K. Our experiment in online, real-time reference. *Computers in Libraries*. 2001; 21(4):26-28,30-31.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology/ Virtual Reference Desk
 Abstract: Describes experiences in providing real-time online reference services to users at the Bowling Green State University library. Evaluates the use of the HumanClick application and discusses the VRD product.
84. Broughton, K.; Hunker, S. D., and Singer, C. A. Why use Web contact center software for digital reference? *Internet Reference Services Quarterly*. 2001; 6(2):1-12.
 Keywords: e-reference/ academic libraries/ delivery technology/ USA/ information seeking skills/ role of librarian
 Abstract: Discusses briefly the impediments to offering a digital reference service using Web-based customer contact center software (at Bowling Green State University, Ohio), and then focuses in detail on the potential this medium has for broadening the reference librarian's reach, even as in-person contacts continue to fall.
User needs - (1) Help - using library resources, searching the Internet, constructing search statements and evaluating information (2) Anonymous communication (3) Text-based communication - removes barriers of disability.
Role of the librarian - concept of the 'roving librarian'
85. Bry, L. Setting up an Ask-an-Expert service. 1997.
 Keywords: e-reference/ service manual
 Abstract: Outlines the considerations in developing an Ask-an-Expert service based on the documentation used by the MadSci Network administrators. Includes the following sections: 1) Setting up an 'Ask-An Expert' service 2) Moderator scripts 3) Script functions 4) Creating a

searchable archive 5) Errata (software). In addition, MadSci Moderators' Manual and the Mad Scientist Network: Expert's Manual are included.

86. ---. Simple and sophisticated methods for processing large volumes of question and answer information through the World Wide Web. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium. New York: Neal-Schuman Publishers; 2000; pp. 111-123.
Keywords: e-reference/ expert services
Abstract: Discusses the MAD Scientist Network, a Web-based Ask-A-Scientist service.
87. Bry, L. and Kelly, K. MadSci moderators' manual. 1997.
Keywords: e-reference/ expert services/ service manual
Abstract: A manual for moderators of the Mad Scientist Network.
88. Buck, C. Electronic mail reference services [Web Page]. 1999. Available at:
http://www.slais.ubc.ca/courses/libr500/fall1999/www_presentations/C_buck/
Keywords: e-reference/literature review/service guidelines/reference interview
Abstract: A website, based on a student project, examining various aspects of e-mail reference service in libraries. The content is based entirely on the literature.
Table of contents:-
1) Characteristics of electronic mail - methods of providing e-mail reference; availability of traditional reference services via e-mail;
2) Advantages and disadvantages of e-mail RS;
3) The e-mail reference interview - guidelines for conducting;
4) Tips for implementing e-mail RS - guidelines on provision, organisation and management;
5) The Internet Public Library Reference Centre - an example of an e-mail RS;
6) E-mail RS for librarians only;
7) Future trends in e-mail RS - charging for the service; experimenting with real-time interactive video; increase in volume; future role of librarians; characteristics of e-mail.
89. Bury, S. CDRS panel presentation: the British Library experience. Third Annual Virtual Reference Desk Conference; Orlando, Florida. 2001.
Keywords: e-reference/ national libraries/ UK/ staffing/ staff training
Abstract: Presents the experiences and lessons learned by The British Library's participation in the Library of Congress's Collaborative Digital Reference Service (CDRS) Pilot Project. Covers issues of staff buy-in, internal monitoring and briefly mentions staff development and the improvement of web-searching skills.
90. Bushallow-Wilbur, L.; De Vinney, G., and Whitcomb, F. Electronic mail reference: a study. Reference Quarterly. 1996; 35(3):359-363,366-371.
Keywords: e-reference/ academic libraries/ information seeking skills/ USA
Abstract: A study of the electronic mail reference service in three library units at the State University of New York at Buffalo. Data gathered includes a snapshot of patron demographics, question clarification and use patterns.
91. Butler, B. Designing a virtual reference desk: intellectual property considerations. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers ; 2000; pp. 91-109.
Keywords: e-reference/ intellectual property/ USA
Abstract: Presents **intellectual property issues in the context of digital reference service**. Introduces AnswerBase, a collaborative reference publishing service that creates a database of questions and answers. Topics include taxonomies of digital reference answers and intellectual property rightsholders, issues involving answers and owners, the concept of 'fair digital use', the influence of the entertainment industry on intellectual property law, risk assessment and management and ways to protect content and services.
92. ---. KnowledgeBit: a database format for reference Version 2.0. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ technical standards
Abstract: Examines the need for a common, standard data format for the management of

reference transactions. The need is discussed from 2 perspectives, that of major research libraries, and that of a Web-based digital publisher, AnswerBase Corporation. This paper describes and defines the Knowledge Bit reference format. The KBIT format includes 4 levels of quality evaluation for sources of information provided as answers: the item itself, the work from which the answer was taken, the author of the work and the publisher of the work.

93. Calff, J. Does it always make sense? International collaboration and 'global' knowledge bases in electronic reference services - a European, 'other language' perspective. Virtual Reference Desk Conference 2002; Chicago . 2002.
 Keywords: e-reference/ national libraries/ Netherlands/ collaboration
 Abstract: Discusses international collaboration in electronic reference and the use of common or shared knowledge bases. The approach is from a European perspective, with special attention for an 'other language' (i.e. non English) point of view.
94. Calishain, T. New Google Answers service raises a few questions of its own. Information Today. 2002; 19(6):50-.
 Keywords: e-reference/ USA/ commercial services
 Abstract: Brief article reporting on the new Google Answers service, where external researchers respond to the questions.
95. Campbell, J. D. Clinging to traditional reference services: an open invitation to Libref.com. Reference & User Services Quarterly. 2000; 39(3):223-227.
 Keywords: e-reference
 Abstract: A critical assessment of the future of reference. Examines 3 external forces that are reshaping the nature of reference needs: (1) The migration of learning into the asynchronous environment (2) The arrival of the Web-based generation (3) The 'DOT-COMing' of education
96. Cargill, J. The electronic reference desk: reference service in an electronic world. Library Administration & Management. 1992; 6(2):82-85.
 Keywords: e-reference
 Abstract: Forecasts future developments for reference services in the electronic environment. Addresses: 1) Changes in the philosophy of ref services and the type of ref services offered 2) Accessing ref services 3) The physical configuration of ref service points 4) Management of ref services and service points.
 Conclusion - need to focus and personalise ref services to meet the needs of various constituencies more effectively and must redirect energies from collection building and bibliographic control to concentration on information management and access that will satisfy curriculum and research needs.
97. Carlson, S. New service allows the public to pose reference questions without visiting the library. Chronicle of Higher Education. 2002; (31 May).
 Keywords: e-reference/ QuestionPoint
 Abstract: Announces the launch of the Library of Congress/OCLC QuestionPoint service, a 'revved-up' version of the Collaborative Digital Reference Service.
98. Carter, D. S. and Janes, J. Unobtrusive data analysis of digital reference questions and service at the Internet Public Library: an exploratory study. Library Trends. 2000; 49(2):251-265.
 Keywords: e-reference/ information seeking skills/ USA
 Abstract: Presents the results of an exploratory study attempting to establish a methodology for the unobtrusive analysis of a digital reference enterprise.
Findings:-
 - Users had difficulty assigning subject categories to their questions
 - Users had difficulty determining whether they are factual or require sources for assistance
 - These decisions were often overridden by question administrators
 - Tiered reference service**Conclusions:-**
 - Design reference question intake form with automatic data analysis method in mind
99. Carterette, B. and Feldman, S. Implementing KnowItNow24X7.net in 90 days - or bust! Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services:

setting standards and making it real. London: Facet Publishing; 2003; pp. 95-102.

Keywords: e-reference/ public libraries/ USA

Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.

Abstract: Describes the implementation of a live Web reference service by the Cleveland Public Library and the CLEVNET consortium.

100. Casado, M. Delivering library services to remote students. *Computers in Libraries*. 2001; 21(4):32-34,36-38.

Keywords: distance learning/ academic libraries/ USA/ delivery technology

Abstract: Discusses library services to distance learning students at the University of Tennessee. Topics include the use of videoconferencing for interactive reference sessions.

Delivery methods:-

- 1) Using AOL Instant Messenger (chat technology) to receive questions
- 2) Posting info on the Off-Campus Library Services Web page - has a special feature, an electronic request form that students can use to request books or copies of articles.
- 3) Adoption of Centra Symposium software to conduct 'cyberclasses', allows for shared browsing.
- 4) Use of CourseInfo, a course management system that allows synchronous and asynchronous connections to course materials.
- 5) Use of videoconferencing for interactive ref sessions - main problems: bandwidth, connections too slow.

101. Chou, M. and Zhou, O. Examining the impact of DMCA and UCITA on online reference service. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 47-57.

Keywords: e-reference/ copyright/ USA

Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.

Abstract: Examines the impact of the Digital Millennium Copyright Act (DMCA) and the Uniform Computer Information Transactions Act (UCITA) on online reference services in the USA.

102. Chowdhury, G. C. Digital libraries and reference services: present and future. *Journal of Documentation*. 2002; 58(3):258-283.

Keywords: e-reference/ literature review/ role of librarian/ information seeking skills

Abstract: Looks at the **current state of research in personalised information services in digital libraries**. Proposes some new areas of research that may be undertaken to improve the provision of personalised info services. Central theme = the conception of an automated DL that disintermediates all the services that ref librarians now provide. Asks what shd the role of DLs be? Should they stop providing RS altogether or shd they concentrate only on certain types of ref questions?

Role of librarian?

Stresses need for personalise services/intermediaries and in absence of these, the provision of end-user instruction on the use of DLs.

Computers cannot replace the skills required in the case of complex info searches.

However significant improvements in the end-user search facilities provided by electronic database search services and Web search engines have resulted in the need for human intermediaries in info searching being diminished.

Web services

Characteristics/nature type of communication; cost; expert advice; subject specific services.

Search engines *Ask Jeeves* as a useful model for DL ref and info services i.e. techniques and technology used.

Personalised services - current research

DLs have very good info access and retrieval mechanisms in place but almost no provision for quality ref and info services.

Personalised service initiatives:

- the North Carolina University Library's [MyLibrary@NCState](#) portal application;
- MyLibrary, a Cornell University Library initiative;
- Headline, an eLib Programme Phase 3 project.

Major objective of these research projects is to allow users to personalise DL access so that they can view their preferred resources and hence info is automatically filtered.

Also the DWE project (Digital work environment) developed at Nanyang Technological University in Singapore to provide filtered access to the local DL collections, to remote DLs, to traditional libraries and to the university intranet.

Question answering systems

Being developed with aim of providing answers to natural language questions.

Evaluation of DLs and their services

Not many been undertaken.

Most prominent publications reporting evaluation expts appear in *Library Trends* (2000).

Saracevic (2000) DLs still at stage of research and evolution; **the best practice standards have yet to develop against which the performance levels are to be measured.**

Studies examining end-user searching behaviour detailed - contrasting findings: need for user training and assistance in online searching versus no assistance required.

Link to the need to provide personalised services.

These studies assist in design of DL services.

103. Ciccone, K. Guest editorial: virtual reference, today and tomorrow. *Information Technology and Libraries*. 2001; 20(3):120-.
Keywords: e-reference/ USA
Abstract: An editorial for an issue that provides reports from pioneers of virtual reference services, takes a look at problems yet to be solved and attempts to imagine what virtual reference might be in the future.
104. Cichanowicz, E. M. Sunday Night Live! An experiment in live reference chat. *Nylink Connection*. 2001; 3(1):8-9.
Keywords: e-reference/ public libraries/ USA/ delivery technology
Abstract: Discusses the launch of the Suffolk Cooperative Library System's chat-based reference services. Includes a section on **lessons learned**: (1) Need for librarians to have access to electronic subscription databases (2) Importance of reliable software (chose HumanClick)
105. ---. Sunday Night Live! An experiment in real time reference chat - on a shoestring budget. *The Charleston Advisor*. 2001; 2(4):49-51.
Keywords: e-reference/ public libraries/ delivery technology/ USA
Abstract: Discusses the implementation of a chat-based online reference service, by the Suffolk County public libraries in New York. Very similar to article by same author in *Nylink Connection*.
106. Clark, J. M. Analyzing e-mail reference service in a museum library: the experience of Colonial Williamsburg's John D. Rockefeller, Jr. Library. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 9-19.
Keywords: e-reference/ museums/ North America
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Describes the e-mail reference service at a museum library in Virginia, USA, and discusses the results of a survey of the reference services at 10 other North American museums.
107. Co-East. *Ask a Librarian: manual for participating libraries*. 2002.
Keywords: e-reference/ public libraries/ UK/ service manual
Abstract: Information for participating libraries or those considering participating in *Ask a Librarian*. the UK's electronic reference library.
108. Coffman, S. Distance education and virtual reference: where are we headed? *Computers in Libraries*. 2001; 21(4):20-25.
Keywords: e-reference/ distance learning/ USA/ delivery technology/ staffing/ reference interview
Abstract: Discusses changes in distance education and the resulting need for new types of library services. Topics include new Web-based contact centre software, virtual reference interviews, online reference services, etc.

Technology 1) videoconferencing: expensive and complicated 2) web-based courseware programmes e.g. Web-CT and Blackboard: not well adapted for one-to-one reference use; limited ability to share content online; no provision for knowledge bases, scripted chat messages, bookmarks 4) e-mail reference services: doesn't provide instantaneous response (user expectation); it's difficult to conduct any kind of effective reference interview and it places most of the burden of answering the question squarely on the librarian 5) interactive chat: can't take user to information and not designed for high-volume question-answering services 6) Web-based contact centre software: designed expressly for answering questions and providing live, interactive customer service on very high-traffic e-commerce sites. Features built-in knowledge bases; extensive customer profiling and system reporting and analysis tools.

New models for libraries/Staffing issues - the move to reference online has meant there is less reason to maintain expensive buildings. Introduces the concept of universities 'subscribing' to libraries as they currently do to electronic databases. The role of the physical library as a warehouse for books staffed by paraprofessionals/outsourcing. Restructuring of staff substantially reducing the cost of library operations

109. ---. Going live: starting and running a virtual reference service. Chicago: American Library Association; 2003. ISBN: 0-8389-0850-0.
Keywords: e-reference
Abstract: Presents all of the information that librarians will need to research, plan and implement a virtual reference service.
110. ---. Reference as others do it. *American Libraries*. 1999; 30(5):54-56.
Keywords: e-reference/ delivery technology/ USA
Abstract: Suggests that the call centre model could be used for library reference services. Discusses the features of call centres which are designed to streamline and optimise the question-handling process: (1) centralised staff and specialised teams (2) Interactive Voice Response (3) automated call distribution (4) question analysis (5) sophisticated software (6) training and monitoring.
Looks at what libraries could learn from call centres: (1) Better data on reference process (2) A centralised telephone reference centre (3) Networked reference opportunities
Conclusion - need for libraries to find better and less expensive ways to provide reference services.
111. ---. So you want to do virtual reference? *Public Libraries (E-Libraries Supplement, Sep-Oct)*. 2001; 14-20.
Abstract: Examines the practical details of setting up live online reference services in libraries.
Software - chat software, Web conferencing software and Web contact centre software. Issue of privacy. Features and limitations. Applications other than online reference services.
Staffing issues - physical location; impact of 24/7 service.
Collaboration - cost benefits, expertise sharing versus coordination difficulties.
Marketing - using more than just the Web site e.g. links on other Web sites
112. ---. We'll take it from here: further developments we'd like to see in virtual reference software. *Information Technology and Libraries*. 2001; 20(3):149-153.
Keywords: e-reference/ CDRS/ e-resources/ delivery technology
Abstract: Discussion of virtual reference software currently available and the further developments needed. Coffman is Product Development Manager, Virtual Reference Services at LSSI.
Software - application features; co-browsing and collaborative capabilities; communication technologies (limitations of chat services); Voice over Internet Protocol (VoIP); ability to maintain complete transcripts of reference sessions (evaluation purpose)
Networked Reference Services - ability to tap into expertise; sharing of resources; CDRS.
E-resources - Knowledge bases: creation of FAQs based on transcripts; need to get hard copy into electronic format; ability to annotate sources; licensing issues multiple/simultaneous user issues
113. ---. What's wrong with collaborative digital reference? *American Libraries*. 2002; 33(11):56-58.
Keywords: e-reference/ USA/ collaboration/ quality standards
Abstract: Looks at the downsides of collaborative digital reference networks (1) Cooperative

cataloguing systems cost cataloguers' jobs (2) Cumbersome nature (3) Establishing and enforcing standards (4) Compromise. Brief section on quality standards. Examines the challenges facing collaborative reference networks.

114. Coffman, S. and McGlamery, S. The librarian and Mr. Jeeves. *American Libraries*. 2000; 31(5):66-69.
Keywords: e-reference/ USA/ commercial services/ delivery technology
Abstract: Discusses the availability and quality of commercial Web-based reference services and the decline in library reference service statistics. Describes the 24-7 Reference Project in Southern California, which aims to help libraries develop real-time reference services over the Web by adapting Web contact centre software.
115. Coffman, S. and Saxton, M. L. Staffing the reference desk in the largely-digital library. *The Reference Librarian*. 1999; (66):141-163.
Keywords: e-reference/ public libraries/ USA/ staffing
Abstract: Examines how a centralized, networked reference service might improve efficiency and reduce costs by addressing 2 long-standing problems with the reference process; librarians spend only a small portion of their time at the reference desk actually answering question and that many of the questions they do answer could be handled by paraprofessionals. Compares traditional reference services at the County of Los Angeles Public Library with a commercial inbound call centre designed to handle the same volume of questions.
Conclusions:-
1) A networked reference service based on the call centre model might allow the same level of service to be provided but with far fewer staff and at lower salary cost.
2) First though need to know a lot more about the kinds of questions people are asking and secondly must have much better measurements of reference questions and the entire reference process. In addition need to know much more about the cost of the equipment, network and other infrastructure that will be required to support the call centre model.
3) Salary savings may be illusory due to the increased demand which would potentially result from the introduction of a networked service
116. Collins, K. L. K. and Takacs, S. N. Information technology and the teaching role of the college librarian. Huang, S. T., Ed. *Modern library technology and reference services*. New York: The Haworth Press, Inc.; 1993; pp. 41-51.
Keywords: library instruction/ academic libraries/ USA/ information literacy/ role of librarian
Abstract: **Reviews the ways in which new information technologies have already placed increasing demands for instruction on reference staff in college libraries.** It describes how college librarians are attempting to meet the demand through different approaches to end-user training and evaluates the methods most likely to foster self directed learning behaviour.
Details **3 types of instruction options:** 1) Peer-to-peer 2) Group 3) Computer-aided and media-based.
Conclusion - librarians must:-
1) Be knowledgeable about and keep current in, computer technology in general and about the library systems in particular.
2) Be comfortable with presenting info in a variety of settings and adapting material to the learning styles of their audiences.
3) Be able to quickly assess what students are really looking for.
4) Ascertain a way to teach students info resources in such a way that the info conveyed is not limited to a particular search/source but will give students something to take away with them that can be applied to future info needs.
117. Colvin, G. Remote, accessible, and on call: reference librarians go live. *Florida Libraries*. 2001; 44(1):10-12.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the e-reference services at three Florida university libraries using various types of software (Conference Room, MOO-based and call centre)
118. Connor, E. Real-time reference: the use of chat technology to improve point of need assistance. *Medical Reference Services Quarterly*. 2002; 21(4):1-14.
Keywords: e-reference/ academic libraries/ medical libraries/ USA/ delivery technology
Abstract: Discusses chat-based reference services in academic and medical libraries in USA.

Challenges faced by libraries offering chat reference :-

- (1) Evaluating and testing software
- (2) Training and scheduling staff
- (3) Maintaining privacy and confidentiality of users
- (4) Marketing and evaluating services

119. Coon, B. and Wojtowicz, R. Electronic reference: trends and considerations. *PNLA Quarterly*. 2002; 67(1):17-19.
Keywords: e-reference/ academic libraries/ USA/ information seeking skills/ implementation/ staff training
Abstract: Considers virtual reference services, particularly chat services, at academic libraries. Addresses the following questions: (1) What are the major needs of users? (2) Why need virtual reference services for academic libraries? (3) What are the advantages of virtual reference for academic libraries? (4) What are some of the features to seek in software? (5) What knowledge and skills should libraries have for successful virtual reference? (6) What are some of the administrative considerations for virtual reference? (scheduling and staffing)
User needs - how to use the OPAC, what indexes and databases to use and how to navigate these databases and how to use the ILL service.
Required librarian skills - (1) Ability to multitask (2) IT problem solving (3) Good communication skills (4) Ability to conduct shorter reference interviews (5) Familiarity with resources (6) Ability to evaluate software (7) Commitment to continuous learning
120. Coonin, B.; Diamond, W.; Friedman, C. R.; Hankel, M.; Spurling, L., and Oppenheim, M. R. Serving business distance education students: a checklist for librarians. *Reference & User Services Quarterly*. 2001; 41(2):144-.
Keywords: distance learning/ academic libraries/ USA/ service guidelines/ staffing/ copyright
Abstract: A **checklist developed by the Distance Education Guidelines (DEG) Committee** of the Business Reference and Services Section (BRASS) of the Reference and User Services Association (RUSA) of the American Library Association. Based on a survey of 57 institutions offering business distance learning courses.
Aim was to investigate whether the challenges of business distance learning students and faculty are similar to, or different from, those faced by students in non-business disciplines. A checklist was developed to help librarians think through what is needed to offer services to their business distance learning users. This checklist complements the ACRL Guidelines but in addition, emphasises important issues and concerns faced by business librarians. In addition, a set of recommendations for future professional action is included to address broader issues such as accreditation standards, information literacy, copyright and licensing.
Checklist:-
❖ Develop and articulate a service plan
❖ Consider how the distance education environment affects your relations with faculty
❖ Consider international aspects of registration (language differences and cultural communication concerns)
❖ Consider technical and licensing implications
❖ Evaluate your Web presence for ease of use at a distance
❖ Investigate a high-level link off the Business School's Web Page
❖ Make necessary adjustments for instructional methods used in courses
❖ Consortia and other co-operative agreements potential for
❖ Consider what kind of bibliographic instruction will be provided and how it will be delivered
❖ Consider carefully issues surrounding the provision of historical and extensive statistical data
❖ Make provisions for collecting statistics and evaluating services
Recommendations for future professional action:-
❖ **Accreditation** - get involved in the AACSB accrediting process.
❖ **Information literacy** - the need for library instruction to enable users to assess and critically evaluate information.
❖ **Copyright and licensing** - the need for unified professional action
121. Cooper, R.; Dempsey, P. R.; Menon, V., and Millson-Martula, C. Remote library users - needs and expectations. *Library Trends*. 1998; 47(1):42-.
Keywords: academic libraries/ distance learning/ USA/ staffing/ role of librarian/ information seeking skills/ literature review

Abstract: A **literature review** followed by a more detailed account of library services to distance learners at the DePaul University in Illinois. Proposes that there is a need for librarians to focus on who is using the electronic information resources, how they do so and what are their needs and expectations in order to promote user satisfaction. They must recognise that the one-size-fits-all approach is likely to fail using one group's information needs as the principal guide for determining services offered to all is inappropriate.

Customer service expectations - 2 types: 1) Service as an end result or outcome that involves reliability or the ability to perform a promised service both dependably and accurately 2) Service process, which consists of the following dimensions assurance; responsiveness; empathy and tangibles e.g. the appearance of the physical facilities. Each dimension of expectations is likely to involve 2 service levels a) the desired service level and b) the adequate service level. Link with service quality.

Customer needs - OPAC users needs: mastery of the technology used to provide access and familiarity with the system structure and commands. Need for point-of-need instruction and hence staff must be knowledgeable in system interaction.

Remote user needs:-

- ❖ Constant, round-the-clock access to online databases mounted on user-friendly systems
- ❖ 24 hour help desk or technical support
- ❖ A personal relationship with library staff
- ❖ Extensive information describing specific resources and the full range of service available at the 'home' library

Distance learner needs:-

- ❖ A greater range of services provided by library staff e.g. conducting online database searches and preparing packets of information with less emphasis on self-service
- ❖ To use a variety of libraries in addition to the 'home' library
- ❖ To learn what other libraries can do for them

Implications for library staff:-

- ❖ Identify discrete groups of users
- ❖ Differentiate between the needs and expectations of on-site customers and those of remote users as well as within the total population of remote users
- ❖ Gauge users' needs and expectations using means such as interviews, focus groups, surveys
- ❖ Help socialise customers to understand and act out their role in the service delivery process
- ❖ Inform/educate users of services available from the home and other libraries and their respective costs
- ❖ Establish formal relationships with other libraries to provide services and resources to distance learning students

Staffing issues - Need for knowledgeable staff able to engage in effective and extensive user communication and function as troubleshooters for hardware and software.

Role of librarian - no longer that of intermediary between consumers and commodities but rather between learners and resources; role in expectations management.

122. Corrigan, A.; Diamond, T., and Hill, J. B. Electronic reference service trends among Louisiana academic libraries. *Louisiana Libraries*. 2002; 65(1):3-12.
Keywords: e-reference/ academic libraries/ USA
Abstract: Reports the results of a 2001 survey to examine the current status of traditional and electronic reference service in Louisiana academic libraries.
Findings:-
(1) Declining use of traditional reference services.
(2) E-mail reference service very common.
(3) Minority providing digital real-time reference services.
123. Cote, D. The online college library: an exploration of library services to distance education students. *Community and Junior College Libraries*. 2001; 10(2):61-77.
Keywords: e-reference/ academic libraries/ distance learning/ USA/ reference interview/ role of librarian/ delivery technology
Abstract: Discusses a pilot project at the College of DuPage Library that explored online methods of providing library services, including reference services, to distance learners. Services were offered through a Web site and focused primarily on the effectiveness of librarians communicating with students online, librarian participation in online courses and the incorporation of library resources into the online curriculum. Each service is described and

recommendations for implementation into dedicated off-campus library programmes are offered.

Reference services:-

- ❖ Reference Question form - serves as a mini reference interview and is necessary.
 - ❖ Instant Messaging (Online paging and real-time chat) - simple and effective method of communication but should either be used by appointment only or at the reference desk computers where it is assured that all pages will be answered.
 - ❖ WebBoard viewed as surplus to requirements.
 - ❖ NetMeeting - form of videoconferencing; physical location of software and equipment restricting.
 - ❖ In person, e-mail or by telephone - web form for appointments; librarian's daily schedule on web page; toll-free number to contact reference desk.
- Circulation services, research help, instruction, marketing, course integration and feedback also discussed.

124. Crawford, G. A. and White, G. W. Migrating to Internet-based reference services: issues for the smaller academic library. *Internet Reference Services Quarterly*. 1998; 3(4):3-18.
Keywords: e-reference/ academic libraries/ USA/ e-resources/ copyright/ implementation
Abstract: Discusses the migration to Internet-based reference services at the Heindel Library at Penn State Harrisburg. Examines management issues, user issues and collection development issues.
Management issues - 3 of paramount importance: 1) budget 2) info delivery and copyright 3) maintenance of the infrastructure. Costs - subscription, equipment, telecommunications charges, printing costs, network costs.
User issues - demand for user independence, growing numbers of remote students, instructional requirements, identifying skills levels.
Collection development issues - decision making criteria when purchasing info in electronic format; cancellation of materials, computer equipment for access, user licences.
125. Crossfield, N. L. Digital reference - the *next* new frontier. *Latitudes*. 2001; 10(3).
Keywords: e-reference/ USA/ implementation/ staffing/ service guidelines/ staff training
Abstract: Summarises presentations made at an NCNMLG/MLGSCA Joint Meeting in San Francisco, on the subject of digital reference.
Implementation issues:-
(1) Technology considerations - selecting software best suited to the library's needs, cost, library hardware and line speed and later technical support.
(2) Staffing - how many, where located
(3) Policy development - levels of service, user confidentiality, question management, networked or not?
(4) Staff training - changing nature of the reference interview, familiarity with newer software applications, multitasking.
126. Cunningham, S. J. Providing Internet reference service for the New Zealand Digital Library: gaining insight into the user base for a digital library. *Proceedings of the 10th International Conference on New Information Technology*; Hanoi, Vietnam. 1998.
Keywords: e-reference/ New Zealand/ delivery technology
Abstract: Discusses an e-mail reference experiment with the computer science collection of the New Zealand Digital Library.
127. Curtis, S.; Mann, B., and Cooperative Reference Services Committee. Cooperative reference: is there a consortium model? *Reference & User Services Quarterly*. 2002; 41(4):344-349.
Keywords: collaboration/ USA
Abstract: Discusses the results of a survey of current cooperative reference initiatives in the USA.
128. D'Angelo, B. J. Assembling and managing virtual libraries. *Library Technology Reports*. 2001; 37(5):1-60.
Keywords: e-reference/ implementation/ staffing/ quality standards/ library instruction/ delivery technology
Abstract: Contains 5 sections: (1) What is a virtual library? (2) Planning, assembling and managing a virtual library (3) Kentucky Virtual library profile (4) Florida Distance learning

reference and referral centre (5) Future developments

Planning, assembling and managing section - considerations when beginning/considering a virtual library:-

(1) Planning - mission and scope; stakeholders; timeline; communication; evaluation and assessment

(2) Management and Funding - organisational structure; staffing

(3) Technology infrastructure - system integration; commercial services; authentication; interface design and usability (briefly discusses standards)

(4) Content and service development - electronic resources; guides and information pages; resource sharing; reference (software options)

Appendix A is a checklist for planning, assembling and implementing a virtual library.

129. D'Angelo, B. J. and Maid, B. M. Service from a distance: the use of information technologies in support of off-campus students. CAUSE98 Conference; Seattle. 1998.
Keywords: e-reference/ academic libraries/ distance learning/ USA
Abstract: Discusses the Virtual Library Project on ArkMOO at the University of Arkansas, which includes a reference service. Examines the use of one form of networked information technology, a multi-user object-oriented environment, to provide composition tutoring and library services to distance learners.
130. ---. Virtual classroom, virtual library: library services for an online writing laboratory. Reference & User Services Quarterly. 2000; 39(3):278-283.
Keywords: e-reference / distance learning/ academic libraries/ USA
Abstract: Explores the use by a library of multiuser domain, object-oriented (MOO) technology in collaboration with the Online Writing Laboratory at the University of Arkansas. This included the provision of a real-time reference service via an online reference desk.
131. Daniels, W. and Scardellato, K. Past into future: capturing library expertise in a virtual library. 1999; 17(2):181-188.
Keywords: e-reference/ public libraries/ Canada/ delivery technology
Abstract: Reports on an initiative being carried out at Toronto Public Library, to create the Virtual Reference Library. Discusses the first service to be offered, *Science Net* as well as the VRL and its precursor service, *World Vue*.
132. Daugaard, V. Net Librarian: a Danish national online information service. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ public libraries/ Denmark
Abstract: Discusses Net Librarian, an Internet-based information service run in cooperation by three Danish public libraries and supported by the Danish Library Authority. The challenges encountered such as limited financial resources, marketing and consistency of service among 3 separate organisations are outlined.
133. Davenport, E. Knowledge management issues for online organisations: 'communities of practice' as an exploratory framework. Journal of Documentation. 2001; 57(1):61-75.
Keywords: e-reference/ academic libraries
Abstract: The author analyses fieldwork in three online communities (including a digital library service in an academic library) to discover to what extent they may be described as communities of practice, and to establish how they support participant's learning.
134. Davenport, E.; Procter, R., and Goldenberg, A. Distributed expertise: remote reference service on a metropolitan area network. The Electronic Library. 1997; 15(4):271-278.
Keywords: e-reference/ academic libraries/ staff attitudes/ UK/ collaboration/ delivery technology/ information seeking skills
Abstract: Explores the nature of reference work in the digital library in the context of the enhanced regional communications available through EaStMAN (the Edinburgh and Stirling Metropolitan Area Network) which links regional higher education institutions. This paper presents the results of an investigation of the experiences of users and the work patterns of librarians. These are related to the design rationale of a prototype Web-based network ref consultation support system.
Delivery technology - evaluates videoconferencing and e-mail in terms of effectiveness,

responsiveness and availability.

Library staff attitudes: 1) worries about their competence to deal with new technology 2) alarm about the possible intrusiveness of some forms of interaction (video) 3) the project's possible longer term implications for employment.

135. Davenport, E. R. and Procter, R. N. The situated intermediary: remote advice in a distributed reference environment. Proceedings of the 18th National Online Meeting; New York. Medford, NJ: Information Today, Inc.; 1997: 115-123.
Keywords: e-reference/ academic libraries/ UK/ role of librarian
Abstract: Explores the nature of academic reference work in the digital library and the role of the reference librarian in distributed environments where users serve themselves remotely in the context of the Edinburgh and Stirling metropolitan area network.
136. DeCandido, G. A. E-reference: closing in on 24/7. 2001; A Public Library Association Tech Note.
Keywords: e-reference/ USA/ implementation/ service guidelines
Abstract: An overview of e-reference developments. Contains a brief section on implementing a new service - template offered: (1) Keep the service focused on its mission (2) Keep it simple (3) Use off-the-shelf software (4) Don't expect an overwhelming number of users.
137. Dee, C. and Wellik, K. E. Current environment of hospital library reference: Part 2 - trends for the future. Medical Reference Services Quarterly. 2001; 20(1):69-78.
Keywords: e-reference / USA/ quality standards/ role of librarian/ evaluation
Abstract: Describes the current state of reference service in hospital libraries using e-mail interviews. Specific questions involved quality of service, user preferences, funding issues and trends.
Quality instruments e.g. periodic user surveys, discussions by focus groups, benchmarking.
Role of (hospital) librarian:-
(1) Librarians will need to hone their teaching and coaching skills as they spend a higher percentage of their time teaching users to use resources effectively.
(2) Librarians will need to learn negotiation skills to deal with the constantly changing marketplace.
(3) Librarians will need to collaborate with other librarians to increase their collective bargaining power.
138. Deegan, E. Conducting the reference interview by e-mail and the intranet. SLA Annual Conference ; 2000.
Keywords: e-reference/ reference interview/ government libraries/ USA/ implementation
Abstract: A panel presentation outlining the e-mail reference interview process at the US Department of State International Information Programs Bureau. Includes **suggestions for those who are interested in implementing an e-mail reference service:** (1) Hire a software application developer to work full time while you are launching your e-mail reference service (2) Don't think you can anticipate all of the problems (3) Assemble a permanent sub-team of information professionals to advise the software developer about database content and design (4) Market your new e-mail reference service to your clients and keep them informed of all subsequent changes that impact them.
139. Dempsey, K. Quick queries continue: US libraries are getting the message when it comes to customer service. Information World Review. 2001; (174):10.
Keywords: e-reference/ USA
Abstract: Includes a brief discussion on the use of chat reference services in US libraries.
140. Dent, V. F. Technology provides innovative reference services at University of Michigan libraries. Research Strategies. 2000; 17(2/3):187-193.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the Interactive Reference Assistance project at the University of Michigan.
141. Desai, C. M. and Fagan, J. Instant messaging reference Nixon, C., Ed. Proceedings of the 17th Annual Computers in Libraries Conference; Washington, DC. Medford, NJ: Information Today, Inc; 2002: 52-59.
Keywords: e-reference/ academic libraries/ USA/ role of librarian

Abstract: Describes Morris Messenger, an instant messaging reference service at the Morris Library at Southern Illinois University Carbondale. Details some of the challenges facing librarians:- (1) Encouraging patrons to submit complete sentence or question queries (2) Encouraging patrons to stay on line long enough to receive complete answers (3) Encouraging patrons to accept bibliographic instruction (4) Integrating online reference with traditional services to prevent staff overload.

142. Devine, S. and Woods, D. Internet-based reference services and community libraries: a need for new models and strategies. *The Electronic Library*. 1996; 14(4):299-302.
Keywords: e-reference/ public libraries/ USA
Abstract: Examines emerging Internet-based strategies for community libraries and suggests the need for a new set of information access models. Discusses database pricing models, copyright and usage tracking, cost recovery, patron self-service and community marketing.
143. Diamond, W. and Pease, B. Digital reference: a case study of question types in an academic library. 2001; 29(3):210-218.
Keywords: e-reference/ academic libraries/ user needs/ USA
Abstract: An analysis of digital reference questions received over a two-year period at California State University.
Conclusions:-
(1) Users ask similar questions whether in person or via an e-mail reference service
(2) A full range of questions, generic to specific, are asked and therefore limiting digital reference service to 'ready reference' questions alone does not adequately meet users' needs
144. Diaz, K. R. The best of the best: ranking and rating digital reference resources. *Reference & User Services Quarterly*. 1999; 39(1):17-21.
Keywords: e-resources/ evaluation
Abstract: Examines various examples of Web site rankings and ratings and attempts to enumerate the vast possibilities of criteria for evaluation.
(1) Ranker's identity, authority and purpose are key to evaluating and trusting the sites that evaluate.
(2) Popularity
(3) Clear selection criteria
(4) Clear rating criteria
(5) Clear selection and rating criteria
145. Dilevko, J. An ideological analysis of digital reference service models. *Library Trends*. 2001; 50(2):218-244.
Keywords: e-reference/ delivery technology/ role of librarian
Abstract: Using the theories of Pierre Bourdieu about occupational fields of struggle and species of capital, this article examines the ideological implications of the digital reference call-centre model. This model has the potential to lead to the deprofessionalisation of reference work because of increased automation and the replication of employment conditions prevailing in private sector call-centres. One answer to the deskilling dilemma is the simple act of reading: the more a librarian reads, the more he or she becomes an irreplaceable contributor in the reference transaction.
146. Dougherty, R. M. Reference around the clock: is it in your future? The availability of 24/7 reference is less crucial than the capability to offer it. *American Libraries*. 2002; 33(5):44-.
Keywords: e-reference/ USA/ implementation/ staffing
Abstract: Discusses developments in virtual reference services, and includes some advice on preparing for virtual reference. Also contains a related article which reports on a lecture by Charles McClure, on recent research aimed at developing metrics for digital reference services. Author believes the matter of availability (24/7 service) is much less important than is the library's capability to offer virtual reference services in real time.
Administrative issues to consider when preparing for VR: (1) staffing the service (2) acquiring new technology (3) creating training programmes for staff (4) promoting the service (5) providing an efficient physical layout (6) dealing with cost and quality issues (7) wrestling with policy issues such as copyright, licensing.
Also believes one of biggest challenges to face and overcome is the perception by staff that they

are already overwhelmed and simply cannot take on yet another activity. Need to involve staff at all levels actively in the planning process.

147. Duff, W. M. and Johnson, C. A. A virtual expression of need: an analysis of e-mail reference questions. *American Archivist*. 2001; 64(1):43-60.
Keywords: e-reference/ archives/ North America/ user needs / information need
Abstract: An analysis of 375 e-mail reference questions submitted to North American provincial, federal, university, city and special archives, in order to determine, from the users' own words, how users formulate reference requests to archives. Understanding what elements the archives' client uses to describe his or her information need enables the creation of more relevant archival descriptive tools.
148. Duggan, J. E. The new reference librarian: using technology to deliver reference. *Legal Reference Services Quarterly*. 2001; 19(3/4):195-202.
Keywords: e-reference/ delivery technology/ role of librarian
Abstract: An overview of the current uses that reference librarians make of technology to deliver reference assistance to remote users including predictions for the future of reference librarians. It explores the world of the 'new reference librarian' and examines how advances in technology have changed forever the way reference librarians interact with both patrons and reference sources.
Role of the librarian - the almost exponential increase in the availability of electronic information means that the biggest concern of reference librarians is having enough time to properly learn to identify emerging sources on the Internet, analyse search engine capabilities and instruct patrons about utilising all information sources.
149. Dunn, K. et al. Going where the students are: a symposium on live reference in the CSU; Pomona, CA. Pomona, CA: California State Polytechnic University; 2001.
Keywords: e-reference/ academic libraries/ USA/ implementation/ marketing/ delivery technology/ CDRS
Abstract: Programme summaries from a symposium on digital reference sponsored by the CSU Council. Speakers included Kresh, McGlammery and Koyama. Outlines a number of different VR projects. Topics covered were CDRS, marketing, Ready for Reference VRD, implementation, software and interesting Q and A sections.
Kresh: **6 key issues that must be addressed in order to implement effective digital ref services** - (1) Standards (2) Quality Assurance (3) Staffing and training (4) Marketing (5) Integration (6) Financial Models
150. Dysart, J. I. and Jones, R. J. Tools for the future: recreating or "renovating" information services using new technologies. *Computers in Libraries*. 1995; 15(1):16-19.
Keywords: e-reference/ delivery technology
Abstract: Offers advice to consider when selecting new technologies to recreate traditional information services. the 6 R's: review, refocus, redefine, relate, revamp and recreate. Review the reasons your info service organisation exists; refocus your direction; redefine your clients' needs; relate to your suppliers and partners; revamp your services and lastly re-creation or recreation.
151. Edwards, P. M. Characterization of volunteer expertise within the Internet Public Library reference service. *Virtual Reference Desk Conference 2002; Chicago*. 2002.
Keywords: e-reference/ Internet Public Library/ USA/ role of librarian
Abstract: Attempts to quantitatively characterize the level of individual expertise and specialization among 261 reference volunteers at the Internet Public Library by comparing the observed degree of subject specialisation with that expected under a random model of question selection. From the observed data, the relationship between subject specialisation and volunteer experience suggests a new digital reference implementation that incorporates desirable qualities of existing question-answering models.
152. Eichler, L. and Halperin, M. LivePerson: keeping reference alive and clicking. *EContent*. 2000; 23(3):63-66.
Keywords: e-reference/ school libraries/ delivery technology/ USA/ staffing/ service guidelines
Abstract: Describes the online chat reference service at Lippincott Library at Warton School,

Philadelphia, PA. The service uses LivePerson software.

Software - advantages of chat technology; features of LivePerson software (ability to obtain user satisfaction feedback)

Policy issues - staffing levels; restricting the audience and dealing with complex enquiries.

153. Eisenberg, M. B. and McClure, C. R. Digital reference librarians: who needs 'em? or Key Issues in Digital Reference: Taking action. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ implementation/ staff training/ evaluation / quality standards/ delivery technology
Abstract: Transcription of the keynote address. Key issues identified: (1) Management (2) Connectivity (3) Training (4) Evaluation (5) Finance (6) The digital divide (7) Information policy (8) Quality - standards (9) Technology. Some summary recommendations are made and audience questions detailed.
154. Elias, T. and Morrill, S. Our virtual reference training camp: testing the players before signing them on. Computers in Libraries. 2003; 23(4):10-12, 70-72.
Keywords: e-reference/ public libraries/ delivery technology/ USA
Abstract: Discusses the testing, by the South Central Library System in Wisconsin, of three virtual reference systems: LSSI's Virtual Reference Toolkit, 24/7 Reference, and Convey's OnDemand.
24/7 chosen due to the collaborative aspect of the project - service policies, scripts, procedures and guidelines regarding follow-ups already created.
Software - operational problems e.g freezing; potential need to upgrade/minimum system requirements insufficient.
155. Ellis, L. and Francoeur, S. Applying information competency to digital reference. 67th IFLA Council and General Conference; Boston, MA. 2001.
Keywords: e-reference/ quality standards/ academic libraries/ information literacy
Abstract: Presents a case for applying information competency standards to digital reference services at academic libraries. Practical reasons for applying standards or guidelines to e-mail and online chat reference services are given with some insight to the nature of DR interactions. The standards are offered as a touchstone for planning and designing DR services.
Role of standards:- (1) Aid to planning - service provision (2) Ensure quality reference assistance (3) Aid to staff training and evaluation (4) Assist in creation of consortia
ACRL Information Literacy Competency Standards for HE (ACRL, 1999) - 5 standards and 22 performance indicators. 5 standards specify that an information literate student is able to:-
(1) Determine the nature and extent of information needed
(2) Access the needed information effectively and efficiently
(3) Evaluate information and its sources critically and incorporate selected information into one's knowledge base
(4) Use information effectively to accomplish a specific purpose
(5) Understand many of the economic, legal and social issues surrounding the use of information and access and use information ethically and legally
156. Engle, M. O. Using World Wide Web software for reference and instruction. Internet Reference Services Quarterly. 1996; 1(2):7-15.
Keywords: e-reference/ library instruction/ academic libraries/ web site design
Abstract: Provides suggestions and guidelines for creating Web pages that will deliver reference and instruction to remote library users.
Guidelines:-
1) Write a simple departmental style sheet or guidelines
2) Think carefully about the overall structure of your Web site
3) Find the optimum size of the individual documents on your Web site
4) Describe each Web page clearly in the title and the first header
5) Check your documents on a variety of browsers to see how they look
6) Avoid including large image files
7) Know who your primary users are, the bandwidth of their network connections and the software they are likely to be using
8) Give your users a way to contact you

- 9) Check the links in all your documents to make sure they work
- 10) Don't wait to start working on developing Web pages until all your users have network access
- 11) Develop a support network within your institution
- 12) Utilise the work that has already been done by others
- 13) Find a site that links to info and instruction on writing, editing and serving WWW pages

157. Ercegovac, Z. Collaborative e-reference: a research agenda. 67th IFLA Council and General Conference; Boston, MA. 2001.
 Keywords: e-reference/ collaboration
 Abstract: Suggests a research agenda that will help to close the gap between seemingly inconvenient 'reference desk' access to answers and those that are obtained relatively easily over the Internet. Unanswered questions: (1) How finely do we need to represent reality? (2) How well do we communicate the reality? (interoperability between and among search vocabularies) (3) How well do we divide labour between human reference experts and mass collaborative Internet-based programmes? (identifying those reference tasks that humans can consistently outperform machine intelligence can help us design optimal interfaces between people and machines in collaborative digital real-time reference services).
158. Eustace, K. Going my way? Beyond the WEB and the MOO in the library. 1995.
 Keywords: e-reference/ Internet Public Library/ USA/ Australia
 Abstract: Discusses the Internet Public Library at the University of Michigan before considering the possibilities of a similar service at the Charles Sturt University in New South Wales, Australia.
159. Fagan, J. C. and Calloway, M. Creating an instant messaging reference system. *Information Technology and Libraries*. 2001; 20(4):202-212.
 Keywords: e-reference/ academic libraries/ delivery technology/ USA
 Abstract: Describes the features of instant messaging reference systems and the in-house development of a system that incorporates them at the Morris Library at Southern Illinois University-Carbondale. 3 products were selected for review: Live Assistance, LivePerson and VRD.
 Checklist for comparing software products provided.
 Features addressed:- (1) Installation of software (2) Push the patrons browser (3) Active embedded URLs (4) Surveying the patron (5) Supports multiple browsers (6) Logs transcripts for future reference and searchable transcripts (7) Ability to create preformatted answers for FAQs (8) Identify patron by IP address (9) Fast response time (10) No technical difficulties (11) Price
160. Farha, A. End-user training in a virtual medical library setting - a case study of an academic medical library in Lebanon. *Library Management*. 2001; 22(8/9):351-356.
 Keywords: e-reference/ academic libraries/ medical libraries/ Lebanon/ library instruction/ information seeking skills/ role of librarian
 Abstract: Discusses the aim, preparation, problems and lessons learned after 3 years of a user education programme in a virtual library setting, and how reference work had to change to satisfy the needs of both the system and its users.
2 models for delivering user-education programmes discussed:-
 (1) Live- traditional lecture presentations: details the different formats provided; topics covered; problems/lessons and challenges for reference librarians.
 (2) Web-based instruction: details factors to consider when developing Web-based instructional modules
Role of the reference librarian outlined - consultants and educators. They must do all of what they used to do in the past plus have knowledge about technology and an understanding of its applications to information management.
Conclusion -in a virtual library setting, librarians are needed more than ever to teach new information literacy skills and help users cope with the changing technologies.
161. Feeney, A. Internet applications: Stumpers-L. *Computers in Libraries*. 1993; 13(5):40-42.
 Keywords: e-reference/ discussion lists/ USA
 Abstract: Discusses Stumpers-L, a mailing list that provides a forum for reference librarians and other information professionals to find assistance with difficult reference questions.

162. Feldman, S. and Strobel, T. Advancing your library's Web-based services. Syracuse, NY: ERIC Clearinghouse on Information and Technology; 2002; ERIC Digest EDO-IR-2002-03.
Keywords: public libraries/ USA/ implementation
Abstract: Discusses the development of Web-based services for libraries and provides examples from the Cleveland Public Library. Section 1 highlights the importance of developing such services, steps to be followed for a successful project and the importance of having the goal of replicating and enhancing traditional library services in an online environment at the core of planning for Web-based services. Section 3 covers reference services, focusing on KnowItNow24X7, a live Web reference launched by the Library and the CLEVNET consortium. Section 6 outlines tips for advancing web-based services.
A successful project incorporates the following steps in this path:-
(1) Clarify the core values and mission
(2) Build a team of entrepreneurial staff
(3) Scan the online environment for ideas
(4) Set a course and a timeline
(5) Find library and community partners
(6) Market and build customer relations
163. Ferguson, C. 'Shaking the conceptual foundations,' too: integrating research and technology support for the next generation of information service. *College & Research Libraries*. 2000; 61(4):300-311.
Keywords: e-reference/ service guidelines/ role of librarian
Abstract: Proposes that information services should be reconceived to include new partners in support of the use of technology while undertaking substantially new approaches to on-site and network-based information service. By reengineering organisations in ways that bring librarians and technologists together within a common service environment, information service agencies can more effectively meet users' needs by moving more fully and flexibly into the network as changing circumstances warrant.
Features of an integrated information service for remote users:-
(1) A core service philosophy
(2) Tiered service models that triage service requests for immediate action
(3) Referral to an expert or
(4) Posting to a case pool for collaborative resolution
(5) Efficient use of experts
(6) 24/7 operation through a variety of communication modes
(7) An Internet call centre
Role of librarian - integrator, collaborator, colleague, 'access engineer' and leader.
164. Ferguson, C. D. and Bunge, C. A. The shape of services to come: values-based reference service for the largely digital library. *College & Research Libraries*. 1997; 58(3):252-265.
Keywords: e-reference/ academic libraries
Abstract: Discusses reference service models and values in the largely digital library of the future.
Models - tiered service, roving librarian, research consultation model, staffing models.
Values - integration of technologies, holistic computing, core services through the network, making technology work for everyone, collaboration across administrative lines.
165. Fiander, M. Virtual reference: a letter from North America. *Cultivate Interactive*. 2002; (6).
Keywords: e-reference/ USA/ delivery technology
Abstract: A letter from the manager of the world's first (?) Web Reference Centre for Libraries.
166. Filby, A. M. I. Proposal for implementing Multi-User Database (MUD) technology in an academic library. *Internet Reference Services Quarterly*. 1996; 1(2):75-96.
Keywords: e-reference/ academic libraries/ USA
Abstract: Discusses a prototype InfoCenter, part of the University of Houston's online college, Diversity University. Considers its potential for collaborative information exchange in the form of a virtual reference interview.
167. Fishman, D. L. Managing the virtual reference desk: how to plan an effective reference email system. *Medical Reference Services Quarterly*. 1998; 17(1):1-10.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ implementation

Abstract: Based on the author's experiences at the University of Maryland, this paper emphasizes the implications for the manager who establishes an e-mail reference service.

Advantages of e-mail: 1) 24 hour access for users 2) Reduced barriers 3) Easy referral of questions 4) Option to build question/answer database 5) New technology

Challenges: 1) Questions will take longer to answer 2) No non verbal cues 3) Difficult to share responsibilities 4) Permanent record

Steps:-

1) Carefully plan a ref e-mail policy

2) Plan where ref e-mail should be located to facilitate user access

3) Decide what services can be offered electronically

4) Plan for additional time-related demands e.g. greater time necessary to keyboard responses as well as additional time to negotiate questions

168. Flag, G. Libraries launch 24/7 e-reference service. *American Libraries*. 2001; 32(7):16.

Keywords: e-reference/ collaboration

Abstract: Brief news article announcing the launch of two consortia-based 24/7 online reference services: Clevnet's Know it All service in Ohio, and the Los Angeles Metropolitan Cooperative Library System's 27/7 Reference Service.

169. Fogelvik, B. Experiences from a new digital reference service at the National Library of Sweden.

Discussion Group on Reference Work, part of the 65th IFLA General Conference; Bangkok. 1999.

Keywords: e-reference/ national libraries/ Sweden

Abstract: A very brief summary of the National Library of Sweden's online 'Ask the Librarian' service.

170. Foley, M. Instant messaging reference in an academic library: a case study. *College & Research Libraries*. 2002; 63(1):36-45.

Keywords: e-reference/ academic libraries/ USA/ delivery technology/ staffing/ service guidelines

Abstract: Describes a pilot project, conducted at the General Libraries of the University at Buffalo, which assessed the feasibility of providing reference through instant messaging. This article describes the project, its implementation, the software used, staffing issues and publicity efforts as well as offering conclusions about offering instant messaging reference in a large academic library.

Staffing recommendations - IM staff should receive more formalised training and extended practice; involve people with an interest in the virtual format; perform shifts in a designated IM office (to remove distractions).

Software recommendations - should accommodate high volume; automate redundant tasks; compile statistics and offer consistently reliable access.

171. Folger, K. M. The virtual librarian: using desktop videoconferencing to provide interactive reference assistance. ACRL 8th National Conference; Nashville, Tennessee. 1997.

Keywords: e-reference/ academic libraries/ delivery technology/ USA

Abstract: Discusses a University of Michigan project that used a desktop videoconferencing program (CU-SeeMe) to provide reference service to students located in residence halls across the campus.

Videoconferencing - underuse; technological problems encountered - inconsistent quality of the audio and video; lack of technical support.

172. Foster, J. Web reference: a virtual reality. *Public Libraries*. 1999; 38(2):94-95.

Keywords: e-reference/ USA

Abstract: An annotated list of some useful websites for online reference in public libraries, including some AskA services.

173. Foster, S. Guide to writing responses [Web Page]. 2001. Available at:

<http://mathforum.org/dr.math/guide/>

Keywords: e-reference/service guidelines

Abstract: A guide to the ways in which responses are written in Drexel University's Ask Dr Math

service.

174. Francoeur, S. An analytical survey of chat reference services. Investigates chat reference services being offered at libraries; what software is being used; consortial arrangements and the role of existing technology.
. Reference Services Review . 2001; 29(3):189-203.
Keywords: e-reference/ delivery technology/ information seeking skills/ implementation/ staff training
Notes:

Abstract: An international review of trends in chat reference services. Investigates chat reference services being offered at libraries; what software is being used; consortial arrangements and the role of existing technology.
Software - chat, Web conferencing and Web contact centre software: useful features e.g. searchable FAQs and call transferring; limitations e.g. lack of non-verbal cues; difficulties talking a user through a complex search strategy; need to have assistive software; high costs.
User needs - how to begin searching and how to use databases; desire for user autonomy; high expectations of the service; impact of user behaviour on the communication (lack of visual clues)
Institutional issues when launching a service - need for a supportive administration; fit with overall mission and goals of the library; the service should be designed so that it is part of a seamless whole of reference options; know your users (who, when and what restricted access?)
Staff training - software, new communication channels (chat)
175. Francouer, S. Digital reference [Web Page]. 2002. Available at: <http://pages.prodigy.net/tab01/digref.htm>
Keywords: e-reference/delivery technology/collaboration
Abstract: A Web page that discusses the various forms of digital reference (e-mail, web forms, chat reference and collaborative networks) and provides links to other sites focusing on digital reference.
176. Frank, D. G.; Calhoun, K. L.; Henson, W. B.; Madden, M. L., and Raschke, G. K. The changing nature of reference and information services. Reference & User Services Quarterly. 1999; 39(2):151-157.
Keywords: role of librarian/ reference interview/ user needs
Abstract: Examines the accuracy and relevance of the predictions made in a 1985 article, 'The reference librarian of the future: a scenario'. Addresses the issues of information technology; reference transactions; instruction, education and learning; fees, consortia and information access; information consulting
Role of the librarian - Education librarians well versed in technology and how to apply it to solving information problems: user instruction role.
177. Frank, I. B. E-mail reference service at the University of South Florida: a well-kept secret. Art Documentation. 1998; 17(1):8-9.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ marketing
Abstract: Discusses the e-mail reference service at the Tampa Campus Library at the University of South Florida. Includes a section detailing various marketing initiatives.
178. Fritch, J. W. and Mandernack, S. B. The emerging reference paradigm: a vision of reference services in a complex information environment. Library Trends. 2001; 50(2):286-305.
Keywords: e-reference/ user needs/ role of librarian/ delivery technology/ staffing/ staff training/ library instruction
Abstract: Article outlines the emerging reference paradigm in response to a complex, technologically rich information environment. The characteristics of today's information environment and the new issues and challenges it has brought with it e.g. user needs are more multifaceted, are discussed.
Practical responses to the new information environment offered are: (1) Digital Reference Services (2) Web Portals/Gateways (3) Searchable FAQ databases (4) Online tutorials (5) Roving reference (6) Research advisory sessions (7) Peer mentors (8) Reference Exchange Programmes (9) Staff training (10) Staff hiring
179. Fullerton, V. E-mail reference: refocus and revise. Experiences from Gelman Library. 67th IFLA Council and General Conference; Boston, MA. 2001.

Keywords: e-reference/ academic libraries/ USA/ evaluation / delivery technology

Abstract: Provides an overview of an assessment of the e-mail reference service at George Washington University's Gelman Library. The assessment was a 2 staged process: (1) Collecting benchmark data (2) Revisiting earlier decisions made when the service was initially designed. Revisions made as a result of this assessment greatly increased the volume of e-mail reference questions.

Recommendation - that restrictions regarding the type of question that could be asked should be removed.

180. Fullerton, V. and Stillion, A. C. Virtual reference in a consortium: planning, implementation and evaluation. Virtual Reference Desk Conference 2002; Chicago. 2002.
Keywords: e-reference/ academic libraries/ USA/ collaboration/ implementation/ staffing/ service guidelines/ staff training
Abstract: Discusses the planning, implementation and assessment of a consortium virtual reference service at six academic libraries in the Washington, DC area. Focuses on highlighting the lessons learned during the pilot phase of the project with an emphasis on illuminating the larger issues to consider when planning a collaborative virtual reference.
Planning steps:-
(1) Identify VR software packages, develop criteria for assessment and coordinate the testing of the software across the consortium.
(2) Establish **mandates** that would outline the development of the service - examples: i) The VR service would be restricted to consortium students, faculty and staff ii) Patrons will be required to authenticate iii) Instruction will be incorporated into the VR session.
(3) Consider how the service will be staffed
(4) Facilitate communication among VR librarians
(5) Develop preliminary policies - general policy to outline performance expectations and procedures and specific policies to address issues surrounding database subscriptions and patron privacy.
Lessons learned:-
(1) The planning and development of a collaborative VR service is an ongoing process
(2) Ongoing communication among all virtual librarians within the consortium is critical
(3) Libraries share membership in a consortium but not necessarily share the same culture
(4) Do not underestimate the training needs and varied learning styles
(5) Legal and technical issues can impede delivery
(6) Be prepared for a new realm of potential privacy issues that accompany VR
(7) Evaluation and assessment must be an ongoing aspect
(8) Patrons like VR and they like the high end features
(9) The benefits and opportunities associated with working together far outweigh the challenges
181. Gardner, M. A.; DeVries, J., and Kaag, C. How many trees in a forest: creating digital reference services in agriculture. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ special libraries/ USA/ e-resources
Abstract: Discusses the Agriculture Network Information Center (AgNIC), an Internet-based, distributed system for access to quality agricultural information and resources, at the US Department of Agriculture's National Agricultural Library. Includes a case study of the University of Minnesota and their efforts to move from providing reference to the campus and state to the 'world' and discusses efforts by Washington State University to build a digital ref collection.
182. Garner, I. New reference: diversifying service delivery. 20th Annual IATUL Conference; Chania, Greece. 1999.
Keywords: e-reference/ academic libraries/ Australia/ role of librarian
Abstract: Reports the experience of reference librarians in the University of Western Australia facing the challenge of delivering reference services in the digital age. The aim of the project was to address the concerns that the ref desk model of service delivery was no longer the most efficient and effective method of meeting client needs.
183. Garnsey, B. A. and Powell, R. R. Electronic mail reference services in the public library. Reference & User Services Quarterly. 2000; 39(3):245-254.
Keywords: e-reference / public libraries/ USA/ delivery technology

Abstract: The results of an exploratory survey that examined public library e-mail reference services and the patrons who use them. Data gathered included: 1) Info on the provision and administration of e-mail ref services 2) characteristics of e-mail ref patrons and their satisfaction with the service received 3) classification of e-mail ref questions.

184. Gauder, B.; Hermes, F.; Kresh, D.; Hirko, B., and O'Neill, N. Reference cooperative exoands with QuestionPoint. OCLC Newsletter. 2002; (258):4-11.
Keywords: e-reference/ QuestionPoint/ USA
Abstract: Introduces QuestionPoint, the collaborative digital reference which developed out of the pilot project, CDRS. Includes sections on the use of QuestionPoint in Washington State Library and the Santa Monica public library.
185. Giannini, T. Modeling the reference process onlineWilliams, M. E., Ed. Proceedings of the 20th National Online Meeting; New York. Medford, NJ: Information Today; 1999: 133-143.
Keywords: e-reference/ reference interview
Abstract: Presents a new online model of the reference process, comparing it with traditional models of the information process. Outlines the characteristics of each model and details trends in online information which have changed the values of the reference process. Particular attention is given to modelling the reference process in the context of the World Wide Web.
Conclusion - librarians need to more formally incorporate the Web into a new model of service provision in order to position themselves to meet the needs of ref services in the next century.
186. ---. Rethinking the reference interview - from interpersonal communication to online information process. Proceedings of the 62nd ASIS Annual Meeting; Washington, DC. Medford, NJ: Information Today, Inc.; 1999: 373-380.
Keywords: e-reference/ reference interview/ USA/ user needs / role of librarian
Abstract: Compares the traditional model of the reference interview with a new model based on online information process. Examines: (1) bridging the gap between web-based information and traditional online library resources (2) global web sites and information communities as new ref tools (3) harnessing the power of the web to empower librarian-user interaction. [Very similar to article entitled 'Modelling the reference process online.']
Implications of the study:-
(1) The need to reconfigure ref services - into a system that commits time and resources to the online ref process.
(2) Positioning librarian's expertise in online searching to benefit users - librarians need to adopt library process and procedure that formalises a place for computer mediated interpersonal communication.
(3) Demystifying the reference process through Web illuminations
187. Gleadhill, D. Does the Nerd have the answer? Library Technology. 1997; 2(2):35-36.
Keywords: e-reference/ academic libraries/ UK/ delivery technology
Abstract: Discusses Nerd, the Newcastle Electronic Reference Desk project at Newcastle University Library.
188. Goetsch, L. Electronic reference service. Washington, DC: Association of Research Libraries; 1999; SPEC Kit 251. ILL 29/01/03. Arrived 11/02/03 (Restricted access until 21/05/03 - fiche).
Keywords: e-reference/ academic libraries/ USA
Abstract: Reports on the extent to which ARL libraries provide electronic reference services and offers a snapshot of the types of users reached, questions received, policies established, data gathering techniques utilised and innovations implemented.
Conclusions:-
(1) Electronic ref service has become an established form of ref delivery within ARL libraries
(2) Workload seems manageable (link to acces policies)
(3) Great variation in staffing and managing strategies
(4) Little assessment being undertaken - need for online user surveys to be conducted.
189. Goodrum, A. A. Visual resource reference: collaboration between digital museums and digital libraries. D-Lib Magazine. 2003; 9(2).
Keywords: e-reference/ museums/ USA/ information seeking skills/ collaboration
Abstract: Describes a Syracuse University project designed to build collaborative digital museum

and digital library reference services, in particular for supporting patrons' image information needs. Discusses the challenges involved in helping users find appropriate images on the web.

190. Gottesman, L. Digital reference: brining the reference desk to cyberspace. *Library of Congress Information Bulletin*. 2002; 61(3/4):56-59.
Keywords: e-reference/ CDRS/ QuestionPoint
Abstract: An overview of the Library of Congress Collaborative Digital Reference Service. Also includes a section on QuestionPoint, a new digital ref software based on the prototype of CDRS.
191. Gourlay, P. The Collaborative Digital Reference Service. *PNLA Quarterly*. 2002; 66(2):15-16.
Keywords: e-reference/ CDRS
Abstract: A brief overview of the Library of Congress Collaborative Digital Reference Service.
192. Granfield, D. A digital reference service for a digital library: chat technology in a remote reference service. 2002; McConnell Funding Project Final Report.
Keywords: e-reference/ academic libraries/ Canada / delivery technology/ staffing/ staff training/ service guidelines/ user needs/ library instruction
Abstract: The final report of a chat-based library reference service implementation project at Ryerson University Library in Ontario, Canada. The objectives of the project were 2 fold: (1) To pilot an innovative chat-based library ref service (2) To enhance the teaching and learning environment of Web-based course delivery. Details software (VRD)used; service provision guidelines; staffing and training and promotion. Data collected demonstrated when the service was being used, type of questions being asked, users of the service and where users accessed the service. Ends with a list of recommendations and future considerations.
193. Gray, S. M. Virtual reference services: directions and agendas. *Reference & User Services Quarterly*. 2000; 39(4):365-375.
Keywords: e-reference/ USA/ quality standards/ user needs/ implementation/ delivery technology/ web site design
Abstract: Analyses the Web sites of 10 large research libraries in order to establish a basic understanding of how some major libraries are currently providing virtual reference services. Issues that need to be resolved in current models for virtual reference provision such as control of traffic from non affiliated users; expansion of services beyond basic ready reference; decrease in response time; expansion of service hours and evaluation of archived questions are discussed. The **challenge for librarians** is envisioning the shape of instruction, research consultations, computer support, document delivery and general reference services through the network.
Standards - for e-mail reference services: 1) service description 2) confidentiality guidelines 3) service provision priorities 4) maintenance of statistics 5) evaluation methods
User needs - expectation that can find everything on line.
Managing non-affiliated traffic - recommends use of form that requires users to provide more detailed information about their requests and hence slow down traffic from outside the targeted user group. Also suggests having two tiered response times.
Access issues - need to develop integrated, named service points. Lack of visual clues makes it difficult for user to distinguish between internal operations and service points in the library. Reduces possibility of misdirection and accompanying use of resources.
Around-the-clock service - recommends expanding hours of service and reducing response times to affiliated users. Library should be moving towards the goal of 24 hour service. Need for systematic evaluation of questions received to determine how virtual reference services should advance - trouble shooting, development of guides, creation of knowledge base, skill set required of librarians.
Software - use of software to aid in the management of staff time e.g. flow of inquiries. Need to integrate real-time interactive workspaces into virtual reference services.
194. Grealay, D. S. Technological mediation: reference and the non-traditional student. *The Reference Librarian*. 2000; (69/70):63-68.
Keywords: e-reference/ academic libraries/ distance learning/ USA/ information seeking skills/ e-resources/ library instruction
Abstract: Discusses how desktop provision of electronic resources, Web-based tutorials and pathfinders, and skillful mediation of electronic reference questions can help alleviate anxiety

and save time for remote, non-traditional students.

Web-based resources - easily available digital formats can be of inestimable value to students who have limited time available to spend in the library. Need for training in generic information technology literacy to enable students to use Web-based search engines effectively.

Web-based library instruction - mounting tutorials and discipline-specific pathfinders on the library's home page.

Electronic reference - support via direct contact with reference librarians through e-mail reference, telephone reference and scheduled appointments.

Conclusions:-

❖ The availability of electronic resources, coupled with appropriate training and support, contributes significantly to student success and satisfaction.

❖ Electronic resource access, Web-based training in research and retrieval methods and electronic reference and referral services are all viable attempts at providing equal access to information to off-campus and on-campus students.

195. Greene, A. Y. Providing electronic reference services. Curtis, D., Ed. Attracting, educating, and serving remote users through the Web. London: Facet Publishing; 2002; pp. 73-116.

Keywords: e-reference/ delivery technology/ expert services/ quality standards/ evaluation / staffing/ evaluation

Abstract: An extensive overview of electronic and digital reference services. Includes sections on: (1) telephone ref (2) e-mail reference (3) expert systems (4) real-time ref (5) the future of digital ref

Standards and evaluation of e-mail reference - refers to the VRD's checklist 'Facets of Quality for Digital Ref Services' and provides an evaluation checklist.

Real time reference - includes an evaluation of chat; chat technology and software features; costs; staffing issues; collaborative projects; tips to excel at chat; promotional efforts and evaluation.

Staffing issues - where will it be offered (at home?) and who should staff it.

Evaluation methods - focus groups; surveys, questionnaires and polls; statistical analysis; using a framework which would involve (i) stating objectives (ii) measuring performance (iii) identifying usage patterns (iv) identifying needed improvements.

Future - (1) More collaboration (2) More non-librarian experts will be involved (3) Libraries will get better at marketing (4) Real-time services will be expected (5) New protocols will handle interactions (6) XML will mature (7) Broadband access will improve (8) Better knowledge bases and expert systems will be developed (9) From fragmentation to convergence

196. Gross, M.; McClure, C., and Lankes, R. D. Assessing quality in digital reference services: overview of key literature on digital reference. 2001.

Keywords: e-reference/ literature review/ user needs/ staffing/ quality standards/ staff training/ implementation / evaluation

Abstract: A preliminary **review and discussion of the key literature** available on the subject of digital reference service in libraries.

Overview:

- Anecdotal evidence in the main
- Discussion re evaluation limited

Current trends:-

- Move away from e-mail and towards synchronous interaction between user and librarian e.g. video conferencing, chat services
- Collaborative relationships with other libraries to spread cost e.g. VRD, CDRS

Management of service:-

- Few requests from library users versus high volume received by non-library providers on the web.
- Evidence in the main anecdotal with 'case studies' failing to address issues like incorporating the development of DRS into the library's formal planning, user needs and/or community needs analysis, staffing and training issues, service efficiency, institutional benefits from providing the service or how to properly measure or assess DRS.

Economies of DR:-

- Lack of evidence in the areas of economic models and accounting required in order to measure efficiency and effectiveness.

Staffing issues:-

- Staffing and the distribution of the DR workload are being handled in a variety of ways.
- Normally integrated with general reference work.
- Impact of chat reference services and need to be performed away from the physical reference desk
- Technology issues associated with the above
- ‘Outsourcing’ potential

Staff training for DR:-

- Existence of transferable reference skills
- Demand for additional skills and training e.g. chat services (examples given)

The DR model:-

- Lankes’ (unpublished paper) model ‘triage step’
- Recording of user’s question and librarian’s response useful for developing a knowledge base and evaluation purposes.

DR and user:-

- Literature dealing with the inclusion of the user in the design and development of DRS is scarce
- Development appears to be largely system driven and based on the interests and vision of service providers

Evaluating DR:-

- **Underdeveloped area conceptual analyses but very little happening on the ground.**
- VRD’s “Facets of Quality” standards
- **Common definition of what success and quality in DR is has not been achieved.** Metrics and data are sorely needed that are practical in nature and designed specifically for libraries.
- McClure & Lankes (2001) propose **4 main types of measurement** needed to understand and set benchmarks for DRS:
 - ❖ outcome measures (quality of answers)
 - ❖ process measures (effectiveness and efficiency of process)
 - ❖ economic measures (costing and cost effectiveness)
 - ❖ user satisfaction

Current key issues:-

- Strong interest but progress hampered by lack of economic models, strong evaluative research and a lack of user input;
- Need to provide DRS through a variety of media and modes;
- Need for user input;
- New economic models needed;
- Little in literature that informs practice on the management issues of planning, providing and evaluating DRS;
- Question of how to train staff and how to evaluate personnel providing the service has not been fully addressed;
- Issue of competing with commercial services

Directions for research:-

- ❖ Defining DRS
- ❖ Defining service quality
- ❖ User input in design and provision
- ❖ Appropriate economic models
- ❖ Incorporation of DRS into overall organisational plan
- ❖ How DRS can be meaningfully evaluated

197. Gross, M. and McClure, C. R. Assessing quality in digital reference services site visit reports: State Library of Florida, Bureau of Library and Network Services and Tampa-Hillsborough County Public Library System. Tallahassee, Florida: School of Information Studies, Florida State University; 2001.

Keywords: e-reference/ USA/ government libraries/ public libraries/ quality standards/ staff training/ implementation/ performance indicators

Abstract: Reports of two site visits (Florida State Library and Tampa-Hillsborough County Public Library) conducted by the Assessing Quality on Digital Reference team.

Issues addressed - (1) the digital reference process (2) marketing (3) target user groups (4) evaluation methods (5) **staffing and training** - only librarians with at least 1 year's reference experience perform reference via e-mail; newly hired librarians trained as part of induction; 3

stage training process (6) cost issues (7) technology

Performance indicators - (1) extensiveness (2) efficiency (3) effectiveness (4) service quality (5) impact (6) usefulness (7) adoption

198. Gross, M.; McClure, C. R., and Lankes, R. D. Assessing quality in digital reference services: an overview of the key literature on digital reference. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 171-183.
Keywords: e-reference/ literature review
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: A review discussing the key literature on digital reference service in libraries (virtually identical to the 2001 report by the same authors available on the Florida State University website).
199. ---. Assessing quality in digital reference services: preliminary findings. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 185-194.
Keywords: e-reference/ quality standards
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Reports the preliminary findings from the Assessing Quality in Digital Reference project, a study designed to develop, test and refine measures and quality standards to assess libraries' digital reference services.
200. Guenther, K. Know thy remote users. *Computers in Libraries*. 2001; 21(4):52-54.
Keywords: e-reference/ academic libraries/ user needs / USA
Abstract: Argues that while e-mail reference interviews, telephone calls and online chat are all workable methods for identifying users' needs, the use of server log statistics (WebTrends used) actually provides more solid information for reference librarians.
Measurements:-
(1) Top entry pages - pages from which users initially enter the Web site.
(2) Top referring pages - pages from which site has been referenced.
(3) Keywords used
(4) Top requested pages
(5) Top exit pages
Conclusion - the more you can focus and pinpoint services, the better you can serve your users.
201. Guernsey, L. Suddenly, everybody's an expert on everything. *The New York Times*. 2000; (3 February 2000).
Keywords: e-reference/ USA/ expert services
Abstract: An overview of Ask an Expert sites.
202. Gulliford, B. Making choices in the virtual world: the new model at United Technologies Information Network. *Library Trends*. 1998; 47(1):158-171.
Keywords: e-reference/ special libraries/ USA/ licensing/ delivery technology
Abstract: Discusses the shift from a traditional library system to a virtual system (including e-mail reference) at the United Technologies Corporation Information Network at East Hartford, CT. Includes a section on Technical and Licensing issues.
203. Hadid, P. and Reed, D. Web-based reference services [Web Page]. 2003. Available at: <http://www.multcolib.org/products/digref/resources.html>.
Keywords: e-reference/bibliography/e-resources
Abstract: A list of resources (many with live links) concerning Web-based reference services.
204. Hahn, K. An investigation of an e-mail based help service. College Park, MD: College of Library and Information Services, University of Maryland; 1997; CLIS Technical Report no. 97-03.
Keywords: e-reference/ electronic help desks/ academic libraries/ USA
Abstract: Analyzes an e-mail based question-answering service provided by a campus library system. This investigation used content analysis of service logs and interviews with staff and

users to identify participants models of ideal exchanges and the impacts of communication medium on service provision.

Concludes that e-mail limitations are lost time between messages, loss of message richness and system instability while the benefits include expanded access to the service, greater convenience for users and enhanced efficiency for staff due to the asynchronous nature of the medium.

205. Haines, A. and Grodzinski, A. Web forms: improving, expanding, and promoting remote reference services. *College & Research Libraries News*. 1999; 60(4):271-272,291.
Keywords: e-reference/ delivery technology
Abstract: Discusses the ways in which an online Web form can improve upon the limitations of e-mail reference.
206. Hartman, K. Virtual instruction - tutorials & literacy: providing library services for off-campus library users. *Proceedings of the Computers in Libraries Conference*; Wahington, DC. Medford, NJ: Information Today, Inc.; 2000: 104.
Keywords: e-reference/ distance learning/ academic libraries/ USA
Abstract: Very brief outline of conference paper focusing on the services to distance learners at the Mary Washington College's James Monroe Center Library. Services delivered through the library's web page and include a virtual ref service, document delivery, acquisitions lists, ILLs, course-related library research tutorials and links to proprietary Web-based resources.
207. Hattery, M. Computers in libraries: digital assistance for the wired student & e-books for fun. *Information Retrieval & Library Automation*. 2001; 36(11):1-4.
Keywords: e-reference/ academic libraries/ USA/ e-resources
Abstract: First half of this article discusses the Automated Reference Assistant software being used at the Carnegie Mellon University Libraries. Second half looks at an e-Book initiative organised by the University of Rochester.
E-resources - initiatives: the digitisation of books; the building of multimedia collections; the development of a smart Web exhibit
Strategies and policies - recommend lobbying faculty not to sign away copyright; hosting publications 'born digital'; creating or supporting economical alternatives to exorbitantly expensive publications; adopting and supporting the development of standards for managing intellectual property on the Internet and encouraging the archiving and migration of digital collections.
E-book initiative - challenges: (1) encryption (2) cataloguing (3) ordering and downloading (4) browsing
208. ---. Computers in libraries: virtual reference plus dead & emerging technologies. *Information Retrieval & Library Automation*. 2002; 37(11):1-5.
Keywords: e-reference/ USA/ delivery technology/ CDRS
Abstract: Provides an overview of virtual reference developments in the US. Discusses instant messaging technology and Reference Wizard, a research tool.
209. ---. Measuring digital reference: Charles McClure at LC. *Information Retrieval & Library Automation*. 2002; 37(10):2-3.
Keywords: e-reference/ evaluation / quality standards
Abstract: Discusses McClure's work on evaluating digital reference services. McClure is developing a manual of statistics, measures and quality standards for digital reference. Areas covered are:
(1) **Cost of DR service** - constant upgrading of hardware and software. He states that librarians must also take into account whether sufficient IT support is available; assess the contingencies of time and resources, staff knowledge, administrative support, complexity of service provided and the culture of the organisation towards evaluation.
(2) **Working with vendors** - need to agree on common set of definitions in relation to statistics.
(3) **New measures** - libraries need to know their user demographics, frequency and type of use, costs and how to track them over time and the effect of DR on the organisation and its staff. Data must be measured against a standard in order to be useful.
(4) **New data gathering methods** - recommends libraries use the log server analysis software. New methods = Web logs, URL analysis, Web usage analysis, location of users, portions of site accessed, number of documents downloaded and errors encountered by users.

Evaluation factors:-

- (1) The network - technological structure, content, services, support and management of network.
- (2) The infrastructure's output - extensiveness, efficiency, effectiveness, service quality, impact and usefulness.

210. Hattery, M. Reference service in a digital age: three projects. *Information Retrieval & Library Automation*. 1999; 34(9):1-2.
Keywords: e-reference/ USA
Abstract: Describes events at an ALA Midwinter Meeting on digital reference, at which three project proposals were discussed: a round-the-clock collaborative remote reference service; a clearinghouse on the Web; and the identification of the core competencies necessary for the digital reference librarian.
211. Haynes, A. Machine-Assisted Reference Section. *Reference & User Services Quarterly*. 2002; 41(3):306-.
Keywords: e-reference/ USA
Abstract: Very brief preview of a conference (in June 2002) organised by the Machine-Assisted Reference Section (MARS) of the American Library Association, which included a preconference titled 'Digital Reference @ Your Library'.
212. ---. Messages from MARS: machine-assisted reference section. *Reference & User Services Quarterly*. 2002; 42(1):97-.
Keywords: e-reference/ USA
Abstract: Brief article outlining MARS events.
213. Hegenbart, B. The economics of the Internet Public Library. *Library Hi Tech*. 1998; 16(2):69-83.
Keywords: e-reference/ Internet Public Library
Abstract: Looks at the University of Michigan's Internet Public Library from an economic perspective. Part of the analysis conducted showed that the IPL, which started out as an educational project, may not have been concerned initially with economic reality. The IPL has to realise that without proper and sufficient knowledge of its economic basis, its economic viability is in jeopardy.
214. Heilig, J. Virtual reference at Jones University. *Colorado Libraries*. 2001; 27(2):35-37.
Keywords: e-reference/ distance learning/ academic libraries/ USA/ information seeking skills
Abstract: Presents an in-depth overview of the Jones International University digital library. Goal of initiative is to mirror, as closely as possible, the best attributes of an on-campus academic library in a portable, Internet-based environment.
Features:-
 - Teaching students how to develop effective keyword searches and advising them about which databases to use and how to search them effectively
 - Research assistance - Topic-oriented research guides that provide overviews of major academic disciplines (list key resources)
 - Core collection of research resources evaluated collection of authoritative, content-rich Internet resources
 - Templates for answers to enable responses to be customised for each individual
 - Free document delivery for materials not available electronically
 - Library tutorials based on reviewing patterns of questions
 - Bibliographic instruction - online tutorials to help students develop their library and research skills
 - Team of on-call reference librarians who provide e-mail reference assistance
215. Heilig, J. M. e-global library: the academic campus library meets the Internet. *Searcher*. 2001; 9(6):34-43.
Keywords: e-reference/ academic libraries/ distance learning/ USA/ delivery technology/ role of librarian/ staffing
Abstract: Discusses e-global library, the first fully Internet-based, virtual library designed specifically for online students, which includes e-mail reference assistance and online tutorials for bibliographic instruction.
Case study - more detailed version of 'Virtual Reference' article. Examines what the e-global library has to offer other providers.
Discussion of the features listed above; collection development policies including evaluative

criteria; resource management process (covers cataloguing, resource and usage monitoring); software - use Eprise, content management software.

Role of the librarian - recognises that digital solutions enhance rather than replace the critical role of librarians. Believe as more and more digital content becomes available, additional librarians will be needed to manage this information and make it accessible to students.

Resource issues - time input required to create and manage one research guide explored.

216. Helfer, D. S. Has the virtual university library truly arrived? *Searcher*. 1999; 7(8):62-65.
Keywords: e-reference/ academic libraries/ distance learning/ USA
Abstract: Describes the totally electronic library that serves Jones International University. Includes a section on reference services.
Content very similar to Heilig articles.
217. ---. Virtual reference in libraries: remote patrons heading your way? *Searcher*. 2001; 9(2):67-
Keywords: e-reference/ academic libraries/ public libraries/ USA/ delivery technology/ Virtual Reference Desk
Abstract: Discusses the 24/7 Reference Project and VRD.
218. Helman, D. J. Bringing the human touch to digital library services. *Science & Technology Libraries*. 2001; 20(2/3):83-96.
Keywords: e-reference/ academic libraries/ USA/ staffing/ staff training/ delivery technology
Abstract: Discusses experiences with providing real-time digital reference at the Massachusetts Institute of Technology (MIT).
Software - includes a checklist for evaluating customer centre software.
Challenges - some technical challenges, but most significant are primarily due to the developing nature of co-browsing technology and learning how this new technology works in the current digital environment.
Key technical issues:-
(1) Co-browsing databases and Web sites
(2) Limiting the service to the MIT community
(3) Browser/Platform compatibility
(4) Speed/Reliability over the Internet
Other challenges:-
(1) Time - planning and implementation took longer than expected
(2) Human Resources - how will the service continue to be staffed?
(3) Buy-in
(4) Training - need to be able to use the software; importance of chat skills; the need for cross-training due to the 'general' nature of reference.
(5) Referrals - the need to refer questions to a different level of expertise
(6) Technical support
219. Henderson, T. MOOving towards a virtual reference service. *The Reference Librarian*. 1994; (41/42):173-184.
Keywords: e-reference/ delivery technology
Abstract: Discusses the software programme called LambdaMOO. This programme, the author argues, offers the reference librarian an early glimpse of the future of Internet reference services.
220. ---. Using the Internet and text-based virtual realities to create the Infocenter of the future. Williams, M. E., Ed. 15th National Online Meeting Proceedings; New York. Medford, NJ: Learned Information, Inc.; 1994: 199-206.
Keywords: e-reference/ delivery technology
Abstract: Details the background and history of the Infocenter, a library MOO, which allows real-time interaction between users and librarians.
221. Henry, M. The future of the academic reference desk in virtual library services: responses from university, public and community college libraries. *Internet Librarian Conference*; Pasadena, CA. 2001.
Keywords: e-reference/ USA/ academic libraries/ public libraries
Notes: A selection of PowerPoint presentations from these sessions ('Navigating the Net - Focus on Virtual Reference') can be found at
<http://www.infotoday.com/il2001/presentations/default.htm>

Abstract: Annotated list of books, articles and web pages relating to virtual reference services, plus testimonies from librarians.

222. Henson, B. Digital reference service at the Georgia Institute of Technology. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 125-131.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the service at Georgia Tech, which includes ASK a Librarian, and e-mail and Web reference service, and an online reference service using chat software.
223. Henson, B. and Tomajko, K. G. Electronic reference services: opportunities and challenges. Journal of Educational Media & Library Sciences. 2000; 38(2):113-121.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ staff training
Abstract: Discusses the changing nature of reference services in academic libraries, focusing on electronic services such as ASK, chat, and video/teleconferencing. The paper briefly discusses the following: (1) a brief history of electronic ref services (2) models that are currently in use (3) marketing the service (4) advantages and challenges (5) library staff competencies and skills needed to survive in the DR environment - need to be aware of differing communication requirements, ability to repond quickly and keyboard skills.
224. Hert, C. A. Information seeking and user-intermediary interactions: informing the design of digital reference services. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ government libraries/ user needs/ information seeking skills/ USA/ role of librarian/ information need
Abstract: Reports on research on the users of statistical information and their interactions with intermediaries and considers how these findings might translated into guidelines for the design of digital reference services. **The study examined user information seeking on Web sites.**
Literature indicates that:-
(1) Users experience gaps, anomalous states of knowledge and cannot tell intermediaries what they need or want
(2) Users come to intermediation settings with information needs as well as affective needs and a repertoire of behaviours
(3) Information seeking is 'situational' and 'contextual'
Characteristics of intermediaries:-
(1) Knowledge of relevant publications
(2) Knowledge of referrals
(3) An understanding of the specifics of data collection, dissemination tools and the information life cycle within their domain
(4) An understanding of how to help users express and refine their information needs
(5) Technical and searching skills
Recommendations:-
(1) Consider whether it is possible to provide a digital library of key resources and experts
(2) Provide additional guidance (either tutorials or automated tools) to improve the ability of users to search, download, print and otherwise manipulate various resources
(3) Consider whether intermediaries should provide additional interpretation services.
(4) Continue to build bridges among sets of experts.
225. Hinton, D. and McGill, L. Chat to a librarian: 21st century reference for distance learners. Vine. 2001; (122):59-64.
Keywords: e-reference/ academic libraries/ distance learning/ UK/ delivery technology/ staff training
Abstract: Discusses the University of Leicester Library Distance Learning Unit's use of chat reference software.
 - Reasons why HumanClick (rejected AOL Instant Messenger and Livehelper) was chosen
 - How HumanClick works
 - Features of HumanClick including clues or _'electronic body language'
 - Privacy policy
 - Issues arising 1) Cost 2) Time delays 3) Availability status of librarians 4) Staffing - time for complex calls 5) Chat mode signals 6) Complexity of enquiry 7) Technical issues 8) **Training**

and staff support - training and practice were vital to the success of interactions 9) Audience

Conclusion:-

Software provides: 1) the opportunity and potential for staff to consider telecommuting 2) the library with the opportunity to provide a reference service outside 'normal' hours 3) potential to increase student's access to the library's services.

226. Hirko, B. Live, digital reference marketplace. *School Library Journal, NetConnect Supplement* . 2002; 48(11):16-19.
Keywords: e-reference/ delivery technology/ USA/ commercial services
Abstract: A review of digital reference software and vendors.
227. ---. Moving fast: the Statewide Virtual Reference Project. *Alki*. 2002; 18(2):7.
Keywords: e-reference/ public libraries/ USA/ staff training
Abstract: A brief overview of the Washington Statewide Virtual Reference Project, an initiative focused on developing best practices, methods and standards for creating virtual reference services in Washington State libraries. Briefly mentions staff training to cover **core competencies** such as keyboard and chat skills; online searching; critical thinking skills; effective reference techniques and troubleshooting.
228. Hitchen, J. Implementing an electronic helpdesk. *Library & Information Update*. 2003; 2(2):38-40.
Keywords: electronic help desks/ delivery technology/ staffing/ information seeking skills
Abstract: Discusses the processes involved in choosing and implementing an electronic helpdesk system.
Software - choosing: how easy is it to import a user database? How does the system cope with large numbers of users? What unique identifiers are available? How easy is it to customise? How many licences will be needed? Is there a quick way to log common topics?
Implementation - Number and nature of fields?; user database; call categories?; practical measures e.g. extra PCs; staff training technological and customer care skills.
Staffing - analysis of traffic statistics to review staffing levels; introduction of student IT helpers
User needs - examination of the call categories of a frequent caller might reveal a need for user training
229. Hoag, T. J. and Cichanowicz, E. M. Going prime time with live chat reference. *Computers in Libraries*. 2001; 21(8):40-44.
Keywords: e-reference/ public libraries/ USA
Abstract: Describes the development of the Suffolk Cooperative Library System's live, online chat reference service, a pilot project for public libraries in Suffolk County, New York.
230. Hodges, R. A. Assessing digital reference. *Libri*. 2002; 52(3):157-168.
Keywords: e-reference/ academic libraries/ user needs/ USA/ delivery technology
Abstract: Examines digital reference questions received at a large university library in the Southeastern United States. The goal of this study was to identify user needs as reflected in the queries they submitted. Content analysis and descriptive statistics are used to analyze the data.
Findings/conclusions:-
(1) Low student usage of DR - recommend reducing number of clicks needed from the home page to a minimum.
(2) Reference, instructional, technological and non-ref assistance were the most frequent types of information requested.
(3) Users primarily experienced difficulty searching or accessing specific bibliographic databases and the OPAC. Other users required instructional assistance.
(4) Questions received simulate those received by traditional ref services
(5) Need for library to better market service to increase usage from target audience
(6) Recommends use of a FAQ database to manage repetitive questions and save search time
(7) DR form needs to be well designed
(8) The use of more sophisticated software containing collaborative features e.g. co-browsing, would better facilitate instructions and demos for librarians and users
231. Hodgkin, A. Integrated and aggregated reference services: the automation of drudgery. *D-Lib Magazine*. 2002; 8(4).
Keywords: e-reference/ e-resources/ delivery technology/ service guidelines/ copyright

Abstract: Discusses the xrefer software which provides aggregated and integrated online reference services. Advocates the **aggregation model** for Web ref services - advantages: (1) by combining ref works together at one URL, the ref service becomes much better known to potential users and easier to find (2) by tackling a number of ref works, there are economies of scale in production and development (3) the user's search session is likely to be much more powerful and fruitful since a collection of ref resources 'behind' a common interface can be meta-searched Advantages are scalable. Goes into detail on the development of xrefer software.

Conclusion:-

A properly comprehensive and scalable ref service needs to:-

- (1) Incorporate works from a broad range of publishers
- (2) Provide a command searching interface to all the resources
- (3) Deliver improved browsing possibilities to end-users
- (4) Become more informative and more useful as more material is added to the service
- (5) Facilitate selections of appropriate sources by librarians according to the constituencies they serve
- (6) Enable the owners of copyright materials to extract a fair return from widely used and popular material
- (7) Enable the owners of copyright materials to extract a fair return from material that is valuable but little used
- (8) Interact and interoperate with other information services on the Web

232. Hohmann, L. K. Providing reference services over the Internet. *Colorado Libraries*. 2000; 26(2):16-18.
 Keywords: e-reference/ USA/ implementation/ delivery technology
 Abstract: An overview of some virtual reference services in the USA. Discusses e-mail and chat services.
 Advises libraries considering instituting web-based ref to: (1) examine the various ways other libraries are providing service (2) explore issues related to providing such services (3) consider the future of web-based reference. Discusses the disadvantages of web-based ref. Suggests that librarians need to embrace new technologies and formulate policies that will ensure that the web-based ref services they provide are of as high a quality as those provided within the library.
233. Holmer, S. E. and Silveria, J. B. Food for thought at the QandAcafe. *Information Strategies* 2001; Fort Myers, Florida. 2001.
 Keywords: e-reference/ USA/ Virtual Reference Desk
 Abstract: A brief overview of the use of the Virtual Reference Desk program in libraries in the San Francisco and Monterey Bay areas.
234. Hopkins, A. and Sapiie, J. Survey of the confidence levels of public service librarians in using electronic reference sources. *The Reference Librarian*. 1999; (65):111-123.
 Keywords: e-resources/ public libraries/ staff attitudes/ USA
 Abstract: A survey of public service librarians at the Queens Borough Public Library in New York to determine their confidence levels of using electronic resources to answer reference questions.
Findings:-
 (1) High confidence levels in using the library's catalogue and lower results in using the Internet
 (2) The lowest confidence levels were for questions dealing with personal computers and handling customer complaints about the Internet
 (3) Branch size, position or rank of the respondent did not affect confidence levels in any predictable fashion
235. Horn, J. The future is now: reference service for the electronic era. *Proceedings of the 10th National Conference of the Association of College and Research Libraries*; Denver, Colorado. 2001.
 Keywords: e-reference/ academic libraries/ USA/ implementation/ staffing/ service guidelines
 Abstract: Discusses the electronic reference service at the University of California Irvine Libraries.
 Examines the move from e-mail to web contact centre software (WebLine and eGain). Includes

guidelines on planning for the implementation of real-time electronic reference service.

Guidelines (operation and management) - responsibilities of team members for answering questions; protocol for answering questions; making referrals and answering questions from users not affiliated with UCI. Samples provided.

Staffing issues - transferable knowledge and skills gained through the use of e-mail and transferable to real-time reference service include (1) experience in conducting electronic reference interviews (2) experience in defining standards for quality responses (3) knowledge of the type of FAQs (4) knowledge of how best to structure and conduct user surveys

Issues, other than technological, which must be considered:-

- Need for user instruction
- Determine the audience served
- Costs and technology to support such a service
- Training requirements
- Scalability of service
- Staffing and workload issues potential for service to grow very quickly

Planning for implementation of Real-time electronic reference service issues to consider:-

- Integration of real-time reference with in-person reference
- Establishment of service policies
- Training librarians in the use of Web content sharing software and Web sites
- Privacy issues

These are just a few of those listed.

Conclusion:-

Electronic reference provides academic libraries with opportunities to expand reference services, utilise resources and staff innovatively, and engage in collaborative endeavours in ways never before possible.

236. Horn, J. and Kjaer, K. Evaluating the "Ask a Question" service at the University of California, Irvine. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 135-152.

Keywords: e-reference/ academic libraries/ evaluation / USA/ service guidelines

Abstract: Examines the 3 methods used by UCI Libraries to evaluate its e-reference service: statistical analysis, user surveys, and quality review. Appendix A provides guidelines for Ask A Question Responses.

Policies:-

- (1) Response time
- (2) Target audience
- (3) Dealing with non-affiliated users
- (4) Types of questions accepted

Focus for evaluation is on (1) quality of the response (2) user satisfaction with the response (3) the question-answer process that has been established.

Evaluation methods:-

- (1) Statistical analysis - types of users and questions; days and times of activity; turnaround time.
- (2) User surveys
- (3) Quality review - quality of responses; methods of **evaluating staff performance** include user surveys, unobtrusive testing, peer assessment, grading or tracking and self-assessment

237. Hoskisson, T. and Wentz, D. Simplifying electronic reference: a hybrid approach to one-on-one consultation. College & Undergraduate Libraries. 2001; 8(2):89-102.

Keywords: e-reference/ academic libraries/ USA/ delivery technology/ library instruction

Abstract: Discusses Utah State University's hybrid service known as "Term Paper and Research Assistance" programme which combines e-mail reference and in-person reference appointments. Outlines the philosophical underpinnings of the service; advantages; use statistics ; feedback from students and colleagues.

238. Hughes, C. A. Building a Cheshire Cat: physical space for virtual needs. Discussion Group on Reference Work, part of the 66th IFLA General Conference; Jerusalem. 2000.

Keywords: e-reference/ academic libraries/ USA/ library instruction/ role of librarian

Abstract: Describes the reorganization of the reference services at the University of Iowa Libraries, particularly in terms of space design for virtual reference services.

239. Huling, N. R/evolution in reference services: research on digital reference. *Alki*. 2000; 16(2):21-22.
Keywords: e-reference/ USA
Abstract: Discusses the digital reference research being conducted by Joseph Janes at the University of Washington.
240. Hull, T. J. and Adams, M. O. Electronic communications for reference services: a case study. *Government Information Quarterly*. 1995; 12(3):297-308.
Keywords: e-reference/ archives/ government libraries/ USA/ delivery technology
Abstract: Discusses the use of listservs, e-mail and file transfer protocol as ref and outreach tools by the Centre for Electronic Records of the National Archives of the United States.
241. Hulshof, R. Providing services to virtual patrons. *Information Outlook*. 1999; 3(1):20-23.
Keywords: e-reference/ user needs/ service guidelines/ delivery technology/ staffing/ staff training
Abstract: Examines the unique aspects of providing library reference services in an electronic and virtual library setting. Examines issues relating to technical support. Maintains that libraries should establish policies and procedures to support virtual patrons.
The principal considerations when dealing with virtual patrons are:-
(1) Immediacy - the ease of transmitting requests and the expectation of speedy replies
(2) Intricacy - can reduce benefits of electronic information and so must be addressed
(3) Interaction - lack of
Technical support = most significant additional service that electronic library users have is the need for technical support.
Considerations when providing technical support - (1) Parameters of technical support need to be established (2) Addressing disparities in technical know-how of the virtual patrons (3) The need for carefully designed written materials to support remote users.
Policies on technical support should address:-
(1) What kind of virtual patrons will the library support?
(2) What software, hardware and troubleshooting issues will the library address?
(3) What are the priorities for this support?
(4) What allowance is made for hand-off to other services?
All policies should be written down and regularly revisited.
Tools for technical support - hardware and software (choice linked to probable equipment used by patrons); software manuals.
Impact on staff - all staff should be involved in the development of a technical support plan and be provided with training.
242. Hummelshoj, M. Do we really serve our users? A model for evaluation and development of reference services on the Internet. Discussion Group on Reference Work, part of the 66th IFLA General Conference; Jerusalem. 2000.
Keywords: e-reference/ academic libraries/ public libraries/ Denmark/ evaluation / web site design
Abstract: This paper presents **a model for evaluating and developing ref services on library web sites**. The model illustrates four types of reference service: information services, value added services, communication services and transaction services. It has been applied to surveys of Web-based reference services in Danish research and public libraries. The conclusion was that the model is applicable to the evaluation of ref services in any type of library and could be the basis for development of services as well.
243. Hummelshoj, M. Virtual reference services in public libraries: from "access to" to "use of" information. *Virtual Reference Desk Conference 2002*; Chicago. 2002.
Keywords: e-reference/ public libraries/ Scandinavia
Abstract: Presents the results of an evaluation of the virtual reference services in 45 Scandinavian public libraries.
244. Internet Public Library. *IPL press clippings bibliography*. 2002.
Keywords: e-reference/ Internet Public Library/ bibliography

Abstract: Lists published articles about the Internet Public Library.

245. Irwin, K. R. Professional reference service at the Internet Public Library with "freebie" librarians. *Searcher*. 1998; 6(9):21-23.
Keywords: e-reference/ Internet Public Library/ USA/ staffing
Abstract: Describes the volunteer-based reference service provided by the University of Michigan's Internet Public Library. The service is staffed by library school students and volunteer professionals.
246. Jackson, J. and Parton, B. Virtual Reference Desk for regional education center libraries. *Illinois Libraries*. 1999; 81(1):39-41.
Keywords: e-reference/ academic libraries/ USA/ Virtual Reference Desk
Abstract: Discusses the development of a Virtual Reference Desk at the Lincoln Land Community College in Illinois.
247. Jackson, M. G. A primary knowledge revolution: new demands, new responsibilities for reference librarians and services in the digital age. *Library Quarterly*. 2002; 72(1):123-128.
Keywords: e-reference/ literature review
Abstract: A review article, discussing three works by Dilevko, Whitlatch, and by Lankes, Collins and Kasowitz, respectively.
248. Jackson, W. Faster facts: the Library of Congress tests its virtual reference network. *Government Computer News*. 2001; 20(12).
Keywords: e-reference/ CDRS
Abstract: A brief news article on the Collaborative Digital Reference Service.
249. Jacsó, P. Virtual reference service and disservice. *Computers in Libraries*. 2003; 23(4):52-54.
Keywords: e-reference/ e-resources
Abstract: Focuses on making better use of high-quality digital reference services in the virtual context. Discusses the development of the PolySearch Engine which runs a simple query against several reference databases at one time.
E-resources - need for library Web sites to avoid including in their link lists inferior sources e.g. Free Internet Encyclopaedia; should include links to free digital reference sources e.g. xrefer; need to annotate link collections; need to offer multiseach engines for the most commonly needed and best ready-reference sources.
250. Jaeger, J. Comparing online library and "Ask an Expert" sites. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 205-212.
Keywords: e-reference
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: An examination of 6 'Ask an Expert' sites and 6 online reference sites in terms of responses to a set of 10 queries taken from various subject areas.
251. Jagman, H. An introduction to the next steps in online reference services. *Public Services Quarterly*. 2002; 1(2):5-13.
Keywords: e-reference/ USA/ CDRS/ delivery technology
Abstract: An overview of current digital reference issues. Discusses CDRS; chat software - advantages, issue of privacy, staffing issue, consortially staffed projects, getting librarians used to 'chatting'; need for a policy outlining who can access the service.
252. Janes, J. Digital reference: reference librarians' experiences and attitudes. *Journal of the American Society for Information Science and Technology*. 2002; 53(7):549-566.
Keywords: e-reference/ staff attitudes/ public libraries/ academic libraries / USA/ staff training
Abstract: Reports the results of a survey of reference librarians in public and academic libraries of various sizes in the USA asking about their experiences with and attitudes towards the use of digital and networked technologies and resources in reference work. Claims to be the first

comprehensive examination of this area.

Summary:-

1. In general, respondents were positive and optimistic in their outlook

2. Strongest findings were:-

(i) a correlation between recent experience at doing DR and positive attitudes towards it;

(ii) a clear set of opinions about what such services would be best and worst at;

(iii) differing perspectives and patterns of responses between academic and public librarians.

The results address 2 areas - 1) Reference Services and their characteristics - question difficulty and numbers 2) Librarians and their characteristics - knowledge and experience with technologies

253. ---. Digital reference: services, attitudes, and evaluation. *Internet Research*. 2000; 10(3):256-258.
Keywords: e-reference/ public libraries/ USA
Abstract: Introduces research, funded by the Library of Congress and conducted at the University of Washington, investigating the scope and characteristics of digital reference services in US public libraries. The new research programme consists of 4 studies: (1) Range and scope of DR in public libraries (2) Evaluation of ask-an-expert services (3) Survey on attitudes about DR (4) Early experiences and the practice of DR
254. ---. Digital reference services in public and academic libraries. McClure, C. R. and Bertot, J. C., Eds. *Evaluating networked information services: techniques, policy issues*. Medford, NJ: Information Today, Inc.; 2001; pp. 175-195.
Keywords: e-reference/ public libraries/ USA/ service guidelines/ implementation
Abstract: An examination of the websites of a national sample of US public libraries, to determine the extent, nature and aspects of digital reference services in public libraries. Areas investigated were (1) whether a library had a web site (2) characteristics of digital library services - links from home page, existence of FAQs, technological barriers to access, ways of taking questions, policies on type of questions answered/on kinds of users they would serve/on the turnaround time for answers.
Recommendations for those currently offering, planning or considering a DR service:-
(1) Be out there - don't be put off by concerns about being overwhelmed.
(2) Tell the truth about response time
(3) Think really hard about the questions you'll be best at
255. ---. The Internet Public Library: an intellectual history. *Library Hi Tech*. 1998; 16(2):55-68.
Keywords: e-reference/ Internet Public Library/ USA
Abstract: Discusses the development of the Internet Public Library at the University of Michigan. Includes section on lessons learned.
256. Janes, J. *Introduction to reference work in the digital age*. New York: Neal-Schuman Publishers; 2003.
257. Janes, J. Live reference: too much, too fast? *School Library Journal, NetConnect Supplement*. 2002; 48(11):12-14.
Keywords: e-reference/ delivery technology
Abstract: A brief review of current e-reference issues. Discusses synchronous and asynchronous technology.
258. ---. Not-for-profit service organizations and economic viability on the Internet. *INET96 Proceedings*; Montreal. 1996.
Keywords: e-reference/ Internet Public Library/ USA
Abstract: Explores, as a case study, the Internet Public Library regarding its continuing economic viability and sustainability.
259. Janes, J. What is reference for? *American Library Association Annual Conference 2002*; Atlanta. 2002.
Keywords: e-reference
Abstract: Discusses the future of reference services in a technological environment.
260. Janes, J. Why reference is about to change forever (but not completely). Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management,*

and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 13-24.

Keywords: e-reference

Abstract: Examines the nature of library reference and the effect that the introduction of the connectivity of the Internet could have on it. Resources that are important to this emerging environment are discussed including information, technologies, people and financial resources.

261. Janes, J.; Carter, D., and Memmott, P. Digital reference services in academic libraries. *Reference & User Services Quarterly*. 1999; 39(2):145-150.

Keywords: e-reference/ academic libraries/ USA/ service guidelines

Abstract: Aimed to identify the proportion of libraries conducting digital reference service and to examine the characteristics of those services - direct links from library homepages, ways in which users submit questions, FAQs documents, policies, technological barriers and the role of institutional control. Based on a survey of 150 academic library Web sites.

Findings:-

- (1) 50% of academic libraries offered a DR service
- (2) 50% of these were not linked to the library Web page
- (3) More than 50% used a simple Web form, an e-mail address to which questions could be sent was the next popular.
- (4) Only 3 libraries had FAQ documents
- (5) The majority of libraries had each of the listed policies with the most popular being turnaround time
- (6) 18 had barriers

262. Janes, J. and Hill, C. Finger on the pulse: librarians describe evolving reference practice in an increasingly digital world. *Reference & User Services Quarterly*. 2002; 42(2):54-65.

Keywords: e-reference/ USA/ staff attitudes/ staffing/ service guidelines/ quality standards

Abstract: An exploratory study designed to produce a preliminary sense of reference librarians' experiences in adapting reference practice to the digital environment. Findings describe a wide variety of experiences and include discussion around service character and policy, the DR interview, and future directions for ref practice.

Areas addressed are:-

- 1) Starting a DR service - motivations and volume of service
- 2) The character of DR services - in contrast to traditional ref practice. This section examines 3 areas:-
 - i. Staff and directorship - varying staffing levels
 - ii. Policies and guidelines - wide variety and little consensus in the development of policy or limits to DR service. **Good table on pg 59 which outlines policies and their limitations.**
 - iii. The ref interview
 - iv. Equity and quality - level of service, evaluation and standards

263. Janes, J.; Hill, C., and Rolfe, A. Ask-an-expert services analysis. *Journal of the American Society for Information Science and Technology*. 2001; 52(13):1106-1121.

Keywords: e-reference/ commercial services/ expert services/ USA/ implementation

Abstract: A study of 10 commercial and 10 noncommercial online ask-an-expert service sites. The researchers asked 240 questions of these sites. Discusses the history and emergence of non-library commercial and non-commercial information services on the World Wide Web known as 'expert services'.

Operation and management

Recommends considering how traffic volume, site monitoring of expert service procedures and number of experts is related to overall site performance.

Also suggests that libraries interested in developing better digital reference services should reconsider decisions to restrict their services to fact questions and to further develop their capabilities (and expectations) for answering detailed and source-dependent questions in the digital environment.

264. Janes, J. and Silverstein, J. Question negotiation and the technological environment. *D-Lib Magazine*. 2003; 9(2).

Keywords: e-reference/ reference interview

Abstract: Discusses the reference interview and question negotiation in the virtual reference

environment.

Digital transaction modes/Reference interviews characteristics (1) Asynchronous interviewing - e-mail and web forms: discussion points - loss of nonverbal cues, the disappearing questioner, longer interview times, creation of a permanent record, lack of feedback on responses, opportunity for both parties to think through the question and response (2)

Synchronous interviewing - chat and call centre software: discussion points - time element: enquirers often in a hurry and sessions can be lengthy, vague queries, unfamiliarity with the chat medium.

Trends - growth of synchronous services; more consortial services and greater scrutiny of digital reference.

Management of reference services - QRC management functions e.g. taking queries via email or web form, analysing queries, performing query triage etc.

Question negotiation - discussion of QuestionPoint service, an outgrowth of CDRS; MULDER, a fully-automated question-answering system available on the Web; QABuilder software and the National Science Digital Library.

265. Jawarowski, C. There's more to chat than chit-chat: using chat software for library instruction. *Information Strategies* 2001; Fort Myers, Florida. 2001.
Keywords: library instruction/ distance learning/ USA/ staffing/ delivery technology
Abstract: A brief overview of the library instruction service conducted using chat software at the Florida Distance Learning Reference & Referral Center.
Choice of software - free, easy to use, requires no downloading or installation by end-user and accommodates multiple users.
Providing instruction via chat - recommendations: 1) need 3 librarians per session 2) use a pre-written script 3) offer workshops at two different times
Staffing issues - intensive use of librarians (see above)
266. Jenkins, L. The information superhighway, the community college and the real world: reflections on the impact of technology on reference work. *Community and Junior College Libraries*. 1999; 8(2):45-49.
Keywords: e-reference/ academic libraries/ USA
Abstract: Discusses the impact of technology on reference work at the Library of Broome Community College, NY.
267. Jensen, A. and Sih, J. Using e-mail and the Internet to teach users at their desktops. *Online*. 1995; 19:82-86.
Keywords: e-reference/ academic libraries/ library instruction/ USA/ delivery technology
Abstract: Describes an experiment at the University of California where e-mail is used as a delivery method for library user instruction modules.
268. Jesudason, M. Outreach to student-athletes through e-mail reference service. *Reference Services Review*. 2000; 28(3):262-267.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Describes an e-mail reference service to student-athletes at the University of Wisconsin-Madison.
269. Johnson, A. Providing user-centered reference services: usability in academic library e-reference sites. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 195-204.
Keywords: e-reference/ academic libraries/ USA
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Examines the user interface and accessibility of e-reference services in select American research libraries to highlight possible reasons why e-reference has expanded at a slow rate and provide recommendations for improvement.
270. Johnson, C. A. and McCarty, L. Distance education and digital reference: the Yellow Brick Road? *Alki*. 2001; 17(1):6-9.
Keywords: e-reference/ distance learning/ academic libraries/ USA/ role of librarian

Abstract: A brief overview of distance education and digital reference issues.
 Discusses changing role of librarians and library services in distance education in relation to the huge expansion of digital resources.
 Examines competition from the private sector.
 Proposes a hybrid formula for distance education rather than the formation of a virtual university.
 The hybrid format would be achieved by increasing the number of online courses and in the use of the Internet.
 Rails against disintermediation.

271. Johnston, S. D. Rethinking privacy for the virtual library. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 41-46.
 Keywords: e-reference/ privacy
 Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
 Abstract: An examination of aspects of information privacy as they relate to virtual reference service.
272. Jokitalo, P. The Finnish library portal. *D-Lib Magazine*. 2000; 6(10).
 Keywords: e-reference/ public libraries/ Finland
 Abstract: Brief article discussing the Finnish Networked Public Library Services, a Web-based portal that includes an Ask A Librarian service.
273. Jones, A. and Webb, E. An evaluation of the use of an intranet-based knowledgebase to support on-line dialogue. *Learning Technology*. 2000; 2(1).
 Keywords: e-reference/ academic libraries/ UK/ user needs
 Abstract: Discusses a prototype intranet-based knowledgebase at the University of Teeside, where students can search for questions using selected keywords, ask questions which are answered by appropriate experts, and contribute to official answers.
274. Jonsby, E. The virtual librarian answers your questions. *Scandinavian Public Library Quarterly*. 2000; 33(3):20-22.
 Keywords: e-reference/ public libraries/ Sweden/ delivery technology
 Abstract: Discusses a public, web-based 'Ask the Library' service being operated by Swedish public libraries.
275. Joshi, I. AskUsQuestions.com: live experienced librarians available over the Web. *Unabashed Librarian*. 2001; (118):9-13.
 Keywords: e-reference/ USA
 Abstract: Discusses the chat-based e-reference service at libraries in the North-east Ohio area.
276. Kaske, N. and Arnold, J. An unobtrusive evaluation of online real time library reference services. *Library Research Round Table, American Library Association Annual Conference; Atlanta, Georgia*. 2002.
 Keywords: e-reference/ USA/ delivery technology/ public libraries/ academic libraries
 Abstract: A study of real-time reference services at 6 public libraries and 30 academic libraries in the USA. Addressed 3 areas: 1) performance of the 'chat' service 2) accuracy of responses 3) the ref interview process
277. Kasowitz, A. Facets of quality for K-12 digital reference services. 1999.
 Keywords: e-reference/ school libraries/ USA/ quality standards
 Abstract: Discusses 11 'facets of quality' for building a digital reference service for the K-12 educational community, as identified by the 1997 Virtual Reference Desk Expert Panel. The facets are divided into 2 main categories: user transaction and service development and management.
278. ---. Untitled paper. *Proceedings of the First Annual Federal Focus Ed-Mentor Symposium; Washington, DC*. 1999.
 Keywords: e-reference/ USA/ Virtual Reference Desk
 Abstract: An overview of digital reference services, in particular the Virtual Reference Desk

Project at Syracuse University. Describes different types of 'AskA' services and the issues faced by DR services - message components; quality control; age-appropriateness; privacy; turnaround time; expert competencies and training; technology and volunteers.

279. Kasowitz, A.; Bennett, B., and Lankes, R. D. Quality standards for digital reference consortia. *Reference & User Services Quarterly*. 2000; 39(4):355-363.
Keywords: e-reference/ quality standards/ school libraries/ USA
Abstract: Identifies **a working set of standards by which to assess individual digital reference services** and to define membership within a collaborative network of digital reference services. The standards are designed for the Virtual Reference Desk AskA Consortium. This article presents the standards in the context of traditional and digital reference evaluation; describes the process by which the standards were created and revised; presents the standards as defined by multiple levels of adherence; discusses common themes reflected in the standards and applies the standards to other digital reference contexts and consortia. Plans for continual evaluation of the standards are also discussed.
280. Kasowitz, A. S. AskA service question submission forms; 1998.
Keywords: e-reference/ USA/ expert services
Abstract: An overview of query forms provided by 8 exemplary AskA services identified by the Virtual Reference Desk project.
281. --. Guidelines for information specialists of K-12 digital reference services; 1998.
Keywords: e-reference/ service guidelines/ USA
Abstract: Offers guidelines for providing information to K-12 community members over the Internet. These guidelines are based on the Eisenberg & Berkowitz's Big6 skills - task definition; information seeking strategies; location and access; use of information; synthesis and evaluation.
1) Task definition - identify question in message and user characteristics, determine appropriate type of response.
2) Information seeking strategies - think about possible sources to answer question, decide which sources are most appropriate for question.
3) Location and access - find appropriate sources, find info within sources that best answers the question.
4) Use of info - access info found in response or from own expertise, transfer info into response.
5) Synthesis - provide factual info and/or refs to resources in response, provide instructional guidance for using info, use clear and appropriate language and presentation.
6) Evaluation - review content, evaluate language and tone of message.
282. --. Promoting information problem solving in digital reference responses. 1998.
Keywords: information seeking skills/ library instruction
Abstract: Describes **a well-known model of information problem-solving (The Big6)** and suggests ways that information specialists can instruct children and adult users to use information problem-solving in assignments, research and aspects of daily life.
Step 1 - Task Definition: info specialists can provide tips and questions for users to think about in focusing on a specific info problem. They may also refer users to other individuals who can help them with this process e.g. teachers, parents.
Step 2 - Information Seeking Strategies: info specialist guiding the user to info resources.
Step 3 - Location and Access: info specialist describes the decisions made in locating and accessing info and in so doing, helps teach users to search for info and use resources effectively on their own.
Step 4 - Use of info: info specialist guiding users in effective methods for interacting with the info provided.
Step 5 - Synthesis: info specialist helping users present info that they've gathered from various sources.
Step 6 - Evaluation: info specialist guiding users through the evaluation process by explaining decisions made in including info and resources within the response and by encouraging users to assess their own use of resources and involvement in the info problem solving process.
283. --. Trends and issues in digital reference services. Syracuse, NY: ERIC Clearinghouse on Information and Technology; 2001; ERIC Digest EDO-IR-2001-07.

Keywords: e-reference/ USA/ delivery technology/ collaboration / technical standards

Abstract: Discusses the provision of real-time reference service, collaborative efforts among networks of libraries and organizations, and the development of quality and technical standards.

1) Collaborative DR services - benefits (sharing of expertise and resources; expansion of hours and larger knowledge bases) and challenges (ensuring quality of responses; reaching consensus in developing policies and procedures and configuring technology)

2) Developing standards - Question Interchange Profile (QuIP) and KnowledgeBit

284. Katz, B. Long live old reference services and new technologies. *Library Trends*. 2001; 50(2):263-285.
Keywords: e-reference
Abstract: Argues that it is necessary to fit new technologies into traditional reference service goals and hence a new approach to many methods of service is required. Includes a discussion of 24/7 online reference services.
285. Kautzman, A. M. Digital impact: reality, the Web, and the changed business of reference. *Searcher*. 1999; 7(3):18-24.
Keywords: e-reference/ academic libraries/ staff training
Abstract: Examines the day-to-day realities of running an academic library reference desk with digital resources. Addresses the issues of infrastructure (equipment and maintenance); hardware/software (upgrading); training (the endless pursuit of technological expertise); collections and reference.
286. Kawakami, A. K. Delivering digital reference. *School Library Journal, NetConnect Supplement*. 2002; 48(5):28-29.
Keywords: e-reference/ implementation/ staffing/ staff training
Abstract: Discusses the management of virtual reference services. Areas covered are: staffing; training; time management; opening hours; questions asked; marketing; librarian privacy issues and customer feed back.
Staffing - various models discussed e.g. collaborative approach; centralised approach within the institution.
Training - via software vendor, internal efforts e.g. helpful directories and tips for using search engines.
Time management - staff the desk away from in-person and telephone interruptions; shift length.
287. Kawakami, A. K. Testing the road to real-time digital reference: pilot projects at the University of California, Los Angeles. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 75-81.
Keywords: e-reference/ academic libraries/ USA
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Discusses the implementation of real-time digital reference using collaborative Web browsing software in three pilot projects at UCLA.
288. Kelly, J. and Robbins, K. Changing roles for reference librarians. *Journal of Library Administration*. 1996; 22(2/3):111-121.
Keywords: academic libraries/ role of librarian
Abstract: Raises questions about the future of traditional reference services in light of rapid developments in computing and networking in academic libraries.
Role of librarian:-
1) Ref librarians being relieved of non professional tasks and being given responsibilities for tasks traditionally done at higher levels.
2) Librarians becoming more involved with the computer specialists and the support staff and more active in outreach to users.
3) Teaching may be more of an emphasis for librarians of the future due to changes in the curriculum towards problem-based learning.
4) Consumer analysis - asking users about their needs - will become part of their roles.
289. Kena, J. Performance indicators for the electronic library. 1998.

Keywords: e-reference/ public libraries/ performance indicators/ Australia/ evaluation
Abstract: Discusses Peter Brophy's work on developing performance indicators (PI) for electronic libraries and how these are used for collecting and reporting performance data for electronic library services in New South Wales public libraries. How PI are categorised and the difficulties in devising them are discussed.

Need for performance indicators to be both quantitative and qualitative and measure inputs, outputs and impacts.

Electronic library must be evaluated as part of a total library service and in terms of each individual electronic title held. This paper addresses performance indicators in terms of the total library service.

PI can be categorised in terms of managerial tasks:-

- 1) operational management - day-to-day organisation and control
- 2) forward planning - medium to long term, trends, what-ifs
- 3) evaluation and review - analysis of activity in relation to user requirements, comparison with other libraries

These are discussed in greater detail (pp 8-10)

PI can be categorised in terms of:-

- 1) input measures (staff, material, funds)
- 2) output measures (ILL transactions, ref enquiries, new titles)
- 3) outcome or impact measures (customer satisfaction, effect on users)

Areas suggested for qualitative assessment (McClure & Lopata, 1996):-

- 1) Users - number and type
- 2) Costs
- 3) Network traffic - amounts and type
- 4) Use - amounts and type
- 5) Services - applications available
- 6) Support

290. Kenney, B. Live, digital reference: a close look at libraries' exciting new service. 2002; 127(16):46-50.
Keywords: e-reference/ USA/ staffing/ staff training/ evaluation
Abstract: Report of a Library Journal Round Table discussion on digital reference services.
Issues addressed were:-
1) Numbers and marketing 2) Sustainability 3) Competition and models 4) Evaluation 5) Outsourcing 6) Staffing and training 7) The future 8) Beyond the library
291. Kibbee, J.; Ward, D., and Ma, W. Virtual service, real data: results of a pilot study. Reference Services Review. 2002; 30(1):25-36.
Keywords: e-reference/ academic libraries/ USA/ staffing/ staff training/ evaluation / service guidelines/ delivery technology
Abstract: Discusses the implementation of a pilot real-time online reference service at the University of Illinois at Urbana-Champaign. Issues addressed were: 1) software selection - HumanClick; 2) policies and procedures - scope, intended audience and confidentiality; 3) promotion and marketing; 4) user interface; 5) training and staffing - development of a staff training Web site) and 6) evaluation - transcript archive database.
292. Kibbee, J. Z. Organizing, delivering, and managing reference services. Bopp, R. E. and Smith, L. C., Eds. Reference and information services: an introduction. 3rd.ed. ed. Englewood, Colorado: Libraries Unlimited, Inc.; 2001; pp. 265-278.
Keywords: e-reference/ delivery technology/ role of librarian
Abstract: Includes 2 relevant sections:-
1) 'Moving beyond library walls' - initiatives to provide information services to remote users, primarily utilising e-mail and videoconferencing.
2) 'New roles, new responsibilities' - role of ref librarian as an information organiser/creator and technology facilitator.
293. Kimmel, S. and Heise, J. Being there: tools for online synchronous reference. Online. 2001; 25(6):30- .
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the six software products - Convey Systems, LiveHelper, Live-Assistance, InstantService, CS-LIVE and Live Person - considered for use in the pilot e-reference service at

Lehigh University in Bethlehem, PA. Includes a listing of Lehigh's software feature wish list - functionality; patron interface; agent interface and administration. Each product is evaluated against these 4 areas.

294. Kisby, C.; Kilman, M., and Hinshaw, C. Extended reference service in the electronic environment. *Information Technology and Libraries*. 1999; 18(2):92-95.
Keywords: e-reference/ academic libraries/ USA/ library instruction
Abstract: Describes how an extended reference service, known as **Personalised Electronic Reference Consultation**, is offered within the electronic environment at the University of Central Florida Library. This programme offers one-to-one instruction. **Indicators of success:** 1) librarians report the programmes as successful because of the rewarding interaction with patrons and because of the opportunity to examine resources in more depth 2) patrons report satisfaction when they have obtained the information they needed at the time and also have made a breakthrough in understanding how to use the library 3) expanded use of the service as reflected in the statistics.
295. Klassen, T. W. Usenet as a reference tool. *Reference Services Review*. 1995; 23(2):13-16,39.
Keywords: e-reference/ academic libraries/ USA
Abstract: This article provides a brief introduction to Usenet and how it can be used for reference work, plus a guide to some of the issues involved with posting ref questions to Usenet.
296. Koch, N. Ready with answers around the clock. *The New York Times*. 2002; (29 August).
Keywords: e-reference/ USA
Abstract: A brief news article outlining some 24/7 reference services in the US.
297. Kolandaisamy, M. and Keech, M. Moving towards 24-hour support. Victorian Association for Library Automation 10th Biennial Conference and Exhibition; Melbourne. 2000.
Keywords: e-reference/ electronic help desks/ distance learning/ UK/ Australia/ collaboration
Abstract: Discusses a collaborative project between the Macquarie University in Sydney and the London School of Economics to provide 24-hour information services to remote students [although most of the questions are technical in nature].
Contents - Service Level agreement features; teething problems; marketing; message handling; query types discussed.
Conclusion: recognised economies of scale in terms of help desk support.
298. Koyama, J. T. <http://digiref.scenarios.issues>. *Reference & User Services Quarterly*. 1998; 38(1):51-53.
Keywords: e-reference/ implementation
Abstract: Discusses issues raised by the development of remote reference. 2 separate scenarios are proposed: 'broken down ref service' and 'doing the tango'. The former relates to how Internet users and their information seeking behaviour challenge the traditional ref service model, its associated value system and the librarian role in that model. The latter relates to a vertical model of close linkages between librarians and users who are engaged as info partners along a continuum of question/answer/consultation activities ('high touch high tech' concept).
Concluding issues:-
1) Important to develop and plan a DR service with the institutional mission in mind.
2) Administrative, particularly financial, issues are a bit more complex in this context.
3) What preparation and new skills are required for DR? What kind of research is needed to understand Internet users and their information seeking behaviour?
4) Role of academic ref librarian as a generalist versus a subject specialist
299. Kratzert, M.; Richey, D., and Wassman, C. Tips and snags of academic cyberreference. *College & Undergraduate Libraries*. 2001; 8(2):73-82.
Keywords: e-reference/ academic libraries/ USA/ service guidelines
Abstract: Discusses practical applications and procedures needed to establish a cyberreference programme in an academic setting covering both the challenges and obstacles inherent in establishing a new technological service.
Service criteria:-
1) Primary clientele - who should they be?
2) Format - e-mail? video? chat room?
3) Staffing - who? need for a subject specialist?

- 4) Response time - what length?
- 5) Types of questions
- 6) Support service - when cyberreference system goes down
- 7) Language provision - to reflect cultural differences
- 8) Location of librarian - at ref desk? in office?

These service parameters should be followed by a compact and simple electronic ref request form or question box.

Electronic form design guidelines:-

- 1) Compact, written in a clear and simple language and fit on one complete screen
- 2) Uniform fonts and type style which are simple and graphically pleasing
- 3) An alternative way of contacting the client should be provided
- 4) The guidelines or request form should indicate that the ref service is confidential

300. Kresh, D. and Arret, L. Collaborative Digital Reference Service: update on LC initiative. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 61-67.
Keywords: e-reference/ CDRS
Abstract: A status report on the Library of Congress CDRS.
301. Kresh, D. and Arret, L. Do birds fly? Some thoughts after the Library of Congress Institute on "Reference Service in a Digital Age". Reference and User Services Quarterly. 1998; 38(1):17-21.
Keywords: e-reference/ USA
Abstract: Reviews the many issues facing reference librarians as the world inexorably moves toward an increasingly electronic world of information and information resources. Overviews issues discussed at a Library of Congress Institute on 'Reference service in a Digital age' in June 1998.
302. Kresh, D. N. From sshh to search engine: reference.net on the Web. Information Technology and Libraries. 2001; 20(3):139-142.
Keywords: e-reference/ CDRS/ USA
Abstract: Describes the development of the Collaborative Digital Reference Service (CDRS) by the Library of Congress and partner libraries.
Article is very similar to Kresh article entitled 'Library quality reference meets the World Wide Web' (2001).
303. ---. Libraries meet the World Wide Web: the Collaborative Digital Reference Service. ARL Bimonthly Report. 2001; (219).
Keywords: e-reference/ CDRS
Abstract: An overview of the Library of Congress CDRS.
Operation and management
CDRS provides professional reference service to researchers anytime, anywhere, through an international online network of libraries and related institutions.
304. ---. Library quality reference meets the World Wide Web. 67th IFLA Council and General Conference; Boston, MA. 2001.
Keywords: e-reference/ CDRS/ USA
Abstract: Discusses the Library of Congress Collaborative Digital Reference Service (CDRS). CDRS provides professional ref service to users anytime anywhere through an international digital network of libraries.
305. ---. Offering high quality reference service on the Web: the Collaborative Digital Reference Service (CDRS). D-Lib Magazine. 2000; 6(6).
Keywords: e-reference/ USA/ CDRS
Abstract: An explanation of the CDRS (Collaborative Digital Reference Service).
Operation and management
Promotes idea of collaboration - by linking libraries for reference services, the CDRS would combine the power of local collections and staff strengths with the diversity and availability of libraries and librarians everywhere, 24/7.
306. LaBounty, V. Reference desk on the Internet. Book Report. 1997; 16:19.

Keywords: e-reference/ school libraries/ USA

Abstract: Describes an electronic service called KidsConnect, part of a technology initiative of the American Association of school librarians which aims to connect librarians, teachers and students with curriculum-related material on the Internet. A message sent to the site is routed to school librarians who have volunteered to offer guidance and suggestions for solving information problems.

307. Ladner, S. J. and Tillman, H. N. Using the Internet for reference. Online. 1993; 17(1):45-51.
Keywords: e-reference
Abstract: An early article on how reference librarians might use the Internet. The focus is on the use of discussion lists and on the searching of remote databases.
308. Lagace, A. Establishing online reference services. Janes, J.; Carter, D.; Lagace, A.; McLennen, M.; Ryan, S., and Simcox, S. The Internet Public Library handbook. New York: Neal-Schuman Publishers; 1999; pp. 153-184.
Keywords: e-reference/ USA/ public libraries/ delivery technology/ staff attitudes
Abstract: Chapter from the IPL Handbook. Includes sections on: 1) How the IPL Reference Centre handles questions (QRC system) 2) Issues for e-mail reference services: Electronic question form design; language (questions from those whose first language is not English); volume - coping with; timelapse and age - requests from children 3) Important characteristics of high quality reference 4) Staff concerns
309. Lagace, N. The Internet Public Library's 'Ask a question worldwide reference service'. Art Documentation. 1998; 17(1):5-7.
Keywords: e-reference/ Internet Public Library/ USA/ delivery technology
Abstract: Discusses the Internet Public Library at the University of Michigan.
310. Lagace, N. and McClennen, M. Questions and quirks: managing an Internet-based distributed reference service. Computers in Libraries. 1998; 18(2):p.24-27.
Keywords: e-reference / Internet Public Library/ USA/ delivery technology/ library instruction
Abstract: Discusses the Internet Public Library at the University of Michigan.
Software - use of QRC (Quirk): very flexible, easily configured system.
Operation and management - discusses how questions are handled. Recommends use of a detailed Web form in order to ensure high quality question messages. In addition a librarian's response should include much more than just a list of Web sites or article citations, should include an explanation on how to use the resources and suggesting other locations for resources e.g. local library.
311. LaGuardia, C. The future of reference: get real! Reference Services Review. 2003; 31(1):39-42.
Keywords: reference services/ user needs/ staffing / library instruction
Abstract: A response to the five white papers on the future of reference service presented as part of the RUSA programme at the 2002 ALA Annual Meeting.
Significant issues in 2002 (1) Design the right systems for patrons (2) Keep a local focus on user needs (3) Get a realistic perspective on library instruction based on local needs (4) Acknowledge the paradigm shift in reference question complexity questions more complex, more time-consuming and larger in scope; information available immense; users unfamiliar with subject and requiring a thorough introduction to a new methodology of research (5) PR
Staffing issues - physical location of service: potential of librarians working from home; 24/7 service - impact on staffing resources: role of telecommuting to reduce overheads
312. Lam, K. Exploring virtual reference: what it is and what it may be. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 31-39.
Keywords: e-reference
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Proposes an expert system methodology to impart some artificial intelligence to virtual reference.

313. Lamolinara, G. and Grynke, R. Reference service in a digital age: Library Institute focuses on electronic tools. *Library of Congress Information Bulletin*. 1998; 58(8):196-198.
 Keywords: e-reference/ USA
 Abstract: A review of a Library of Congress Institute held in June 1998 which focused on electronic reference work in libraries. Article on the same topic by Kresh and Arret (1998) entitled 'Do birds fly?'
314. Langlois, G. A need to know. *Federal Computer Week*. 2001; (2 July).
 Keywords: e-reference/ CDRS
 Abstract: An overview of the Library of Congress CDRS.
315. Lankes, R. D. An agenda for digital reference. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers; 2000; pp. 219-222.
 Keywords: e-reference/ role of librarian
 Abstract: Emphasises the need for networked knowledge in addition to digitisation of secondary resources. Introduces a 'primary knowledge revolution', where people are connected with experts and experience and the end product is a global brain.
Role of the librarian - no longer simply to point out relevant information to a patron but to point out the 'best' resources. Librarians as key intermediaries, trained information brokers. They will become context experts.
316. ---. AskA's: lesson learned from K-12 digital reference services. *Reference & User Services Quarterly*. 1998; 38(1):63-.
 Keywords: e-reference/ school libraries/ USA/ role of librarian/ staffing/ technical standards/ implementation
 Abstract: Outlines current thinking relating to K12 digital reference services.
Role of librarian - need for librarians to update their skills in response to perceived changes to the ref environment; skills must include an ability to evaluate networked resources; act as a bridge between technology and user; paraprofessionals freeing librarians to concentrate on higher-level tasks; greater collaboration with other types of professionals e.g partnering with computing services; librarians provide 'context' i.e. collection become so large that patrons no longer desire the full range of info available on a given topic, but only the 'best' information - librarian as a 'filter'.
Staffing - Mardikian and Kesselman's Staffing Levels model: Level 1 - Minimum Human Intervention; Level 2 - Library Interns/Trained Paraprofessional staff; Level 3 - Librarians, Subject Specialists.
Lessons learned from K-12 DR services a.k.a. AskA's:-
 1) DR is possible and it is more than bookmarks and Web pages
 2) Experts and expertise can be included in the collection
 3) Providing DR does not require a computer science degree
QuIP - a means of representing threads of questions and answers in an electronic record; outlines the various components of QuIP on pg 21.
317. ---. AskERIC and the virtual library: lessons for emerging digital libraries. *Internet Research: Electronic Networking Applications and Policy*. 1995; 5(1):56-63.
 Keywords: e-reference/ USA/ expert services
 Abstract: Discusses the development of the US Department of Education's AskERIC project, the online educational question answering service (one of the major education digital libraries on the Internet). Article states that it is the emphasis on the user (in system design and service planning) and the inclusion of the human intermediary that makes AskERIC a model of other Internet services.
318. ---. The birth cries of digital reference. *Reference & User Services Quarterly*. 2000; 39(4):352- .
 Keywords: e-reference/ USA
 Abstract: An introduction to a special issue on digital reference based on papers presented at the Virtual Reference Desk First Annual Conference, 'Reference in the new millenium: evolving roles for the information professional'. Addresses the 3 main emerging concerns: 1) how to manage the overwhelming use of DR services 2) how DR changes library practice 3) software and customer service operations that provide real-time service.

319. ---. Building and maintaining Internet information services: Dissertation draft: Syracuse University; 1998.
 Keywords: e-reference/ schools/ information need
 Notes: Is this the same study as that discussed in the 1998 report by Lankes, published by the ERIC Clearinghouse on Information and Technology, and available on restricted access fiche?
 Abstract: This study addressed the problem of Internet information services having to meet the increasing information demands of users in the dynamic Internet environment. The purpose of this research was to use K-12 digital reference services as a starting point to better understand the process of building and maintaining Internet information services.
 3 research questions were asked:-
 1) What are exemplary K-12 digital reference services' detectors (i.e. inputs) for Internet agent types, internal inputs and influences external to both the Internet and the organisation?
 2) What are exemplary K-12 digital reference services' rules for processing the input from detectors and, through resources, build and maintain effectors (i.e services)?
 3) What are exemplary K-12 digital reference services' effectors (i.e. outputs) used to meet users' information needs?
 It includes sections on Ask A Volcanologist, Ask Shamu, Dr Math, How Things Work, Mad Scientist Network and the National Museum of American Art Reference Desk.
320. ---. Building and maintaining Internet information services: K-12 digital reference services. Syracuse NY: ERIC Clearinghouse on Information and Technology; 1998.
 Abstract: This monograph is based on Lankes' dissertation draft entitled 'Building and Maintaining Internet Information Services'.
321. --. Building the Virtual Reference Desk. 1998.
 Keywords: e-reference/ Virtual Reference Desk/ USA
 Abstract: Presents the Virtual Reference Desk project, a project aiming to establish a national cooperative DR service for the K-12 education community. The VRD's functions, components and proposed services are outlined. Also discusses the formation of an AskA consortium which will have 2 major functions: 1) A cooperative network that seeks to provide resources to its members 2) A guiding body for the VRD.
 Service run by volunteers/mentors (tele-mentoring) with multi-organisational input.
 Functions of the project:-
 ♦ 'answering' function user asks question and AskA service answers it.
 ♦ 'organising' function the matching of mentors/volunteers/organisations
 A resource that is a cooperative of all those interested in improving education including schools, colleges, industry, government and qualified experts.
 Linking the K-12 community directly with expertise and primary source information.
322. ---. Current state of digital reference in primary and secondary education. D-Lib Magazine. 2003; 9(2).
 Keywords: e-reference/ schools/ North America/ expert services
 Abstract: Examines the domain of digital reference services for and by the primary and secondary education community in North America. Data is provided to demonstrate the current understanding of education question types and education users in digital reference. Discusses *KidsConnect* and *AskERIC*.
 Conclusions:-
 1) All levels of education use digital reference services
 2) Education questions, while covering a broad range of topics, concentrate most heavily on science (in the case of students) and language arts (in the case of education professionals).
 3) Usefulness of education digital ref services as research environments.
323. ---. Emerging standards for digital reference: the Question Interchange Profile. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 85-93.
 Keywords: e-reference/ technical standards
 Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
 Abstract: Outlines the concepts, terminology, and a proposal for a linking mechanism for digital reference services, called the Question Interchange Profile (QuIP). The logic behind QuIP (proposed standard), its proposed elements and its implementation are presented.
Standards - need to create due to growth in new consortia and co-operative digital services use

of a broad distributed network of answer sources requirement for interoperability of heterogeneous services. Types of standards service profiles; knowledge base creation and maintenance and question transfer protocols.

Conclusions:-

- ❖ Technical standards, in conjunction with quality standards, are essential for expanding digital reference and integrating it into the larger domains of libraries and customer service.
- ❖ Standards should not be 'left to technical services' but rather should include a large involvement from reference librarians and more broadly the question answering community.
- ❖ Only with well-established and understood technical standards can the digital reference community engage software producers and the technical community to help improve the practice of digital reference.

324. ---. The foundations of digital reference. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, Management, and evaluation. New York: Neal-Schuman Publishers ; 2000; pp. 1-10.
Keywords: e-reference/ e-resources/ role of librarian
Abstract: Outlines the emerging field of digital reference and examines the changing roles of reference staff. It also examines 2 key issues that DR service must face - scalability (the ability for services to grow) and ambiguity (identifying the resources needed to meet users' needs before answering a question).
Role of librarian - must now make selection decisions at the point of inquiry; must decide what is a quality resource and what resource best addresses a topic other than a subject bibliographer or collection development staff; transformed from information interface to information broker.
325. Lankes, R. D. I want my flying car. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 1-5.
Keywords: e-reference
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Introduction to the book.
326. Lankes, R. D. The Virtual Reference Desk: building a network of expertise for America's schools. White paper. Syracuse, NY: ERIC Clearinghouse on Information and Technology; 1998.
Keywords: e-reference/ Virtual Reference Desk/ USA/ technical standards
Abstract: This paper presents the VRD project, its current activities and a proposed information system architecture to build a human intermediated network of expertise and experience for the K-12 community. This paper demonstrates the viability of implementing a large-scale info system that directly utilises human expertise. A preliminary technical architecture is outlined that consists of a meta-triage function to connect DR services and a 'shrink wrapped' software package to help build and maintain new DR services.
Includes a section on the Question Interchange Profile.
327. ---. The Virtual Reference Desk: building human expertise into information systems. Proceedings of the ASIS Annual Meeting; Pittsburgh, PA. 1998: 81-90.
Keywords: e-reference/ Virtual Reference Desk/ USA/ technical standards
Abstract: Discusses the Virtual Reference Desk project, which seeks to study, support and improve current K-12 digital reference services, as well as build a foundation for a national cooperative digital reference service. This paper is very similar to that entitled 'The VRD: Building a network of expertise for America's schools' by the same author.
328. --. The Virtual Reference Desk: Question Interchange Profile. 1999.
Keywords: e-reference/ Virtual Reference Desk/ USA
Abstract: A white paper which presents the VRD project and a proposed information system architecture to build a human intermediated network of expertise and experience for the K-12 community. Discusses Question Interchange Profile (QuIP), a generalised means of expressing discussion-like interchanges between one or more people or organisations.

329. Lankes, R. D. and Kasowitz, A. S. The AskA starter kit: how to build and maintain digital reference services. Syracuse, NY: ERIC Clearinghouse on Information and Technology; 1998.
330. Lankes, R. D.; McClure, C. R., and Gross, M. Assessing quality in digital reference services. Proceedings of the ASIST Annual Meeting; Washington, DC. 2001: 323-329.
 Keywords: e-reference/ quality standards/ USA
 Abstract: Outlines **a study to develop methods to assess the quality of digital reference services**; test and refine measures and quality standards to describe digital reference services, and to produce a guidebook that describes how to collect and report data for these measures and standards.
Assessment measurement components:-
1) Outcome measures (quality of answers) - accuracy of responses; appropriateness of user audience; opportunities for interactivity; instructiveness and impacts resulting from the DR process.
2) Process measures (effectiveness and efficiency of process) - service accessibility; timeliness of response; clarity of service procedures; service extensiveness (% of questions answered); staff training and review; service review and evaluation; privacy of user information; user awareness (publicity).
3) Economic measures (costing and cost effectiveness of DR) - the cost to conduct a DR session; infrastructure needed to support quality DR services and impact of these costs on other library expenditures.
4) User satisfaction (degree to which users engaged in DR services are satisfied with the process and the results) - satisfaction indicators can include accuracy, timeliness, behaviour of the staff, technical considerations, physical facilities and others.
 These categories can overlap since measures can describe multiple components.
331. Lankes, R. D. and Shostack, P. The necessity of real-time: fact and fiction in digital reference systems. Reference & User Services Quarterly. 2002; 41(4):350-355.
 Keywords: e-reference/ USA/ delivery technology
 Abstract: Uses data from AskERIC to demonstrate that asynchronous (non-real time) digital reference services are not only useful and used but may have greater utility than real-time systems. The results do not indicate user preferences for real-time or asynchronous services, rather they speak to the sufficiency of asynchronous service.
Conclusion - real-time systems and asynchronous systems will need to coexist.
332. Lederer, N. E-mail reference - when, where, and what is asked Nixon, C., Ed. Proceedings of the Internet Librarian 2000 Conference; Monterey, CA. Medford, NJ: Information Today, Inc.; 2000: 90-96.
 Keywords: e-reference/ academic libraries/ public libraries/ USA/ delivery technology
 Abstract: Discusses the findings of surveys of e-mail reference services in US academic and public libraries and then gives an overview of Colorado State University's e-mail reference experiences.
333. Lejeune, L. The Internet Public Library. The Journal of Electronic Publishing. 1997; 3(2).
 Keywords: e-reference/ Internet Public Library
 Abstract: An overview of the development of the University of Michigan's Internet Public Library. Brief section on lessons learned - need for strategic marketing and planning.
334. Lessick, S. Transforming reference staffing for the digital library. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 25-36.
 Keywords: e-reference/ academic libraries/ USA/ staffing/ delivery technology/ e-resources
 Abstract: Discusses the need for academic librarians to redefine current staffing systems in order to accommodate digital reference service and describes 3 digital reference initiatives at the University of California, Irvine Libraries - video reference, Web reference, and call messaging.
Staffing - supplementing desk staff with paraprofessionals (provide triage and basic information services) and students (provide technical support); idea of a tiered reference infrastructure occurring at one centralised service point; need to identify creative staffing strategies to support digital services
335. Lessick, S. ; Kjaer, K., and Clancy, S. Interactive Reference Service (IRS) at UC Irvine: expanding

reference service beyond the reference desk. ACRL 1997 National Conference; Nashville, Tennessee. 1997.

Keywords: e-reference/ delivery technology/ academic libraries/ USA

Abstract: Describes the 'telereference' project at the University of California, Irvine, where librarians can conduct reference interviews with medical students using videoconferencing. The project is testing the feasibility, costs and benefits of implementing such a service on an ongoing basis. Goal was to integrate the interactive reference service into regular reference desk functions.

Preliminary evaluation observations detailed:-

- 1) Feedback from students very positive especially in relation to convenience of service.
- 2) Suggestion that Interactive Reference Workstation be placed in a separate room or enclosure.
- 3) Need for more publicity and promotion
- 4) Librarians suggested some technical improvements e.g. larger monitor.
- 5) Self-consciousness of some librarians and students
- 6) Advantage of technology re displaying text and graphical images.
- 7) Need for a technical person at the remote site to trouble shoot when problems arise.

336. Levesque, S. Developing an electronic research request form. *Wired West*. 2001; 4(2).

Keywords: e-reference/ special libraries

Abstract: Discusses the development of an electronic research request form for the virtual library of an American corporation. Identifies the common components of the form.

337. Library Council, University of Toronto Libraries. So near and yet so far: reaching out to the patron at a distance. Report of the Task Force on Services at a Distance. 2000.

Keywords: distance learning/ academic libraries/ Canada/ literature review/ implementation/ staffing

Abstract: Presents a number of themes, drawn from an in-depth literature review, that provide context and potential direction for the Library Council's Task Force on Services at a Distance. Literature on this subject is categorised according to 4 perspectives: 1) The formal, institutional picture guidelines 2) The global perspective - compilations of area perspectives e.g. national technical networks such as superJANET 3) The 'hands-on' perspective - how to provide library services to remote users 4) Recent reference reports - information too recent to be found online or in print and which describes 'state of the art' service delivery.

Issues to be addressed by any organisation undertaking the provision of distance service:-

- ❖ Equitable service - same in quality as that delivered to the on-campus community (the most important aspect)
- ❖ Staffing - the provision of adequate staff who are well-trained and knowledgeable
- ❖ Reference services - maintaining quality service via regular user surveys, keeping abreast of new technologies, providing dedicated remote reference staff, advertising and competing with commercial competitors
- ❖ Technology - emerging technologies which are constantly transforming service delivery
- ❖ Barriers hindering progress e.g. conservative attitudes

338. Lindgren, P. Brief encounters in cyber space. *Scandinavian Public Library Quarterly*. 2002; 35(2):22-23.

Keywords: e-reference/ delivery technology/ special libraries/ Sweden

Abstract: Discusses the chat reference service at the Library of the National Institute for Working Life in Sweden. Considerations when setting up a chat service include staffing, training, opening hours, ambition and quality.

339. Lipow, A. G. "In your face" reference service. *Library Journal*. 1999; 124(13):50-52.

Keywords: e-reference/ USA

Abstract: Discusses the growing agreement among reference librarians that basic reference service is in trouble. Overviews a variety of new reference desk techniques and strategies that can provide the real-time, interactive and personal help that will make librarians crucial in the Internet era.

340. ---. Point-of-need reference service: no longer an afterthought. American Library Association Annual Conference 2002; Atlanta. 2002.

Keywords: e-reference

Abstract: Discusses the future of the reference desk.

341. Lipow, A. G. Reference service in a digital age. *Reference & User Services Quarterly*. 1998; 38(1):47-48.
Abstract: Introduction to a special issue on reference service in a digital age. The articles presented in the special issue are based on the presentations the authors delivered in person at the 'Reference Service in a Digital Age' institute in June.
342. Lipow, A. G. Rethinking reference [Web Page]. 2003. Available at: <http://www.library-solutions.com/reference.html>.
Keywords: e-reference/bibliography
Abstract: A 'virtual class in virtual reference' provided on the website of Library Solutions Institute and Press, of which Anne Lipow is the Director. It is effectively a list of recommended readings and sites to visit.
343. Lipow, A. G. Serving the remote user: reference service in the digital environment. *Proceedings of the Ninth Australian Information Online & On Disc Conference*; Sydney, Australia. Sydney: Australian Library and Information Science Association; 1999.
Keywords: e-reference/ user needs/ information seeking skills
Abstract: Warns that unless reference librarians reorganize their work to be available to the remote user they will become extinct. Within this context, this paper provides a perspective on the information seeker in the digital environment as one whose need for personalised, human-delivered refere service is greater than ever; it suggests new organizational structures to put the reference librarian centre-stage.
User needs - universal truths about information seekers:-
1) every information seeker is someone who becomes 'blocked' while in the midst of a situation and wants to move again
2) what will help them move depends on how they view their situation
Success of information seeker in 'unblocking' themselves using a non-humn resources depends on a number of factors:-
1) whether they picked a resource that contains what will unblock them
2) how much they know about how the resource they are consulting is organised
3) how much they know about how to query the resource
4) how aware they are of the appropriate vocabulary to use to describe their question
Author believes the information seeker will always get stuck at some time and will want immediate help that can best be given by a human intermediary.
Need to demonstrate the need for ref librarians by providing service that recognises patrons new ways of searching for information.
344. ---. Thinking out loud: who will give reference service in the digital environment? *Reference & User Services Quarterly*. 1997; 37(2):125-129.
Abstract: The author raises her concerns about the future of reference. Details signs of a decline in the perceived importance of ref service e.g. declining circulation statistics, fewer walk-in users, and responses of libraries to these e.g. experiments with live, interactive remote ref service.
345. Lipow, A. G. *The virtual reference librarian's handbook*. New York: Neal-Schuman Publishers; 2002. ISBN: 1-55570-445-X.
Keywords: e-reference
Abstract: A practical guide to librarians and their administrators who are somewhere along the path of providing virtual reference service. [This book is intended to replace a previous, loose-leaf publication - Lipow, A.G. and Coffman, S. *Establishing a virtual reference service: VRS training manual*. El Dorado Hills, CA: Library Solutions Press, 2002]
346. Lipton, S. Click on the Wizard for help: using help desk software for real-time reference. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers; 2000; pp. 207-218.
Keywords: e-reference/ academic libraries/ Canada/ delivery technology
Abstract: Discusses a trial e-reference service known as Wizard Science at the University of Calgary Library. Issues, concerns and problems are outlined.
347. Lo Bianci, N. and Vivian, C. Creating Canberra's virtual community library service. RAIS99 Conference

and Exhibition; 6-8 September 1999. 1999.

Keywords: e-reference/ public libraries/ delivery technology/ Australia

Abstract: This paper describes the involvement of the Australian Capital Territory Library and Information Services in a trial using a broadband communications network to deliver new online services to the community. The paper discusses their experiences, some of the technical issues involved and some preliminary feedback on the value of these services. Includes a section on video conferencing.

348. Lynch, P. Managing growth for AskA services. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 83-90.
Keywords: e-reference/ implementation/ expert services
Abstract: Provides an overview of AskERIC, a personalised Internet-based service providing education information to teachers, librarians, counselors, administrators and parents. Includes details on staffing, e-resources, Q&A process and tools and publicity.
Suggests a number of points to be taken into consideration when expanding or beginning a DR service:-
1) Establish a solid organisational structure - stable staff/volunteer structure; standard guidelines/procedures; structured process for DR
2) Start out small - controlled user base
3) A gradual increase is best
4) Beware of publicity
349. Ma, W. and Wright, J. QB online: how an old-fashioned question board went electronic. College & Research Library News. 1998; 59(10):772-774.
Keywords: e-reference/ academic libraries/ USA
Abstract: Describes the conversion of an eight-by-ten foot question board into an online service at the University of Illinois at Urbana-Champaign.
350. MacAdam, B. and Gray, S. A management model for digital reference services in large institutions. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ academic libraries/ service guidelines/ staffing/ evaluation / staff training/ quality standards
Abstract: Proposes a **management model for digital reference services** that is particularly relevant to academic libraries in large research institutions but extendable to other types of organizations with similar characteristics. The 5 critical issues examined include: 1) integrating virtual ref service with existing services 2) allocating fixed resources 3) acting as an effective advocate to secure organisational support 4) developing a distributed service model integrating specialised, subject-domain expertise 5) targeting and serving disparate segments of the user community.
1) Defining an appropriate role and integrating VR service with existing services:-
i. Identifying service gaps
ii. Confronting changing user patterns
iii. Establishing a shared purpose and clear priorities
iv. Laying an existing service element to rest
v. Combining seasoned experience with creative innovation
vi. Applying or adapting existing policies
2) Allocating fixed resources effectively:-
i. Administrative authority and budget flexibility
ii. **Staffing** - need for a distributed staffing model
iii. Collaboration
3) Being an effective advocate and ensuring administrative, staff and technical support:-
i. Gaining staff buy-in
ii. Resourcefulness, independence and risk-taking
iii. Determining useful allies including partners outside the organisation
iv. Clear goals and persuasive communication
v. Demonstrable success
vi. **Evaluation** - demonstrating that service provides an outstanding service to users and that it is meeting a critical need thus justifying the continued allocation of resources.
4) Establishing a user-centred service model that balances centralisation and decentralisation:-

- i. One-stop shopping - central gateway to DR service
 - ii. Integrating subject-domain expertise
 - iii. Referral structure
 - iv. Setting and achieving consistent response goals
 - v. **Staff training** and development - need for a clear understanding of the software/IT being used to support operations and the specific goals, policies and guidelines for the service.
 - vi. **Quality** control
- 5) Targeting services to the key segments of the user community
- i. Needs analysis
 - ii. Tiered service
351. Mad Scientist Network. The Mad Scientist Network: expert's manual. 2001.
 Keywords: e-reference/ service manual
 Abstract: A resource for answering questions and other aspects about the functioning of the Mad Scientist Network.
352. Mahony, A. P. The Net and reference services: capture the question. Wilson Library Bulletin. 1993; 68(2):12.
 Keywords: e-reference/ USA
 Abstract: A very brief overview of e-reference developments in the USA.
353. Mann, T. Reference service, human nature, copyright and offsite service - in a digital age? Reference & User Services Quarterly. 1998; 38 (1):55-61.
 Keywords: e-reference/ USA/ copyright/ intellectual property/ distance learning
 Abstract: This article addresses **copyright issues surrounding digitisation**. Includes a section which questions the extent to which libraries can provide reference service to remote users posing research questions. Proposes 2 options: 1) Send printouts to remote students that will guide them with their own research once they do come inside a library's walls, 2) Read, compare and evaluate the sources themselves.
 Author states that research questions cannot be handled by digitising the full texts of sources and distributing them so that people won't have to come into libraries.
354. Manuel, K. and Horn, J. Association of College and Research Libraries 10th National Conference. Library Hi Tech News. 2001; 18(5).
 Keywords: e-reference/ academic libraries/ USA
 Abstract: The section by Judy Horn summarises the electronic reference sessions of the conference.
 Planning and evaluation are key components in developing a successful electronic ref service. Need for librarians to consciously shape DR rather than just letting it evolve.
 DR provides librarians with the opportunity to build stronger bridges throughout academia and has the potential to renew and re-energise reference in academic libraries.
355. Mardikian, J. and Kesselman, M. Beyond the desk: enhanced reference staffing for the electronic library. Reference Services Review . 1995; 23(1):21-28.
 Keywords: e-reference/ academic libraries/ USA/ staffing/ role of librarian
 Abstract: Discusses electronic reference services at the Rutgers University Library of Science and Medicine.
Staffing issues - enhanced staffing required; restructuring of new librarian and staff positions; development of the Hierarchical Reference Staffing model to categorise information needs of users - model provides for a win-win situation for users, staff and librarians and best utilises the knowledge and expertise of librarians and staff; profiles of staffing levels and associated tasks.
Role of the librarian - promotes the idea of a partnership role with teaching and research faculties; also librarians as information accountants and knowledge managers overseeing how information is used in an organisation and whether or not it is used effectively.
356. Markgraf, J. S. and Erffmeyer, R. C. Providing library service to off-campus business students: access, resources and instruction. Journal of Business & Finance Librarianship. 2002; 7(2/3):99-114.
 Keywords: e-reference/ distance learning/ academic libraries/ USA/ library instruction/ e-resources
 Abstract: Discusses library services to off-campus students at the University of Wisconsin-Eau

Claire. Includes sections on reference and library use instruction.

Challenges for librarians:-

(1) **Availability of resources** - need to liaise with academics in the setting of assignments and the requirement to look at particular sources which may only be available in print format. Link with information literacy amongst students.

(2) **Access to resources and services**

❖ Remote access - issue of access for students registered with other universities; technical issues around passwords for proxy server.

❖ Document delivery for information not on line; issue re time delay in receipt of materials.

❖ Reference more personalised; off-campus students tend to use same librarian, librarian builds up a familiarity with individual's situation, ironic situation whereby distant communication becomes more personal than in-person communication.

(3) **Library use instruction** - development of an online guide which provided an annotated list of databases, a section explaining how to use resources and services. Role of lecturers in promoting the guide.

Recommendations:-

(1) Simplify the process of connecting remotely to library resources when it's technically possible.

(2) Make sure the technology works before the course begins.

(3) Provide access when it is needed e.g. via telecommuting, staggering work schedules.

(4) Provide electronic alternatives to mail-based document delivery services.

(5) Improve library instruction.

357. Marsh, G. A help desk knowledge database: The first year. Division of Computer Research and Technology, National Institutes of Health, US Department of Health and Human Services; 1997. Keywords: electronic help desks/ USA

Abstract: Discusses the development of a knowledge database at the DCRT for use by their help desk consultants. Addresses the knowledge base (KB) structure, the information fields used in records and searching the database.

Useful functionality - capabilities of the Knowledge base that enhances its usefulness to help desk consultants:-

1) Mail to customer: KB users have the ability to send an email message containing a KB record to a customer.

2) Mail to self: the ability for a user to have a record emailed to themselves.

3) Printing: the ability to print off a copy of a record.

4) Closing Service Ticket to KB: users have the ability to close an open customer service record to an existing entry in the KB.

5) Thank you messages: the Administrator of the KB has the ability to fill in a field with a userid and a short message and have a thank you note automatically emailed to that KB user.

Lessons learned:-

1) Gatekeeping: a Gatekeeper is essential.

2) Historical data: the Gatekeeper must know, must have a record, of what users are looking for.

3) Potayto or Potahto: search flexibility, whether through fuzzy logic or a synonyms/thesaurus/lexicon function is necessary.

4) Only nothing is too little: no matter how little you know, get it in there.

5) Tracking vs. Resolving: copying resolutions directly from the problem tracking system has serious pitfalls.

6) Setting the example: users should have the ability to update the database.

7) Big brother is watching: all info must be fully audited and past info quickly retrievable.

8) Document your processes

All the above are discussed in more detail in the article.

358. Marsteller, M. and Neuhaus, P. The chat reference experience at Carnegie Mellon University. ALA Annual Conference 2001; San Francisco. 2001.

Keywords: e-reference/ academic libraries/ USA/ delivery technology

Abstract: Evaluates the chat reference service at Carnegie Mellon University. LivePerson software used.

Software - factors in decision to use outlined and technical problems encountered.

Evaluation - outlines pros and cons based on feedback received from librarians and students.

Enhancement possibilities detailed.

359. Marsteller, M. R. and Neuhaus, P. Providing chat reference service: a survey of current practices. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 61-74.
Keywords: e-reference/ USA
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: A survey of chat reference services in 62 American libraries (academic, public and special).
360. Martin, K. E. Analysis of remote reference correspondence at a large academic manuscripts collection. *The American Archivist*. 2001; 64 (1):17-42.
Keywords: e-reference/ archives/ academic libraries/ USA/ delivery technology/ information need
Abstract: Analyses 595 letter, phone, fax and e-mail correspondence units sent to the Southern Historical Collection and General and Literary Manuscripts at the University of North Carolina at Chapel Hill in 1995 and 1999, to observe the effects of providing online holdings information and the increased use of e-mail in reference correspondence.
Data from study point to several trends for the future:-
1) The use of e-mail will continue to grow at the expense of regular mail
2) There is a greater number of researchers contacting archives for their personal research interests than in the past
3) Many remote users will use the Internet to refine their search before contacting the archives
4) Fewer remote researchers will actually visit the archives than in the past
5) Remote users will likely not provide the archives with enough information when submitting queries
361. Marvin, J. Virtual reference at the University of Guelph. *InsideOCULA*. 2001; (15):1-2.
Keywords: e-reference/ academic libraries/ Canada/ Virtual Reference Desk
Abstract: A brief overview of the virtual reference service at the University of Guelph, Canada.
362. Marvin, S. Process for developing e-reference services. Nixon, C. and Burmood, J., Eds. *InfoToday 2002 Conference Proceedings*; New York. Medford, NJ: Information Today, Inc.; 2002: 255-258.
Keywords: e-reference/ USA
Abstract: Discusses recent e-reference developments in the USA. Similar to article by same author entitled 'Process toward Virtual Reference Services: Making e-reference EZ'.
363. ---. Process toward virtual reference services: making e-reference EZ. Nixon, C. and Burmood, J., Eds. *Internet Librarian 2001: collected presentations*; Pasadena, CA. Medford, NJ: Information Today, Inc.; 2001: 111-120.
Keywords: e-reference/ USA
Abstract: Outlines some of the tools for interactivity and interoperability of services and resources. Briefly discusses their function in the process towards virtual reference services.
Examples of tools:
1) Library catalogue
2) Pathfinders
3) AskALibrarian
4) FARQs
5) Electronic Reserves potential
6) Instructional services
7) Faculty liaisons
8) Customer Services with Web forms
9) Digital archives
10) New development tools - MyLibrary, Portals, Blog potentials, Chat tools
11) Products: LSSI, HumanClick, Docutek VR service
364. Mason, M. G. Reference revolutions. *Journal of Library Administration*. 1998; 25(2-3):55-63.
Keywords: e-reference/ USA

Abstract: Describes developments in Online Computer Library Center (OCLC) electronic reference services.

365. Mathews, B. ; Primack, A.; Viggiano, R., and Whitley, K. Real-time reference round-up. Information Strategies 2001; Fort Myers, Florida. 2001.

Keywords: e-reference/ USA/ academic libraries

Abstract: Provides a brief overview of real-time online reference in libraries across Florida.

366. Maxwell, N. K. Establishing and maintaining live online reference service. Library Technology Reports. 2002; 38(4).

Keywords: e-reference/ USA/ Virtual Reference Desk/ staffing/ staff training/ evaluation / quality standards/ delivery technology/ technical standards/ privacy

Abstract: Practical information on live online reference service systems, equipment and supplies as well as information on evolving technologies. Contains 3 chapters: Chpt 1 'Introduction to live online reference', Chpt 2 'Administration and Management and Chpt 3 'Online reference technologies and products'. Case studies of a special library, a library consortium, an academic library, a public library and a school library cooperative are provided.

Staffing 24/7 - options (pg 10-12):-

- 1) Contracting with a vendor to provide off-peak ref service
- 2) Hiring librarians to work from home
- 3) Partnering with another library or libraries in different time zones to share the load

Human resource issues (pg 12- 20):-

- 1) Maintaining the human aspects of online reference
- 2) Lack of staff - Coffman's 'Erlang C' algorithm which relates to the staffing requirements for a VR service
- 3) Where to locate the librarian
- 4) What does the librarian do while waiting for a question
- 5) How much activity can the service support
- 6) Special staff skills - speed in using a computer, strong traditional ref skills, online interviewing, chat skills
- 7) Staff buy-in
- 8) Procedures manual
- 9) Handling change stress
- 10) Training for live online reference services - who should be trained? what to train for? who will do the training? evaluating training.

Evaluation (pg 20-24)

- 1) The goals of the service should be the foundation for an evaluation programme.
- 2) Reasons why should evaluate given
- 3) Online vs. traditional ref evaluation - assessment data needed different; need to measure quantity and quality.
- 4) What to evaluate - question-answer exchange; ease of access; supporting materials which explain the service; usefulness of related resources e.g FAQs; ease with which patrons can locate and use the online service and non-user information.
- 5) How to evaluate - qualitative studies, quantitative studies and benchmarking. Also user surveys (nonuser surveys, feedback forms, online pop-up surveys, focus groups, benchmarking, observation, peer assessment, self-assessment, performance review and grading or tracking)

Quality - Facets of Quality (Oct 2000):-

Facets for user transaction:-

- 1) Accessible - DR services should be easily reachable and navigable by an Internet user regardless of equipment sophistication, physical disability or language barrier.
- 2) Prompt turnaround - questions should be addressed as quickly as possible.
- 3) Clear response policy - clear communication should occur either before or at the start of every DR transaction to reduce opportunities for user confusion and inappropriate enquiries.
- 4) Interactive - DR services should provide opportunities for an effective ref interview
- 5) Instructive - DR services should provide access to current info and expertise.

Facets for service development and management:-

- 1) Authoritative - experts of a DR service should have the necessary knowledge and educational background in the service's given subject area or skill to qualify as an expert.
- 2) Trained experts - services should offer effective orientation or training processes to prepare experts to respond to enquiries using clear and effective language and following service response

policies and procedures.

3) Private

4) Reviewed

5) Provide access to related information

6) Publicise

Standards (pg 24-26)

NISO work on question transferring (QuIP) and question transmission (KnowledgeBit).

Privacy, user authentication and **copyright** (pg 26-30)

Collaboration (pg 30-33) - CDRS and IPL

Marketing (pg 33-35) - includes growth management

Delivery technologies (pg 35-40): e-mail (advantages and disadvantages); Web forms; Chat and instant messaging; Web-based courseware, Web meeting and videoconferencing; Contact centre software (advantages and disadvantages); Audio and video online ref service.

Software products (pg 40-46): lists various products with notes re description, prices and other libraries using the product.

Future (pg 51-53)

367. McClennen, M. Software, systems and standards in digital reference: a research agenda. Digital Reference Research Symposium; 1-3 August 2002. 2002.

Keywords: e-reference/ delivery technology

Abstract: Identifies four pressing research challenges, and discusses how they may be pursued using tools of analysis from library science, computer science, and operations research. The article goes into each challenge in detail and offers a number of research recommendations for each area.

4 challenges:-

1) Advancing our understanding of DR services as operational systems

2) Learning how to link these services into large-scale networks

3) Figuring out how to mesh the synchronous and asynchronous modes of DR

4) Elucidating how to build effective archives of answered ref questions

368. McClennen, M. and Memmott, P. Roles in digital reference. Information Technology and Libraries. 2001; 20(3):143-148.

Keywords: e-reference/ Virtual Reference Desk/ Role of librarian

Abstract: A model that describes the **roles played by participants in the digital reference process** and the ways in which these roles interact. Illustrated by case studies such as the Internet Public Library and the Virtual Reference Desk.

Roles:-

1) Patron - changing nature of reference interview; record of entire interaction available.

2) Filterer - need to filter questions arriving in the in-box which are inevitably mixed up with non-questions; need to develop stock questions for FAQs; categorisation of questions.

3) Answerer - need to develop standards for workflow and guidelines for answering questions

4) Administrator - keep service running smoothly

5) Coordinator - overseer, refine and implement policies and procedures that make possible the operation of the service. Need for very clear policies and procedures in place.

Use of model:-

i. in the development of written policies and procedures

ii. in the choice of software for coordinating the operation of a DR service

iii. for evaluation purposes

369. McClure, C. R. and Lankes, R. D. Assessing quality in digital reference services: a research prospectus. 2001.

Keywords: e-reference/ quality standards

Abstract: A prospectus seeking participants to fund a study to develop methods of assessing the quality of digital reference services and to produce a guidebook that describes how to collect and report data for these measures and standards.

Quality assessment measures:-

(1) Outcome measures (quality of answers)

(2) Process measures (effectiveness and efficiency of process)

(3) Economic measures (costing and cost effectiveness of digital reference)

(4) User satisfaction

370. McClure, C. R.; Lankes, R. D.; Gross, M., and Choltco-Devlin, B. Statistics, measures and quality standards for assessing digital reference library services: guidelines and procedures. Syracuse, NY: ERIC Clearinghouse on Information & Technology; 2002ILL request 08/04/03. But BL can find no trace in any library (12/05/03). Purchase request to library 12/05/03.
Notes: Draft copy available at http://quartz.syr.edu/quality/Field_Test_Draft.pdf, but problems displaying all of the document.
371. McDermott, I. E. Reference and the bottom line in the city of industry. *Searcher*. 1998; 6(7):23-27.
Keywords: e-reference/ USA
Abstract: A report on the spring workshop of the Southern California Online Users group which examined the impact of technology on the work of the reference librarian and the costs of providing reference services.
372. ---. Virtual reference for a real public. *Searcher*. 1998; 6(4):25-31.
Keywords: e-reference/ public libraries/ USA/ e-resources
Abstract: Discusses virtual reference at the San Marino Public Library in California but is effectively an annotated list of useful Web-based resources.
373. McGeachin, R. B. Videoconferencing and remote application sharing for distant reference service. *The Reference Librarian*. 1999; (65):51-60.
Keywords: e-reference/ delivery technology
Abstract: Presents scenarios in which videoconferencing and remote applications sharing software can be used in distant reference service.
374. McGill, L. Global chat: Web-based enquiries at the University of Leicester. Brophy, P.; Fisher, S., and Clarke, Z., Eds. *Libraries without walls 4: the delivery of library services to distant users*. London: Facet Publishing; 2002; pp. 87-98.
Keywords: e-reference/ academic libraries/ UK/ delivery technology/ distance learning/ staffing
Abstract: Describes the experiences of the University of Leicester Library Distance Learning Unit in offering a chat-based enquiry service for a trial period. Includes sections on why chat was chosen; criteria used to choose software; lessons learned and ways forward.
Distance learners enquiries are mostly related to the services offered by the unit and to utilising electronic resources effectively.
Lessons learned:-
1) Lack of non-verbal clues and tone of voice clues were to some extent balanced out by the advantage of being able to see exactly where the student had already been on the web site or seeing what ground had already been covered in previous chat sessions.
2) Time delay was frustrating - unsynchronised dialogue
3) Chat sessions worked very well for enquiries requiring a quick, simple answer. Less useful for multi-faceted enquiries
4) Ability to respond to several different enquiries simultaneously
Staffing issues - recommends using a rota similar to those used on enquiry desks; need for staff to have multi-tasking abilities, extensive knowledge of services, e-resources, the web site and the tutorials; took long time for staff to familiarise themselves with this method of enquiry
375. McGlamery, S. "Pushing" reference. *Proceedings of the Integrated Online Library Systems Meeting*; New York. Medford, NJ: Information Today, Inc.; 2000: 111-117.
Keywords: e-reference/ public libraries/ academic libraries/ USA/ delivery technology
Abstract: Discusses the 24-7 reference project at public and academic libraries in the Los Angeles and Orange Counties Metropolitan Cooperative Library System. This project tested the concept of using web contact centre software to offer reference assistance to remote users.
Software - offers expanded communications possibilities, takes full advantage of collaborative tools such as pushing, form filling and taking control of the requestor's browser and has answering tools.
376. McGlamery, S. and Coffman, S. Moving reference to the Web. *Reference & User Services Quarterly*. 2000; 39(4):380-386.
Keywords: e-reference/ delivery technology/ academic libraries/ public libraries/ USA

Abstract: Explores the possibility of using Web contact center software to offer reference assistance to remote users.

This article is very similar in content to 'Pushing Reference' by McGlamery.

377. ---. Moving reference to the Web. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. Digital reference service in the new millennium: planning, management, and evaluation. New York: Neal-Schuman Publishers; 2000; pp. 181-195.
Keywords: e-reference/ public libraries/ delivery technology/ USA
Abstract: Examines the practical details of setting up a live Web reference service based on the call centre model. Describes a pilot project in Southern California public libraries.
This article is very similar to that of the same name published in Reference and User Services Quarterly.
378. McInerney, C. Working in the virtual office: providing information and knowledge to remote workers. Library & Information Science Research. 1999; 21(1):69-89.
Keywords: e-reference/ special libraries/ remote workers/ USA/ information need
Abstract: Reports on four case studies of companies where special librarians and corporate information managers support their remote professional clients through research services as well as offering information products and services. Through interviews and a survey the study examined alignment between managers' perceptions of the information needs of telecommuters and information needs and services as seen by the telecommuters themselves.
Section outlining the **best practices** used by the organisations studied to supply data, information and the company's intellectual capital to employees. Issues covered (1) Knowledge management (2) Information guidance (3) Intranet Information centres (4) Proactive information dissemination (5) Value-added services.
379. McKee, M. B. A day in the life of a virtual librarian. School Library Journal. 1995; 41(4):30-33.
Keywords: e-reference/ USA/ expert services
Abstract: Outlines the work of an AskERIC information specialist. AskERIC is an Internet-based info service for teachers, library media specialists, administrators and others involved in education. This article provides examples of questions posed.
380. McKiernan, G. LiveRef(sm): a registry of real-time digital reference services [Web Page]. 2003.
Available at: <http://www.public.iastate.edu/~CYBERSTACKS/LiveRef.htm>
Keywords: e-reference/bibliography
Abstract: A list (mostly with live links) of library digital reference services (mostly in North America). Also includes a general bibliography.
381. McKinzie, S. and Lauer, J. D. Digital reference: a new library paradigm or the emperor's new clothes. Against the Grain. 2002; 14(4):34-38.
Keywords: e-reference/ e-resources
Abstract: Argues that virtual reference can only serve as a complement to traditional, on-site reference services. Similar to article by same author entitled 'Virtual reference: overrated, inflated and not even real'
Implications for collection development:-
1) Ref collections will likely become largely digitised if VR wins the day
2) Potential for spiralling electronic licensing costs
3) E-resources constitute one of the most volatile dimensions in acquisitions budgeting
Also includes the disadvantages of DR, already covered in previous article.
382. ---. Virtual reference: overrated, inflated, and not even real. Charleston Advisor. 2002; 4(2):56-57.
Keywords: e-reference
Abstract: Discusses the limitations of e-reference: 1) All forms of DR are slow 2) Added administrative difficulties 3) Only minimally effective
383. McLaren, S. Virtual reference: a tired idea already? The Courier. 2001; 38(4).
Keywords: e-reference
Abstract: Questions the value of and need for virtual reference.

384. McLean, M. Expanding library service beyond the walls . Australasian Public Libraries and Information Services. 1999; 12(3):97-104.
Keywords: e-reference/ public libraries/ Australia/ implementation/ staffing
Abstract: Discusses the e-mail reference service (IRIS) of the Casey-Cardinia Library Corporation in Victoria, Australia.
'Hindsight' section:-
Operation and management - (1) Involve branch staff in the creation and development of the service (2) Importance of promotion.
385. McWilliams, A. Electronic reference sources and reference service. Colorado Libraries. 1997; 23:43-44.
Keywords: e-reference/ e-resources
Abstract: A very brief commentary on the potential of electronic resources for reference service.
Issues:-
◆ Evaluation of any reference source should be based on the question 'how useful can it really be for the patrons of the library?'
◆ Possibility of putting many or all electronic resources in the same place, and making them all searchable in the same way would enhance the possibility that patrons could do more of their own reference work.
386. Meloche, J. A. The importance of digital reference in supporting critical thinking in distance education. Virtual Reference Desk 2nd Annual Digital Reference Conference; Seattle. 2000.
Keywords: e-reference/ academic libraries/ distance learning/ Australia/ information seeking skills/ role of librarian
Abstract: Discusses a range of issues relating to digital reference in support of distance education. It examines the increasing emphasis in DE for students to become independent learners with critical thinking skills and the supporting role of librarians and reference services in that process. The paper will address the following issues: 1) the enhanced role of reference services in DE programmes and flexible learning initiatives 2) education for the provision of digital references 3) the importance of supporting critical thinking strategies and fostering independent learning and strategies for increasing cooperative ventures between academics and academic librarians.
387. Meola, M. and Stormont, S. Real-time reference service for the remote users: from the telephone and electronic mail to Internet chat, instant messaging, and collaborative software. The Reference Librarian. 1999; (67/68):29-40.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ collaboration
Abstract: Discusses the possibilities for remote access to reference services offered by new real-time technologies - telephone, e-mail, internet chat and instant messaging and audio and video conferencing and collaborative software.
Reports the results of a trial project at Temple University, Philadelphia.
Conclusions:-
(1) Telephone insufficient to meet the needs of all remote users.
(2) Each library must find its own mix of technologies that best serves its users.
(3) Paging programmes (TalkBack) and the collaborative software programmes (NetMeeting) offer real possibilities for libraries to simulate traditional reference services to remote users.
388. ---. Starting and operating live virtual reference services: a how-to-do-it manual for librarians. New York: Neal-Schuman; 2002. ISBN: 1-55570-444-1.
Keywords: e-reference/ service manual/ staffing / staff training/ evaluation / implementation/ delivery technology/ marketing
Abstract: Chapters: 1) Understanding live virtual reference 2) Offering live virtual reference 3) Exploring the five models of live virtual reference 4) Planning for live virtual reference 5) Gathering information on live virtual reference 6) Deciding on a staffing model for live virtual reference 7) Selecting software for live virtual reference 8) Training the staff for live virtual reference 9) Marketing for live virtual reference 10) Evaluating your live virtual reference.
389. Missingham, R. Report on the Virtual Reference Desk Conference October 2000, Seattle, Washington. D-Lib Magazine. 2000; 6(12).

Keywords: e-reference/ Virtual Reference Desk

Abstract: Very brief report on the VRD conference. 4 major areas were discussed: 1) nature of services 2) information infrastructure required to operate services 3) software 4) service quality/standards

Article identical to articles by same author entitled 'VRD conference October 2000' and 'Virtual reference:online questions and answers'

390. ---. Virtual Reference Desk conference October 2000, Seattle. Australian Academic & Research Libraries. 2000; 31(4):208-210.

Keywords: e-reference/ Virtual Reference Desk

Abstract: An overview of the second Virtual Reference Desk conference. Article identical to that by same author entitled 'Report on the VRD Conference October 2000' and 'Virtual reference:online questions and answers.'

391. ---. Virtual reference: online questions and answers. National Library of Australia Gateways. 2001; (49).

Keywords: e-reference/ Virtual Reference Desk

Abstract: An overview of virtual reference issues and the VRD 2000 conference. Article identical to that by same author entitled 'Report on the VRD Conference October 2000' and 'VRD conference October 2000.'

392. ---. Virtual services for virtual readers: reference reborn in the e-library. ALIA 2000. Capitalising on knowledge: the information profession in the 21st century.; Canberra, Australia. 2000.

Keywords: e-reference/ USA/ Australia/ user needs/ e-resources

Abstract: Discusses reference services in the digital library and includes the results of focus groups conducted at the National Library of Australia to assess user needs. Also describes four models for digital reference from USA and Australia.

User needs:-

- 1) Desire to access a mix of print and electronic resources
- 2) Traditional mediated ref services not viewed as critical as they have been
- 3) Expect the ref service to provide them with the skills and knowledge to be able to search effectively themselves
- 4) Expect libraries to offer a 'one stop shop'
- 5) Training as a face-to-face service in small groups
- 6) Information literacy programmes as of limited use
- 7) 24/7 access

393. Mon, L. Digital reference service. Government Information Quarterly. 2000; 17(3):309-318.

Keywords: e-reference/ government libraries/ USA/ expert services

Abstract: Focuses on the increasing public demand for digital reference services in US government libraries. Asks the question 'Why do so many people choose to ask their DR questions at 'Ask an Expert' online services and government Web sites instead of e-mailing their own local library?'

- 1) Finding the library's home page may be difficult
- 2) The library's home page may not promote the e-mail service
- 3) The library may not actively market DR services to users
- 4) The library may not add value that attracts visitors to their site
- 5) The library Web pages may focus on offering restricted subscription databases creating frustration when visitors cannot gain access to desired resources

Many government Web sites and 'Ask A' services attract such large volumes of incoming questions that they have difficulty maintaining staffing levels and encounter technical problems in relation to the management of these questions.

394. Moore, A. As I sit studying: WWW-based reference services. Internet Reference Services Quarterly. 1998; 3(1):29-36.

Keywords: e-reference/ academic libraries/ USA/ delivery technology

Abstract: Reports on the current state of reference services on the Web. It explains what a WWW-based ref service is, describes several models of handling requests and explores the impact of these services on traditional ref services. Based on anecdotal info from the author's experiences managing the Web-based service at the University of Central Arkansas, it concludes that to date, Web-based reference services have had little impact upon traditional reference

services.

Models: 1) the librarian answers the request 2) the requests are distributed to members of the ref staff 3) the request goes to a departmental electronic mail box and ref librarians answer on a first-come basis 4) the request is forwarded to an electronic bulletin board service.

Challenges in managing a WWW-based ref service:-

- 1) No ref interview
- 2) Librarian responses can be slow
- 3) Tracking messages is problematic
- 4) Receipt of crank messages

395. Moore, E.; Knight, E., and Kinnersley, R. WKU Libraries' Kentucky Virtual University support services. *Kentucky Libraries*. 2001; 65(4):31-35.
Keywords: e-reference/ academic libraries/ USA/ distance learning/ marketing
Abstract: Outlines the support services provided to the users of the Kentucky Virtual Library (KYVL) by the Western Kentucky University. The support services are examined from three perspectives: promotion and orientation; reference assistance; and document delivery services.
1) **Promotion** - i. unit on campus which coordinates distance learning efforts called 'ReachU' that distributes materials publicising the virtual university and virtual library; ii. orientation and instruction programme to acquaint faculty and students with the virtual library and its online resources; iii. series of workshops on databases and advertised in the student newspaper; iv. programme of support services for distance learning students.
2) **Reference Assistance - support services** serve 3 separate functions: outreach, acting as an information conduit and service. Roles of the Reference Contact.
i. Outreach - the Reference Contact is instrumental in providing outreach to his/her institution's entire patron base via ensuring that the library's gateway and databases are easily accessible from the library home page and that these are given a high profile; the creation of detailed handouts for reference use and for bibliographic instruction; fliers; bibliographic instruction.
ii. Conduit - the Reference Contact is responsible for the kinds of information provided and for methods of sharing information e.g. database access information.
iii. Service - the Reference Contact provides a general ref service to the virtual student.
3) **Document Delivery services** - need to ensure that the faculty teaching classes are aware of the library support services.
396. Morgan, E. L. See You See a Librarian final report. 1996.
Keywords: e-reference/ delivery technology/ USA
Abstract: Final report of a pilot e-reference project, using videoconferencing, conducted by the Berkeley Digital Library.
397. Morgan, N. and Sprague, C. Question answering, electronic discussion groups, newsgroups. *Teacher Librarian*. 2000; 28(1):15-17.
Keywords: e-reference/ school libraries/ USA
Abstract: Describes some sample electronic services and resources (including question answering services) available to the K-12 community.
398. Moss, M. M. Reference services for remote users. *Katharine Sharp Review*. 1997; (5).
Keywords: e-reference/ distance learning/ academic libraries/ USA/ literature review
Abstract: A **limited review of some of the literature** relating to reference services for remote users. Looks at some of the specific reference services offered to remote users by academic libraries. Concludes with a brief discussion of the challenges of providing reference services for remote users.
399. Moyo, L. M. Reference anytime anywhere: towards virtual reference services at Penn State. *Electronic Library*. 2002; 20(1):22-28.
Keywords: e-reference/ academic libraries/ USA/ delivery technology/ distance learning
Abstract: Outlines the service rationale, software choice criteria and technology considerations taken by the Pennsylvania State University in planning towards on-line, real-time reference services.
Advantages of providing an online real-time reference service:-
1) service to remote users
2) distributed service

- 3) convenience
 - 4) outreach tool for the library
 - 5) expanding the scope of service while extending hours of service (facilitates 24/7 service)
 - 6) additional communication option
 - 7) capability to reach more people
 - 8) meeting user expectations
- Planning for online real-time reference requires careful consideration of software and hardware requirements, policy and operational issues as well as requisite technical support.

400. Mudrock, T. Revising ready reference sites: listening to users through server statistics and query logs. *Reference & User Services Quarterly*. 2002; 42(2):155-.
- Keywords: academic libraries/ USA/ e-reference/ web site design
- Abstract: An article that illustrates how server usage statistics, e-mail reference queries and usability heuristics can be applied to create a more user-centered ready reference Web site, one that balances design, content and functionality. Based on a study of users at the University of Washington libraries.
- Revised Ref Tools page:-
- 1) Incorporated many of the features stressed by usability experts e.g. scannable text, user orientation and minimalist design. Also a consolidation of page numbers and content.
 - 2) Addition of 3 links to online sources - Oxford English Dictionary, Roget's Thesaurus and Britannica Encyclopaedia.
401. Myers, J. E. Reference services in the virtual library. *American Libraries*. 1994; 25(7):634-638.
- Keywords: e-reference
- Abstract: The author looks forward to 2000 and the likely shape of reference services in a largely electronic environment. This article takes the form of a number of letters.
402. ---. Reference services on the Internet. Ensor, P., Ed. *The cybrarian's manual*. Chicago: American Library Association; 1997; pp. 249-254.
- Keywords: e-reference/ delivery technology
- Abstract: Explores the possibilities for reference service on the Internet. Discusses the advantages of using e-mail and the concerns libraries have in offering an e-mail ref service. Also details what a knowledge structure and support system for ref service would look like.
403. Mühlfeld, K. Reference services to users of European Union information in a networked environment: an example from the European Documentation Center at the Saxon State and University Library, Dresden, Germany. Discussion Group on Reference Work, part of the 66th IFLA General Conference; Jerusalem. 2000.
- Keywords: e-reference/ academic libraries/ Germany/ library instruction
- Abstract: Describes the reference services of the Dresden EDC service. Includes a section on user instruction and education and staff education.
- User education tools** - printed handouts; information through EDC homepages; electronic ref service (Ask a Librarian); guided tours; tutorials and training.
404. Nast, P. Presentation summary and evaluation results. 2000.
- Keywords: e-reference
- Abstract: A summary of presentations made at the Virtual Reference Desk Digital Reference Conference 1999. Themes: 1) The new reference culture - traits and trends 2) Legal issues in DR 3) Managing DR services for AskA services 4) Building DR services and networks 5) Technology spotlight: DR tools and systems 6) Evaluating DR services
405. National Information Standards Organization. Report on the NISO workshop on networked digital reference services. 2001.
- Keywords: e-reference/ quality standards
- Abstract: Workshop held at Library of Congress 25-26 April 2001. Convened to explore what standards are needed to facilitate the development and implementation of Digital Networked Reference Services.
- Ongoing work that might be a starting point for a national standard - Michael McClellan's 'Roles in Digital Reference' (roles played by participants) and Linda Arret's 'Digital Reference Q & A: A process model'.

Protocol standards explored by Ray Denenberg 'Web Protocol Architecture'.

406. Needham, G. and Simpson, E. The Online Personal Academic Librarian (OPAL): a virtual librarian for a virtual student community. Brophy, P.; Fisher, S., and Clarke, Z., Eds. Libraries without walls 4: the delivery of library services to distant users. London: Facet Publishing; 2002; pp. 99-108.
Keywords: e-reference/ academic libraries/ UK
Abstract: Discusses the Open University's OPAL project, to develop an online, 24-hour, fully automated enquiry service capable of handling routine natural-language questions and providing a near-immediate response to the user.
407. Neff, P. Virtual librarianship:expanding adult services with the World Wide Web. Reference Quarterly. 1995; 35(2):169-172.
Keywords: e-reference/ implementation
Abstract: Blueprints planning criteria for establishing adult services, reference and otherwise, on the Web.
Implementation guidelines:-
1) Appropriateness of the medium - importance of clear service goals.
2) Limitations of the medium - plan on link failures, slow connections and poor documentation of remote services.
3) Scalability of services - ideally Internet services should be usable at an early stage, grow at a manageable rate and simultaneously keep pace with patron demand and staff workloads. Consider maintenance questions.
4) Compatibility of services
5) Management
6) Literacy
7) Cost
408. Neuhaus, P. and Marsteller, M. R. Chat reference at Carnegie Mellon University. Public Services Quarterly. 2002; 1(2):29-41.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the chat reference service, which uses LivePerson, at Carnegie Mellon University. Includes a section on evaluating the service. One of the pros identified was that it was 'good for distance education students'.
409. Normore, L. and Rumbaugh, P. Moving from virtual to cooperative reference service models. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 103-111.
Keywords: e-reference
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Discusses the issues involved in cooperative digital reference, in the context of the activities of the Online Computer Library Center (OCLC).
410. Novotny, E. Evaluating electronic reference services: issues, approaches and criteria. The Reference Librarian. 2001; (74):103-120.
Keywords: e-reference/ evaluation / quality standards
Abstract: Provides **an overview of the chief methodologies available for conducting assessments of electronic services**. Discusses existing criteria for evaluating reference services and provides suggestions as to how they can be applied or adapted to the online service environment.
1) Evaluation must be integrated into the library's operations and built into the implementation of any new service.
2) To truly evaluate a service, it is necessary to gauge the quality of what is being offered as well as the quantity.
3) Most widely used methodologies are case studies, focus groups, individual interviews and surveys.
4) Other methods are cost-benefit analysis, usability studies, web log analysis and statistics.
5) The advantages and disadvantages of each approach are outlined.
6) Quantitative measures are probably the most widely used approach to assessing electronic ref services.

7) Any evaluation should include some sampling of non-users to determine why it is that they are opting to bypass their local libraries.

8) **Quality measures:-**

- i. Ferguson & Bunge - access; equity and personalised service
- ii. RUSA Electronic Information guidelines - response time; accessibility/convenience; value; effectiveness in meeting needs and in anticipating needs.
- iii. RUSA Behavioural guidelines - approachability; interest; listening/enquiring; involves patron in search process; follows-up.
- iv. McClure & Lapota - extensiveness; efficiency; effectiveness; service quality; impact and usefulness.
- v. Servqual - reliability; assurance; empathy; responsiveness and tangibles.

411. O'Leary, M. e-global library advances the virtual library. *Information Today*. 2002; 19(3):19-20,46.
Keywords: e-reference/ distance learning/ academic libraries/ USA
Abstract: Presents an evaluative review of the e-global library at the Jones International University at Frederick, Maryland, the first completely Web-based degree-granting university. Discusses briefly its reference hot line.
412. O'Neill, N. E-mail reference service in the public library: a virtual necessity. *Public Libraries*. 1999; 38(5):302-303,305.
Keywords: e-reference/ public libraries/ USA/ implementation
Abstract: Discusses the e-mail reference service at the Santa Monica Public Library. Presents suggestions for public libraries just beginning such a service:-
1) Work closely with staff to overcome initial resistance.
2) Work closely with administrators to make them aware of the advantages of e-mail reference.
3) Ask for ref staff volunteers to initiate the service.
4) Create clear procedures and documentation and make them available.
5) Set limits.
6) Train staff well.
7) Require skill in all types of electronic reference as a stated expectation for ref librarians.
413. Oder, N. Digital reference needs metrics: virtual reference grows but lacks good assessment measures. *Library Journal*. 2001; 126(20):16-17.
Keywords: e-reference/ quality standards/ USA
Abstract: Brief news item on the results of the study 'Assessing Quality in Digital Reference Services' conducted by McClure, Gross and Lankes at Florida State University.
414. ---. The shape of e-reference. *Library Journal*. 2001; 126(2):46-50.
Keywords: e-reference/ USA/ implementation
Abstract: Discusses e-reference developments, including the CDRS. Includes advice, from Sara Weismann, on decisions to be made when considering the launch of an e-reference service.
Launching issues:-
(1) Who are you doing this for?
(2) How does it fit in to your work?
(3) What's your policy?
(4) Which staffers will do it?
(5) How do you train staffers?
(6) Do you archive Q&As for the public?
(7) How are replies signed?
(8) What's your turnaround time?
(9) Will you use autoresponders to acknowledge receipt of a question?
(10) Will you go outside your own service to other sources/experts online, to answer your patron's question or just direct him/her that way?
(11) Will you build an FAQ file/page?
(12) Where do you learn more?
415. Olson, R. Stumped reference librarians find help on the Internet. *American Libraries*. 1994; 25(9):830-831.
Keywords: e-reference/ USA
Abstract: Describes Stumpers, an electronic mailing list that helps to find the answers to difficult

reference questions.

416. Online Computer Library Center. Real-time reference for undergraduate students in science, mathematics and engineering. 2000.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: A grant proposal to the National Science Foundation for a 24/7 librarian-staffed science chat room for undergraduates at five US universities.
417. Ormes, S. Public libraries corner: Ask A Librarian. *Ariadne*. 1998; (13).
Keywords: e-reference/ public libraries/ UK/ expert services
Abstract: Introduces EARL's Ask A Librarian online reference service. (EARL is a UK public libraries Internet initiative which aims to make the advantages of the Internet available to all library users and other members of the public).
418. ---. You only had to ask. *Library Technology*. 1998; 3(2):39-40.
Keywords: e-reference/ UK/ public libraries/ expert services
Abstract: Discusses EARL's Ask a Librarian online query service. (EARL is a UK public libraries Internet initiative which aims to make the advantages of the Internet available to all library users and other members of the public). This article is very similar to that by the same author entitled 'Public Libraries Corner: Ask A Librarian' (1998).
419. Oscarsson, A. Discussion Group on Reference Work report: report from the meeting held at the 66th IFLA General Conference, 14 August 2000, Jerusalem. 2000.
Keywords: e-reference
Abstract: A summary of a discussion based on five papers. The papers were based on a theme entitled 'A space odyssey - building bridges between virtual and physical reference services'.
420. Owens, P. L. Washington State Library Statewide Virtual Reference Project focus group results March 2002. 2002.
Keywords: e-reference/ USA
Abstract: Results of a focus group of librarians who discussed the possibilities of virtual reference service collaboration among libraries of all types. This initiative is focused on the development of best practice methods and standards for creating virtual ref services in Washington State libraries.
421. Pace, A. K. Virtual reference: what's in a name? *Computers in Libraries*. 2003; 23(4):55-56.
Keywords: e-reference/ USA
Abstract: Some criticisms of the ways in which the library community has created and marketed virtual reference services.
Criticisms (1) Name for virtual service - not virtual (2) Collaborative digital reference is a pipe dream - wide array of reference styles and expertise, copyright and licensing issues (3) Setting standards - diversity in the nature of reference questions.
422. Pack, T. A guided tour of the Internet Public Library: cyberspace's unofficial library offers outstanding collections of Internet resources. *Database*. 1996; 19(5):52-56.
Keywords: e-reference/ Internet Public Library/ USA
Abstract: Describes the University of Michigan's Internet Public Library.
423. Pagell, R. A. The virtual reference librarian: using desktop videoconferencing for distance reference. *The Electronic Library*. 1996; 14(1):21-26.
Keywords: e-reference/ distance learning/ academic libraries/ delivery technology/ USA
Abstract: Provides an overview of the use of desktop videoconferencing as a means of delivering a distance learning reference service at Emory University Libraries. It discusses the technology and evaluative factors necessary for the success of desktop videoconferencing.
Evaluative factors:-
(1) Identify applications
(2) Identify the desktop video characteristics necessary for the applications
(3) Investigate your organisation's infrastructure
(4) Identify potential communications partner locations

(5) Talk to local desktop video providers

424. Palmgren, V. and Heino, K. Active integration of information searching skills into the university curriculum. Brophy, P.; Fisher, S., and Clarke, Z., Eds. *Libraries without walls 4: the delivery of library services to distant users*. London: Facet Publishing; 2002; pp. 197-207.
Keywords: information seeking skills/ Finland
Abstract: Discusses the teaching of information skills in Finland, in particular a course at the Helsinki University of Technology.
Mentions Bainton's (2001) Information skills model.
Conclusions:-
(1) Important that students have state-of-the-art support from their library and graduate with appropriate IT skills.
(2) The need for universities to constantly re-evaluate and revise courses in order to remain up-to-date.
425. Pantry, S. and Griffiths, P. *Creating a successful e-information service*. London: Facet Publishing; 2002.
Keywords: e-reference
Abstract: Guidance on how to establish an electronic information service. The focus is on providing access to electronic resources, but digital reference services are mentioned briefly throughout.
426. Papandrea, V. A. Managing reference services in the electronic age: a competing values approach to effectiveness. *The Reference Librarian*. 1998; (60):111-126.
Keywords: evaluation
Abstract: Presents **the competing values approach** to effectiveness as a broad-based integration of 4 existing models of organizational effectiveness. Discusses Quinn and Rohrbaugh's (1983) 'Competing Values' framework and the implications of this approach for reference management. In this paper, it is suggested that the dimensions of effectiveness be operationalised at the group level such that no one manager or other individual be required to embody all the roles required for effective management. Instead, the roles and skills of the human relations, internal process, open system, and rational goal models identified by the competing values approach can be distributed among work group or team members allowing individuals to build on their strengths to contribute to optimum group performance.
427. Parsons, A. M. Digital reference: how libraries can compete with Aska services. *Digital Library Federation Newsletter*. 2001; 2(1).
Keywords: e-reference/ expert services
Abstract: Argues that libraries should not fear the competition from for-profit Aska services. States that creating and mastering online ref library-style can only help to ensure the stability of libraries in the future.
428. Patrick, S. and Matthews, C. Ask a Librarian LIVE: specialist and broad-based reference capacities expanded by new software. *College & Research Libraries News*. 2002; 63(4):280-281.
Keywords: e-reference/ academic libraries/ Canada/ delivery technology
Abstract: Discusses the real-time chat reference service at Ryerson University Library in Toronto.
429. Patterson, R. Live virtual reference: more work and more opportunity. *Reference Services Review*. 2001; 29(3):204-209.
Keywords: e-reference/ special libraries/ government libraries/ USA/ Virtual Reference Desk
Abstract: Describes the use of the Virtual Reference Desk by the US Department of Energy library. Identifies the key features of the VRD.
430. Payne, G. and Bradbury, D. The OPAL project: developing an automated online reference system for distance learners. *D-Lib Magazine*. 2001; 7(6).
Keywords: e-reference/ academic libraries/ distance learning/ UK/ OPAL
Abstract: A news item announcing the Open University Library project to develop a 24-hour fully-automated reference service for distance learners.
431. Payne, G. F. and Bradbury, D. An automated approach to online digital reference: the Open University

Library OPAL Project. Program: Electronic Library and Information Systems. 2002; 36(1):5-12.
 Keywords: e-reference/ distance learning/ academic libraries/ UK/ OPAL
 Abstract: Describes the development of a 24/7 online system designed to respond to routine and repeat enquiries from Open University distance learners. Addresses the following areas: (1) The need for OPAL (2) The digital reference climate - real-time reference software (3) Enquirer behaviour and enquiry patterns (4) Understanding the user's context (5) Prototype development (6) Future development

432. Pease, B. and Power, C. Reference services for off-campus students and faculty. *The Reference Librarian*. 1994; (43):43-62.
 Keywords: e-reference/ literature review
 Abstract: A review of the literature on reference services to off-campus students, faculty and staff. This paper addresses the various surveys that have been conducted on reference services to off-campus users; the philosophy of service; differing elements of reference service; role of technological innovation in this service and the alternatives including contracts, evaluation and guidelines.
433. Penka, J. T. The technological challenges of digital reference. *D-Lib Magazine*. 2003; 9(2).
 Keywords: e-reference/ USA/ user needs/ implementation/ quality standards
 Abstract: Provides an overview of today's reference environment to demonstrate the importance and effect understanding audiences, appropriately using technology, and working cooperatively can have for libraries in digital reference.
Library values - stewardship, service, intellectual freedom, rationalism, literacy and learning, equity of access to recorded knowledge and information, privacy and democracy (Gorman, 2000)
User needs - goals for digital reference must link to target audience and the context and conditions of those using a digital reference service. Need to develop a technology profile about target patrons.
Library issues (1) Digital reference workflow e.g. question assignment, fulfillment, question management, archiving (2) Co-operation: 5 types (internal, informal, formal, affinity and anonymous) identified need to plan and develop technology with an understanding of the levels of co-operation (3) Technical standards for interoperability - role of NISO 4) Quality standards and best practices
Quality standards - McClure et al (2002): a) courtesy of library staff b) accuracy of answer c) user satisfaction with service d) rate of repeat users e) awareness that service exists f) cost per digital reference transaction g) completion time h) accessibility. Role of technology in data collection and analysis of accepted metrics.
434. Pernat, M. Widening the Net: Monash University Library's flexible, student-centred information services. *Australian Academic & Research Libraries*. 1999; 30(3):200-211.
 Keywords: e-reference/ academic libraries/ Australia / library instruction
 Abstract: Discusses library services to on and off campus students at Monash University in Australia including electronic reference services.
 Range of initiatives:-
 (1) Audio-on-Demand service - allows students to listen to selected lectures recorded as digital sound files.
 (2) Video-on-Demand project - allows students to simultaneously access real time, high quality videos.
 (3) On line guides
 (4) Web-based information literacy programme
Factors in the provision of flexible delivery:-
 (1) Full access to required source materials for some courses which do not lend themselves to digitisation.
 (2) Rationalisation of library staff availability
 (3) Personalised assistance
 (4) Provision of hands-on campus-based instruction
 (5) Ensure quality products are readily accessible and well-presented
 (6) Development of cross-campus courses with centralised provision of lectures and the relaying of these to several sites.
 (7) Improved negotiation with suppliers

- (8) The need to decrease the cost of purchasing and maintaining electronic and print collections.
 (9) Consideration of the amount of expenditure on electronic indexing and abstracting services compared with that on fulltext journals.

435. Peters, T. A. CIC ORS (Online Reference Services) Workshop notes. 2001.
 Keywords: e-reference/ academic libraries/ USA
 Abstract: Informal notes from a workshop organised by the University of Illinois Committee on Institutional Cooperation, and held at the University of Wisconsin-Madison. Participants included Lipow, Kresh, Sloan, etc.
436. ---. Current opportunities for the effective meta-assessment of online reference services. *Library Trends*. 2000; 49(2):334-49.
 Keywords: e-reference/ meta-assessment
 Abstract: Suggests that current conditions are nearly ideal for the effective meta-assessment of online reference services. Meta-assessment is defined as the deliberate examination of the elements, basic conditions and needs of a thing that transcend particular instantiations of that thing.
 Notes 2 approaches to the evaluation of a digital library: (1) ethnographic (2) holistic
Meta-assessment criteria:-
 (1) To be successful, does online reference service have to be conducted in real time?
 (2) Should online reference service involve nonverbal communication?
 (3) Should ORS consist primarily of human-to-human communication?
 (4) How should knowledge and navigational expertise within a given populations be gleaned from and diffused throughout that population?
 (5) Is software a crucial facet of an ORS assessment project?
437. ---. E-reference: how consortia add value. *Journal of Academic Librarianship*. 2002; 28(4):248-250.
 Keywords: e-reference/ academic libraries/ collaboration/ USA/ technical standards / service guidelines
 Abstract: Considers the value of consortia in the development of academic libraries' e-reference services. Outlines the roles played by consortia and includes a brief section on standards and guidelines. Also includes a section on the risks and downsides of consortial efforts.
Standards - need to develop a standard record format for ref questions so that they can be searched and passed between libraries using different online ref software systems. Need for software systems to improve their interoperability.
Guidelines - RUSA guidelines address 8 areas:- definitions; administration and management; levels and modes of service; clientele; personnel; infrastructure and facilities; finances and evaluation.
438. Peterson, L. Definitions of personal assistance in the new millennium: philosophical explorations of virtual reference service. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers; 2000; pp. 37-46.
 Keywords: e-reference/ Virtual Reference Desk
 Abstract: Questions whether values and behaviors of traditional reference librarians will continue in digital reference environment. It explores social and philosophical developments of reference service in North America with attention given to the significance of the new model of virtual reference provision.
439. Philbert, M. Bridging the distance: Pace University Library and remote users. *Journal of Business and Finance Librarianship*. 2002; 7(2/3):87-98.
 Keywords: e-reference/ distance learning/ academic libraries/ USA/ library instruction
 Abstract: Discusses Pace University Library's services to distance learners, particularly students in the Executive MBA program. Includes a brief section on research assistance which is offered via a toll-free telephone number, an online form and online guides (ReVeal).
Conclusion - the future of distributive learning lies in the creation of partnerships among academic and public librarians, computing professionals, college and university administrators, faculty, publishers and vendors.

440. Philip, B. mayihelpyou@theelectronicreferencedesk An examination of the past, present and future of electronic mail reference service. 1997.
Keywords: e-reference/ academic libraries/ Canada/ implementation/ delivery technology
Abstract: Explores the advantages and disadvantage of electronic mail reference and discusses the service at the University of Alberta Libraries.
441. Pierce, J. B. Digital discomfort? "Get over it," says McClure. *American Libraries*. 2002; 33(5):45.
Keywords: e-reference/ evaluation
Abstract: Report of a lecture by Charles McClure, on 'Assessing digital reference services'. McClure emphasised the need for libraries to develop goals, commit resources and evaluate outcomes of digital ref services. Efforts to count and evaluate transactions (e-metrics) are essential to libraries' abilities to provide services effectively.
442. Pitney, B. KCLS's Virtual Reference Service: a process of refinement by perseverance Nixon, C. and Burmood, J., Eds. *Internet Librarian 2001: collected presentations*; Pasadena, CA. Medford, NJ: Information Today, Inc.; 2001: 146-154.
Keywords: e-reference / public libraries/ USA
Abstract: Discusses the introduction of a real-time chat reference service at the King County Library System in Seattle, WA. Includes a section on '**Operator evaluation**' - comments made were: the need for more in-depth training; the 4 hour shift being too long; high number of disconnects; need for technical support to be available the hours the service is open; the need to better publicise the service; misleading name for the service (user expectations); chat too slow a mechanism to use to answer ref questions.
443. Place, E. and Dawson, H. Building the RDN Virtual Training Suite to teach Internet information skills via the Web. Brophy, P.; Fisher, S., and Clarke, Z., Eds. *Libraries without walls 4: the delivery of library services to distant users*. London: Facet Publishing; 2002; pp. 161-172.
Keywords: information seeking skills/ UK
444. Pomerantz, J. and Silverstein, J. Creating a system for shared information and referral: the importance of ontology. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 149-158.
Keywords: e-reference/ government libraries/ USA
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Discusses the use of taxonomies and ontologies in building an information and referral system utilizing pre-existing information sources found within an unnamed US governmental agency.
445. Porter, S. Chat: from the desk of a subject librarian . *Reference Services Review*. 2003; 31(1):57-67.
Keywords: e-reference/ academic libraries/ Australia/ delivery technology/ user needs/ library instruction/ staffing
Abstract: Discusses a trial chat reference service for nursing students at the La Trobe University in Melbourne.
User needs - lack of knowledge of databases and command of the search techniques.
User instruction - initiatives for 2002 to address the lack of exposure that off-campus nursing students have to library orientation and information literacy instruction and assistance are 1) an online tutorial or CD-ROM guide covering basic catalogue and database searching, using the document delivery service and getting assistance from the library 2) a Web page of database search strategies 3) a trial of a chat service as an alternative to on-campus appointments, telephone/e-mail assistance.
Impact on staff - complementary service versus overlapping service/replacement service? More support for service if viewed as filling a niche.
Conclusions:-
❖ Not strictly necessary to provide a chat service to increase the number of nursing students who seek help
❖ A reference interview can be performed during a chat and closure reached satisfactorily for the user
❖ Chats were sometimes an inconvenient interruption to the work of the subject librarian and a

limited amount of rostering was seen as required to provide some predictability
 ❖ Chats viewed as increasing inefficient single consultations during a time when more efficient ways to deliver service in a climate of staff reductions
 ❖ Many students wish to chat outside normal business hours so co-operation with librarians in other time zones would be necessary

446. Powell, C. A. and Bradigan, P. S. E-mail reference services: characteristics and effects on overall reference services at an academic health sciences library. *Reference & User Services Quarterly*. 2001; 41(2):170-178.
 Keywords: e-reference/ academic libraries/ USA/ service guidelines
 Abstract: Describes the process of initiating an e-mail reference service in June 1995 at the Ohio State University Health Sciences Library and the growth of the service through December 2000. Appendix A provides an example of the library's 'Electronic Mail Reference Service Guidelines' and Appendix B is an example of 'Remote Ref Services Guidelines'.
447. Prestamo, A. If we build it, will they come? Williams, M. E., Ed. *Proceedings of the National Online Meeting*; New York. Medford, NJ: Information Today, Inc.; 2000: 313-324.
 Keywords: e-reference/ academic libraries/ distance learning/ USA/ delivery technology
 Abstract: Discusses the creation of the Digital Library Services unit at Oklahoma State University, which includes the provision of e-mail and telephone reference services to distance learners.
Conclusion - answer to question in title is Yes. The real challenge is promotion of services - requires building relationships and clear lines of communication with the faculty teaching DE courses.
448. Qayyum, M. A. Internet reference services and the reference desk: does the nature of a user's query really change? *Internet Reference Services Quarterly*. 2002; 7(3):15-22.
 Keywords: e-reference/ academic libraries/ Canada/ role of librarian/ user needs
 Abstract: Reviews the nature of queries posed by library patrons during a regular reference interview within the conceptual framework of Internet reference services in an academic library. The observation is that whilst the basic theme and nature of queries remain pretty much the same, it is the role of the ref librarian in responding to these queries that has undergone an immense change.
 Examines the various types of user and how librarians must meet their needs - the new library user, the user who is totally unaware of the e-services available; the user who has an inborn fear and distrust of new technology and the experienced computer user.
449. Quint, B. The digital library of the future: CrossRef Search and QuestionPoint offer challenges to traditional services. *Information Today*. 2002; 19(7):8-.
 Keywords: e-reference/ USA/ QuestionPoint
 Abstract: Includes a discussion of the launch of OCLC's QuestionPoint.
450. ---. QuestionPoint marks new era in virtual reference. *Information Today*. 2002; 19(7):50-.
 Keywords: e-reference/ USA/ QuestionPoint
 Abstract: Discusses the launch of QuestionPoint, a cooperative venture between the online vendor OCLC and the Library of Congress' Public Service Collections Directorate, based on the CDRS.
451. ---. Round the clock, round the world: delivering quality, affordable data 24 hours a day will take us into the future. *Information Today*. 1998; 15(6):8-.
 Keywords: e-reference
 Abstract: Argues the need for good 24-hour virtual reference services. Discusses the relationship between librarians and vendors.
452. Quint, B. Some advice for Google Answers: adopting high-quality standards can help build a reliable, consistent service. *Information Today*. 2002; 19(6):8-.
 Keywords: e-reference/ USA/ commercial services
 Abstract: Suggests the adoption of quality standards by Google's Answers and other commercial e-reference services.

453. Race, S. F. and Viggiano, R. It's not BI, it's VI: virtual instruction for distance learners Williams, M. E., Ed. National Online 2001 Proceedings; New York. Medford, NJ: Information Today, Inc.; 2001: 377-383.
 Keywords: e-reference/ academic libraries/ distance learning/ USA/ delivery technology
 Abstract: Describes the real-time reference service pilot, using chat software (RRChat), at the Florida Distance Learning Reference & Referral Center. Addresses (1) things to consider when selecting chat software (2) how best to use chat for instruction - organise workshops; request registration of students; limit number of students per classroom and use a pre-written script (3) Other uses of technology - meet social aspects by creating a gathering place for comments and have open sessions on different topics.
454. Rader, H. B. Information literacy in the reference environment: preparing for the future. Katz, W. A., Ed. New technologies and reference services. New York: Haworth Press; 2000; pp. 25-33.
 Keywords: e-reference/ information seeking skills/ user needs/ library instruction/ staff training
 Abstract: Argues that the teaching of effective information and computer skills will become a very important component of reference services in the new millennium.
 Need for librarians to provide library systems designed to facilitate access and information skills instruction at the time of need.
User needs:-
 1) Users need help with technology so 'help desk' pieces are becoming parts of ref services.
 2) Users need instruction in accessing, organising and using information, so information literacy is being incorporated into ref services.
 3) Users need help remotely so electronic communication including video conferencing is integrated into ref work.
 4) Users want assistance at their location so ref librarians often roam around the library to accommodate these needs or they go to faculty offices to provide needed services.
 Librarians need to:-
 1) Set clear guidelines for electronic ref services
 2) Build close cooperation among ref librarians
 3) Identify remote clientele and their needs
 4) Obtain extensive training and development
 Need for ref services and information skills instruction to become integrated.
Staff training in people and teaching skills; knowledge of print and electronic databases; basic technology and networking skills and knowledge of information sources in the surrounding areas.
Info skills instruction in person, interactively online, in print or in an electronic classroom situation.
455. Ramsden, A. The OU goes digital. Library & Information Update. 2003; 2(2):34-35.
 Keywords: e-reference/ distance learning/ UK/ OPAL
 Abstract: Outlines how the Open University is embedding electronic library resources and services into e-learning. Initiatives are (1) a 24/7 enquiry service and real-time instant messaging (2) information literacy classes (3) improvements in accessibility of services (4) collaborative library/learning technology partnerships (5) a just-in-time approach with a new personalised library service. Includes a brief section on its 24/7 enquiry service 'Librarians on Call'.
456. Reger, N. K. Redefining reference services: transitioning at one public library. Reference & User Services Quarterly. 1998; 38(1):73-75.
 Keywords: e-reference/ public libraries/ USA/ delivery technology
457. Rettig, J. Technology, cluelessness, anthropology, and the memex: the future of academic reference service. Reference Services Review. 2003; 31(1):17-21.
 Keywords: academic libraries/ USA/ user needs/ role of librarian
 Abstract: A white paper on the future of the academic reference service, presented as part of the RUSA programme at the 2002 ALA Annual Meeting.
User values/needs - immediacy, interactivity, personalisation and mobility. Need to provide a personalised service a personalised guide to relevant information resources, one that can respond appropriately to changing needs as the user's knowledge increases e.g. Bush's (1945) memex machine. The Instant Messaging generation of users. Lack of understanding amongst users as to

the complexity of the reference process. Inability to be critical about information 'cluelessness'.
Role of librarian - the need to 'rove' electronically using technology which can monitor user behaviour e.g. to alert a librarian when online assistance is required. Link with concept that electronic reference is not place bound (reference desk) concept of an information consultation room in which a librarian can work face-to-face with a user or from which a librarian can work screen-to-screen with a remote user. Librarians as 'expert anthropologists' of the user communities - learn about their information handling habits (link to developing resources). Tools to assist librarians e.g. enhancements to integrated library systems that allow simultaneous searching of multiple databases, Research Wizard.

458. Rhodes, C. Global digital reference service begins trial run. *American Libraries*. 2001; 32(1):22.
 Keywords: e-reference/ CDRS
 Abstract: Very brief article on the launch of the Collaborative Digital Reference Service, a project hosted by the Library of Congress in collaboration with the national libraries of Canada and Australia.
459. Richardson, J.; Fletcher, J.; Hunter, A., and Westerman, P. "Ask a Librarian" electronic reference services: the importance of corporate culture, communication and service attitude. *LASIE*. 2000; 31(4):25-37.
 Keywords: e-reference/ USA/ Australia/ academic libraries/ public libraries/ implementation/ expert services
 Abstract: Examines the information technology aspects and the key organizational issues involved in establishing an electronic reference desk service. Identifies issues emerging from a 1999 survey of academic and public libraries in North America and Australia.
Issues to address when implementing or maintaining an 'AskaLibrarian' service:-
 1) Location of (AskaLibrarian) page on web site
 2) Methods for patrons to submit a request
 3) Mandatory patron details
 4) Answering patron queries - who and how long
 5) Statistics
 6) Management process
 Need to focus on the relationship between a library and its service to its patrons.
460. ---. "Aska" electronic reference: strategies for creating effective query services. *AusWeb2K, the Sixth Australian World Wide Web Conference*; Cairns, Australia. 2000.
 Keywords: e-reference/ quality standards/ implementation/ expert services
 Abstract: Provides a checklist for libraries planning to implement an 'Aska' service.
Implementation factors:-
 (1) Location of (Ask a Librarian) page on web site
 (2) Methods for patron to submit a request
 (3) Answering patron queries: who and how long
 (4) Statistics
 (5) Management processes
 Authors promote the importance of communication between the library and its patrons.
Defining success - how?
 (1) Examine growing number and proportion of queries relative to more traditional services
 (2) Proportion of questions answered correctly or to the satisfaction of the enquirer
 (3) Evaluation of success by users and reasons for non-use
 (4) Whether it reaches people who have no other resources to use or overlaps
 May wish to benchmark service against other enquiry services.
461. Richardson, J. V. The future of reference: the intersection of information resources, technology and users. *Reference Services Review*. 2003; 31(1):43-45.
 Keywords: reference services/ user needs/ library instruction
 Abstract: A response to the five white papers on the future of reference service presented as part of the RUSA programme at the 2002 ALA Annual Meeting. Points out that the social aspect is one of the most important drivers in the provision of reference services.
Users needs - importance of having trustworthy tools to resolve a user's information problem.
User instruction - should be offering bibliographic instruction, library classes, library orientation, user instruction, library tours and information literacy programmes.

462. ---. Question Master: an evaluation of a Web-based decision-support system for use in reference environments. *College & Research Libraries*. 1998; 59(1):29-37.
 Keywords: e-reference/ USA
 Abstract: Evaluates Question Master, a decision-support system automating some of the more routine, fact-type questions encountered in libraries. A series of Web pages guides librarians through a set of clarifying questions before making recommendations of an appropriate electronic or print resource from WorldCat, OCLC Online Union Catalog. The goal is to improve the accuracy of ref transactions.
463. Richardson, J. V. Virtual reference transactions: a systematic bibliography [Web Page]. 2002. Available at: <http://vrhome.virtualreference.net/johnrbiblio.htm>.
 Keywords: e-reference/bibliography
 Abstract: A bibliography containing 272 items compiled by examining a number of sources, including the Sloan and Wasik bibliographies.
464. Richardson, J. V.; Havener, W. M.; Dillon, M.; Saxton, M. L.; Radcliff, C., and Kuhlthau, C. C. Millennium research agenda project: reference services. *Library Quarterly*. 2000; 70(1):vii-xvii.
 Keywords: e-reference/ USA
 Abstract: Suggestions from researchers and practitioners as to the research front and research agenda for reference service in the new millennium.
465. Rieh, S. Y. Changing reference service environment: a review of perspectives from managers, librarians, and users. *The Journal of Academic Librarianship*. 1999; 25(3):178-186.
 Keywords: literature review/ role of librarian/ information seeking skills/ information need
 Abstract: **Reviews the literature on academic library reference service** and examines changes in the traditional reference desk model. Proposes new research directions in which users' information-search processes and librarians' intervention in ref service are integrated. Discusses: 1) models of ref service - traditional vs. tiered; 2) Librarians perspectives on the changing work environment - welcomed/enhanced role vs. burnout and overload; 3) Users' information-seeking behaviours - 'information need' concept explored; 4) Role of ref librarian in changing environments - intermediary, teacher, 'process intervention of learning', translator, guide and instructor.
466. Riggs, C. Virtual reference services...what, why and how? A report on a teleconference. *Library Hi Tech News*. 2002; 19(4):7-9.
 Keywords: e-reference/ implementation
 Abstract: Report of a national satellite teleconference on virtual reference services. Participants included Coffman, Lipow and Sloan.
Issues to consider when embarking on the implementation of a DR service:-
 1) Staffing - appropriate level? all ref staff or just subject specialists?
 2) Physical layout of service
 3) Service hours
 4) Staff training
 5) Evaluation - methods?
 6) Legal issues - privacy, copyright and licensing issues?
467. Roberts, H. Any time, any place: virtual reference services. *Australian Academic & Research Libraries*. 2000; 31(4):203-205.
 Keywords: e-reference/ academic libraries/ Australia
 Abstract: Reviews a seminar on virtual reference services organised by the University, College and Research Library Section of the Australian Library and Information Association. It focused on case studies of what was actually already being done in Australian libraries and information services.
468. Roberts, L. Choosing a chat reference software solution: the devil is in the detail. *Information Strategies* 2001; Fort Myers, Florida. 2001.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology
 Abstract: Discusses the process of choosing chat reference software at the University of North Carolina. Provides a chat reference software checklist.

469. Robinson, K. and Kovacs, D. LibRef-L: sharing reference expertise over the academic networks. *Wilson Library Bulletin*. 1993; 67(5):47-50.
 Keywords: e-reference/ discussion lists/ USA
 Abstract: Discusses LibRef-L, a discussion list dealing with issues in reference services.
470. Rocchi, B. The virtual reference desk: how does it work? 1997.
 Keywords: e-reference/ academic libraries/ Australia/ delivery technology
 Abstract: Discusses the implementation and administration of an e-reference service, REFER, at the University of South Australia Library. Includes a section on the **advantages and disadvantages of electronic reference**.
Advantages:-
 1) Time saver for users
 2) Cheaper than a telephone ref service
 3) Provides anonymity
 4) Provides an extra choice for users
 5) May take some of the load off a busy ref desk
Disadvantages:-
 1) Some users will have limited email access
 2) Lack of standardisation between email software and gateways
 3) Difficulty reading files sent via email
 4) Security/Confidentiality issues
 5) Different ref interview demands
471. Rockman, I. F. Internet speed, library know-how intersect in digital reference. Bogart, D., Ed. *The Bowker annual library and book trade almanac 2002*, 47th edition. Medford, NJ: Information Today; 2002; pp. 234-248.
 Keywords: e-reference/ staff training/ staffing/ information literacy/ delivery technology/ evaluation/ quality standards/ technical standards
 Abstract: Examines digital reference services and the challenges and benefits they are making for libraries of all types. Includes sections on:-
 1) Models - individual academic libraries, regional multitype consortia, regional consortia, statewide multitype consortia, government and international.
 2) Privacy - need for user to personal details to start the service, some products now permit patrons to remain anonymous.
 3) **Standards** - NISO workshop and Question Interchange Profile work; (very brief section)
 4) **Training & education**
 i. the complexities of shared databases, authentication and licensing issues are unique to an electronic environment requiring specialised content knowledge, technical expertise and the fundamental skills of communication, source knowledge and service orientation.
 ii. education strategies may include step-by-step training manuals and guides for using specific software products, how to interact efficiently and effectively with virtual patrons, how to address sensitive questions and how to act quickly in a multitasking environment.
 iii. Hands-on training sessions could involve practicing with software, searching databases efficiently, and staying within the prescribed time periods.
 iv. Training and education should be ongoing experiences
 v. Mini-training sessions offered during regularly scheduled staff meetings - review transcription logs - and training updates.
 vi. Librarian skills - flexibility, speed and accuracy in keyboarding, ability to multitask, ability to deal with ambiguity and an evolving technology, communication skills and efficient use of time.
 5) **Staffing** - double/triple staff the service vs. single-staffing model; centralised vs decentralised.
 6) Promotion and marketing - link with library's gateway, portal or main Web page.
 7) Relationship to **Information literacy** - powerpoint presentations, electronic pathfinders, digital FAQs, Web-based instructional guides, citation tools and streaming video explanations may all help to contribute to supporting info literacy goals.
 8) Accessibility
 9) **Evaluation** - staff reflections, user surveys, analysis of question answering approaches, assessment of quality.
 10) Software selection
 11) The future - software, new technologies, facilities, standards, cooperation and research studies.

472. Rogers, M. Academic libraries test Web-based reference. *Library Journal*. 2001; (12).
 Keywords: e-reference/ academic libraries/ USA
 Abstract: A brief news item outlining the results of Sloan's preliminary evaluation (online usage patterns) of a Ready for Reference service project conducted by eight Illinois academic libraries. One outcome of the project is the need for institutions that collaborate on ref services to share with one another their policies and procedures especially in the area of access to electronic resources.
473. ---. Divine unveils Virtual Reference Desk solution. *Library Journal*. 2002; 127(17):23.
 Keywords: e-reference/ academic libraries/ Virtual Reference Desk/ USA/ delivery technology
 Abstract: News item announcing the launch of divine.inc's Virtual Reference Desk, to be implemented by the University of Florida.
474. Ronan, J. Chat reference: an exciting new facet of digital reference services. *ARL*. 2001; (219):4-6.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology/ staffing
 Abstract: Discusses the chat-based virtual reference service, refeXpress, at the University of Florida. Examines the challenges in setting up a chat ref service - selecting and installing software; marketing the service; overcoming staff resistance; teaching effective online communication; training librarians to field questions outside their areas. Proposes that challenges can be overcome by training and experience. Important to provide staff with ample time to practice their skills before going online and to provide them with a safety net for their first few shifts.
475. Ronan, J. and Turner, C. Chat reference. *Association of Research Libraries*; 2002; SPEC Kit 273.
 Keywords: e-reference/ academic libraries/ North America/ staffing/ service guidelines/ evaluation / delivery technology
 Abstract: A survey of chat reference services in ARL member libraries. Addresses: 1) Personnel and work environment - staffing; organisation and management; skills and training; service schedule, 2) Users and usage, 3) Policies and procedures, 4) Publicity, 5) Evaluation
Skills and training - ref interviewing and facility with Web-based information sources are held to be the most important skills. Comfort with computers and the ability to make effective referrals follow closely as other important skills.
Policies - 1) What the service is, when it is offered and how to access it 2) Kinds of questions that are appropriate for the service 3) Resources used 4) Privacy policy
Procedures - prescribe chat ref operations e.g. development and use of scripted messages, how to transfer patrons and make referrals.
Evaluation - via analysing transcripts; user Web survey; focus groups; interviewing users; statistics generated by the system.
476. Ronan, J. S. Chat reference: a guide to virtual reference services. Westport, CT: Libraries Unlimited; 2003. ISBN: 1591580005.
 Notes: Title forthcoming, according to Libraries Unlimited website at 13/05/03.
 Abstract: A book designed to lead the reader through the decisions and considerations involved in setting up a real-time reference service.
477. Ronan, J. S. Virtual reference: a hot new idea for extending services to remote users. *LIRT News*. 2000; 23(1).
 Keywords: e-reference/ delivery technology
 Abstract: A brief overview of virtual reference. Discusses the possibilities of a chat service.
478. Ronayne, B. and Rogenmoser, D. Library research instruction for distance learners: an interactive, multimedia approach. Brophy, P.; Fisher, S., and Clarke, Z., Eds. *Libraries without walls 4: the delivery of library services to distant users*. London: Facet Publishing; 2002; pp. 187-196.
 Keywords: information seeking skills/ academic libraries/ distance learning/ USA/ implementation/ library instruction/ web site design
 Abstract: Describes the process of implementing and publicizing a programme of new library services for distance learners, considers effective web page design and concludes with an experiential account of library research instruction delivered via live cablecast, interactive television at the California State University, Sacramento. Includes hints for designing web pages and for making televised instruction personalised, engaging, motivational and empathetic.

Highlights collaboration and teamwork as the key elements for success.

479. Ross, A. M. ; Corse, E. L., and Butterworth, D. N. Electronic access to document delivery and reference services. *Medical Reference Services Quarterly*. 1994; 13(4):13-20.
Keywords: e-reference/ academic libraries/ USA
Abstract: Article addresses electronic inter-library loans. Partly discusses an e-mail reference service at the University of Pennsylvania's Biomedical Library.
480. Ross, C. S. and Nilsen, K. Has the Internet changed anything in reference? The Library Visit study, phase 2. *Reference & User Services Quarterly*. 2000; 40(2):147-155.
Keywords: public libraries/ academic libraries/ Canada/ e-resources
Abstract: An examination of 161 user' accounts of what happened when users asked a reference question in a Canadian public or academic library of their choice. A focus of analysis was how the availability of electronic resources may have changed the reference transaction and affected the users's experience. A troubling finding is that ref staff seem to regard the Internet as an external resource that users can search independently but not as a fully-fledged ref tool for which ref librarians have a responsibility to help users search and evaluate.
481. Ruppel, M. and Fagan, J. C. Instant messaging reference: users' evaluation of library chat. *Reference Services Review*. 2002; 30(3):183-197.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Analyses results of a survey of students who use Morris Messenger, the instant messaging reference service at Southern Illinois University Carbondale's Morris Library. Includes a comparison with traditional reference desk experiences. Respondents indicated overall enthusiasm for the IM ref service.
Includes sections on the advantages and disadvantages of IM and the advantages and disadvantages of the traditional ref desk.
482. Ryan, C. Virtual libraries, real research. *EGov Magazine*. 2000; (March 2000).
Keywords: e-reference/ delivery technology
Abstract: Discusses the use of Webline, a software programme that offers live help over the Web to library patrons who need additional support.
483. Ryan, S. Reference service for the Internet community: a case study of the Internet Public Library Reference Division. *Library and Information Science Research*. 1996; 18(3):241-259.
Keywords: e-reference/ Internet Public Library/ USA/ delivery technology / service guidelines
Abstract: The creation of the University of Michigan's Internet Public Library Reference Division is presented within the historical context of librarians' efforts to integrate the use of technologies (mail, telephone and teletype) with reference services. It examines the Internet as a ref tool and outlines problems associated with it. The article examines ways that librarians have successfully incorporated new technologies and makes recommendations about how these strategies can be applied to the Reference Division and to Internet usage for the reference process in general.
Recommendations:-
1) Any library contemplating the provision of ref service via the Internet and WWW must think about how to limit its service to make it more manageable.
2) A desirable mechanism must be worked out for referral of problematic ref questions.
484. Ryan, S. What is the Internet Public Library, and why should I care? *Information Technology and Disabilities*. 1995; 2(2).
Keywords: e-reference/ Internet Public Library
Abstract: A brief introduction to the University of Michigan's Internet Public Library.
485. Ryer, M. A. and Nebecker, B. Implementing an "Ask a librarian" electronic reference service. *Community & Junior College Libraries*. 1999; 9(1):21-34.
Keywords: e-reference/ academic libraries/ distance learning/ USA/ implementation/ expert services
Abstract: Describes the thinking and research involved in implementing a jargon-free 'Ask a Librarian' service from a web page at Raritan Valley Community College, Somerville, NJ.
Poses questions on which they sought guidance in the literature. These were:-

- (1) Are electronic reference services being used extensively? Abused?
- (2) Have libraries restricted their service to their own patrons or is it available to all comers?
- (3) What types of limitations are being placed on acceptable questions submitted to an electronic service?
- (4) Is lack of an in-person reference interview presenting problems?
- (5) What is the usual turnaround time for response?
- (6) Who is responsible for handling the electronic reference questions?
- (7) How is the service being publicised?

486. Sambasivan, K. Impact of information technology on the reference librarian. *Library Science With a Slant to Documentation and Information Studies*. 1999; 36(2):79-81.
 Keywords: e-reference/ role of librarian
 Notes: An Indian journal.
 Abstract: Discusses the challenges facing the reference librarian in the electronic environment. Details the traditional role of the reference librarian and the qualities required. The modern IT now requires the librarian to possess knowledge of computer and communication technologies.
487. Sarkar, D. Library encourages patrons to chat. *Federal Computer Week*. 2002; (21 August 2002).
 Keywords: e-reference/ public libraries/ USA
 Abstract: A brief news item relating to the 'Ask a Librarian Live Reference' service at the Rockville branch of the Montgomery County public library.
488. Sarkodie-Mensah, K. The human side of reference in an era of technology. *The Reference Librarian*. 1997; (59):131-138.
 Keywords: role of librarian
 Abstract: Suggests that as libraries become more technical and technologically challenging in their use, reference librarians have to be aware of the human aspects viable in the performance of their duty.
 The human aspect of ref demands that the approach taken when conversing with users and instructing them be re-examined.
489. Saskatchewan Virtual Reference Working Group. *Saskatchewan Libraries: Ask Us! pilot project evaluation*. [2000].
 Keywords: e-reference/ public libraries/ Canada
 Abstract: An evaluation of an online reference service in seven public library systems and the Provincial Library in Saskatchewan.
 It was impossible to print out this article in a usable form.
490. --. Virtual reference project plan: mission, goals and objectives. [2000].
 Keywords: e-reference/ public libraries/ Canada/ implementation/ e-resources
 Abstract: Plan to develop an electronic reference system, providing real-time reference, in Saskatchewan public libraries. 6 overarching goals were identified and each is accompanied by several objectives.
 GOAL 1 - Develop Internet expertise and familiarity among all public library ref staff
 GOAL 2 - Develop electronic resources and tools that will assist library staff with ref work
 GOAL 3 - Develop electronic resources and interactive ref services to the public
 GOAL 4 - Create a web site that provides a user-friendly, fast, and efficient interface to all library resources online and emphasises 'serving the public through local libraries'
 GOAL 5 - Create a working environment that supports cooperation in the development and ongoing maintenance of the service
 GOAL 6 - Develop an interactive site supported by local library staff that offers several for library patrons to obtain real time and human assistance from their local library.
491. Saunders, L. Building the virtual reference desk. *Information Today*. 2001; 18(3):25-.
 Keywords: e-reference/ USA
 Abstract: Reports on a symposium entitled 'Building the virtual reference desk in a 24/7 world' held at the Library of Congress in January 2001.
492. Sawyer, D. C. A matter of confidence: asking reference questions over the Internet. *Online*. 1993; 17(4):8-9.

Keywords: e-reference/ service guidelines/ staff training

Abstract: Discusses the issues involved when posting patrons'/clients' questions on the Internet. Recognises the potential problems associated with broadcasting questions over the Internet e.g. breach of confidentiality. Identifies a need to develop policies about using the Internet and other networks. **Guidelines provided:-**

- 1) Expand the ref interview
- 2) Ask clients for permission to use the Internet
- 3) Remember it's the client's question
- 4) Consider third party interests

Staff training - need for training and orientation procedures for new and experienced staff.

493. Scardellato, K. Experiences in developing and maintaining the Virtual Reference Library at Toronto Public Library. *Program*. 2001; 35(2):167-180.
Keywords: e-reference/ public libraries/ Canada/ implementation/ evaluation / user needs
Abstract: Describes the development and maintenance of the Virtual Reference Library at Toronto Public Library.
The development was guided by the principles of user-centred design.
User needs:-
1) Understand who current users are, what resources and services they use and under what conditions.
2) Gather info from users as to the characteristics of users, the resources to be included and so on e.g. via discussion groups.
Evaluation - via the web log analysis tool, Web Trends, and online user surveys.
Lessons learnt:-
1) Strong organisational commitment is needed in order for a new service to succeed
2) Partnership development has been key to the success of the library
3) Creating and delivering services electronically has significant impact on the entire operation of the library
4) New services present and attract new opportunities
Implementation has resulted in staff skills and expertise being developed in new areas of technological development and in methods for designing quality service. Also, an in-depth understanding of user requirements has been gained.
494. Schaake, G. 'Sathan E. We jumped on the live reference bandwagon, and we love the ride! *Computers in Libraries*. 2003; 23(4):20-22, 24-25.
Keywords: e-reference/ public libraries/ USA/ delivery technology/ staffing
Abstract: Discusses the implementation of a virtual reference service at the Memorial Hall Library in Andover, Mass.
Software - choice based on expense, time, complexity of system and demand on staff resources; collaborative approach (24/7 Reference service) chosen.
Marketing of service - via local paper, Web site, external demos, links on other Web pages, brochures and posters, powerpoint slide on cable.
Staff resources - spreading of staff time across libraries and across tasks associated with the virtual reference process. Experienced vast increase in e-mail questions.
495. Schaefer, M. T. Landmark Digital Age Reference Service Institute inaugurated by Library of Congress. Part 1: key digiref concerns. *Information Retrieval & Library Automation*. 1998; 34(3):1-3.
Keywords: e-reference
Abstract: Discusses events and discussions at the Library of Congress's first Institute on Reference Service in a digital age. Reports on the institute's keynote message by Nardi who discusses her work entitled 'What we learned at the Apple Computer Library' and concept of 'information ecology'.
496. ---. Landmark LC Institute. Part 2: real virtual information service issues. *Information Retrieval & Library Automation*. 1998; 34(4):1-5.
Keywords: e-reference/ USA/ copyright
Abstract: A second discussion of the Library of Congress Institute on Reference Service in a Digital Age. This article reports on the participants' diverse outlooks on the skills needed and the available applications for digital tools in reference service.

497. Schilling-Eccles, K. and Harzbecker, J. J. The use of electronic mail at the reference desk: impact of a computer-mediated communication technology on librarian-client interactions. *Medical Reference Services Quarterly*. 1998; 17(4):17-27.
 Keywords: e-reference/ academic libraries/ medical libraries/ USA/ delivery technology
 Abstract: Discusses an e-mail reference service at the Alumni Medical Library of the Boston University Medical Center.
Conclusions:-
 (1) The medium used must compliment the user's habits and needs
 (2) Ease of use, friendly software interfaces and convenience are also fundamental to successful implementation
 (3) Need to fully integrate e-mail into the daily operations demands that a) the system is part of a larger electronic framework b) it must be described and delineated clearly and advertised appropriately and c) reference depts must clarify how often messages will be retrieved, what turn-around times can be expected and whether certain messages are appropriate.
 (4) Librarians must continue to re-evaluate their expectations as well as the needs and behaviours of the users.
498. Schloman, B. F. Managing reference services in an electronic environment. Huang, S. T., Ed. *Modern library technology and reference services*. New York: The Haworth Press, Inc.; 1993; pp. 99-109.
 Keywords: academic libraries/ USA/ implementation
 Abstract: Addresses the management of reference services in a medium-sized research library in an increasingly electronic environment. A model for planning ref services is presented, based on a hierarchy of information skills, along with a team-based organisational structure to meet agreed upon objectives.
499. Schmidt, J. Online reference. *Universitas 21 Meeting*; Cardiff. 2000.
 Keywords: e-reference/ academic libraries/ Australia
 Abstract: A brief overview of online reference developments, followed by a discussion of initiatives at Queensland University.
500. Schneider, K. G. The distributed librarian: live, online, real-time reference. *American Libraries*. 2000; 31(10):64-.
 Keywords: e-reference/ USA/ UK/ Virtual Reference Desk/ CDRS
 Abstract: Very brief article on the LSSI's Virtual Reference Desk, the Metropolitan Cooperative Library System's 24/7, the Library of Congress's Collaborative Digital Reference Service, plus the University of Leicester library's online reference service.
501. ---. My patron wrote me a letter: the joy of e-mail reference. *American Libraries*. 2000; 31(1):96.
 Keywords: e-reference/ USA/ delivery technology
 Abstract: Discusses e-mail reference and gives libraries advice on how to deal with e-mail enquiries.
502. Schwartz, J. Digital reference at Bobst Library. *Connect: Information Technology at NYU*. 2001; (Fall 2001).
 Keywords: e-reference/ academic libraries/ USA/ delivery technology
 Abstract: Briefly discusses two digital reference services, 'AskaLibrarian' and a pilot project for real-time chat ref service, at Bobst Library, NYU.
503. Sears, J. Chat reference service: an analysis of one semester's data. *Issues in Science and Technology Librarianship*. 2001; (32).
 Keywords: e-reference/ academic libraries/ USA/ delivery technology
 Abstract: An analysis of four months of chat reference questions received at a centralized reference services desk at Auburn University. This study examined whether the questions were localised to the specific library's resources/services as well as whether the person responding to the chat question gave any evidence of consulting resources during the course of the chat session.
Findings:-
 1) About 60% of the time, chat questions related to the local library's services/resources - implications for collaborative projects.
 2) About 39% of responses involved the librarian consulting resources.

504. Selby, B. Refdesk: UVa Law Library's approach to e-mail reference. *Virginia Libraries*. 1999; 45(2):12-13.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology
 Abstract: Describes the e-mail reference service at the University of Virginia Law School Library.
505. Sellers, M. Reference over the Net: new service or just a new line? *Colorado Libraries*. 1999; 25(1):6-9.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology/ implementation
 Abstract: Discusses the results of an e-mail survey of 13 academic libraries in Colorado that provide e-mail reference service to their patrons. Discusses these libraries' experiences and outlines some general issues involved in the provision of e-mail reference services.
 Areas to consider when providing e-mail ref service:-
 1) E-mail ref use is low for most libraries. Demand will remain manageable.
 2) Visibility and publicity are critical to use.
 3) Provide clear guidelines on the type of response a user can expect
 4) Make the Web an inviting environment for attracting users
506. Shamel, C. L. Centralized library and learning resources: a remote access demonstration project. *Community and Junior College Libraries*. 2001; 10(4):13-28.
 Keywords: e-reference/ academic libraries/ USA/ collaboration
 Abstract: Discusses the e-reference service for distance learners offered by a consortium of San Diego County community colleges using telephone, e-mail and real-time chat. The paper looks at the effectiveness of the consortium and at the delivery of reference service.
Consortium limitations - low interest in shared staffing; lack of reciprocal borrowing privileges and the inability to share electronic resources. Consortium dissolved.
Value of digital reference
 (1) Need for active commitment and promotion of the concept on campus
 (2) A Web-based form with selected mandatory fields gives librarians the information they need to respond effectively.
507. Shannon, A. W. Integrating library resources into online instruction. Curtis, D., Ed. *Attracting, educating, and serving remote users through the Web*. London: Facet Publishing; 2002; pp. 171-195.
 Keywords: distance learning/ information seeking skills/ copyright
 Abstract: Describes **how librarians can work with instructors of online courses to integrate information-gathering skills and appropriate resources into the curriculum**. Discusses Courseware 101, the online course.
 (1) Librarians should begin by convincing the instructor that they should take an active role in an online class e.g. wealth of technical expertise that librarians have available.
 (2) The librarian should become a teaching partner, collaborating on assignments, course readings and class discussion.
 (3) Establishing the library's presence in classes via placing a link to the library's Web site on the course's introductory page; providing links to appropriate online research tools; customised Web-based lists of available online resources.
 (4) Establishing a one-on-one connection with students - most crucial aspect of providing support for an online course.
 (5) Distributing research instruction throughout the course.
 (6) Document delivery, electronic reserves and copyright
508. Shannon, A. W. and Henner, T. A. Providing library instruction to remote users. Curtis, D., Ed. *Attracting, educating, and serving remote users through the Web*. London: Facet Publishing; 2002; pp. 149-170.
 Keywords: library instruction/ delivery technology
 Abstract: Explains how technological developments that tend to isolate patrons from library staff can also be employed to overcome the difficulties inherent in supporting remote library users. Discusses web-based tutorials, video capture programmes, videoconferencing systems and desktop video systems and the role they play in providing library instruction to remote users.
Conclusion - library instruction programmes will be most effective if they are taken to the user and take into account the variability of individual learning styles.
509. Shaw, E. Real-time reference in a MOO: promise and problems. 1996.
 Keywords: e-reference/ Internet Public Library/ USA/ delivery technology

Abstract: Describes an experimental real-time reference service provided in a Multi-User Object Oriented (MOO) environment accessible on the Internet and provided by the Internet Public Library at the University of Michigan. It outlines some preliminary observations, some observations of those coordinating the project and some suggestions for and questions about the next generation of online reference at the IPL.

Recommendations in relation to tools used to provide on-line reference chat - must:-

- (1) Simplify all interactions
- (2) Be easy to learn
- (3) Make it possible for on-duty librarians to work at other tasks
- (4) Take into consideration that most librarians reported that the team approach to answering reference questions was very beneficial
- (5) Allow the librarian and patron to examine the material found on the Internet at the same time.

510. Shires, J. M. High touch vs. high tech: the changing nature of managing library reference service. 2000.

Keywords: e-reference

Abstract: A student project from the University of Alberta's School of Library and Information Studies. Discusses the 'high touch (in-person ref assistance) and high tech' (electronic ref assistance) debate.

Conclusions:-

- 1) If properly coordinated, high tech will enhance existing high touch services - librarians will always be needed to help patrons evaluate and interpret information.
- 2) High tech will continue to replace some in-house ref service and offer convenient, new library services.
- 3) High tech and digital libraries will need to maintain a high degree of personalised service to patrons with higher ref service expectations.
- 4) Applying high touch in a high tech environment involves identifying and serving a diverse population, teaching critical thinking skills and defining e-sources to users.
- 5) Library managers must ensure that high tech incorporates high touch methodologies.
- 6) High touch and high tech services should not oppose each other; rather they should complement and enhance each other.

511. Shuler, J. A. and Mon, L. Understanding government digital reference: the DOSFAN partnership at UIC. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 21-28.

Keywords: e-reference/ government libraries/ academic libraries/ USA

Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.

Abstract: A case study of the DOSFAN digital reference service, in which federal depository librarians at the University of Illinois at Chicago answer e-mail questions for the US Department of State website.

512. Silveria, J. B. and Holmer, S. Serving up information at the QandAcafe: virtual reference in a multitype library. Public Services Quarterly. 2002; 1(2):15-27.

Keywords: e-reference/ public libraries/ academic libraries/ USA/ delivery technology/ implementation/ staff training

Abstract: Discusses the implementation of a collaborative virtual reference service, the QandAcafe, in the San Francisco and Monterey Bay areas.

Issues:-

- 1) Technical problems - diverse levels of technology access and support among the 22 library jurisdictions.
- 2) Scheduling/Staffing - problematic due to the diverse number of libraries involved.
- 3) 'Problem patrons' online

Lessons learned:-

- 1) Guidelines for the level of technology needed to support the service should be established early.
- 2) **Training for librarians** is also vital - refresh ref interview techniques, general Internet and database search skills. In addition, once learned, the new skills and techniques need to be maintained through practice.
- 3) Dealing with multiple independent library jurisdictions requires a strong project leader.

4) Creating and maintaining effective lines of communication between project participants is also essential.

513. Silverstein, J. A study of digital reference in a federal agency. Update Semiannual Bulletin. 2001; 21(3).
Keywords: e-reference/ government libraries/ USA/ delivery technology/ implementation
Abstract: Discusses the digital reference service (e-mail based) at the US Department of Education. Identifies the challenges encountered with answering and tracking consumers' questions. Makes a series of recommendations aimed at other government agencies or large organisations.
More detailed (earlier) report in article entitled 'DR services and centres at the US Dept of Education: Analysis and Recommendations' by Silverstein & Lankes (1999)
514. Silverstein, J. L. and Lankes, R. D. Digital reference services and Centers at the United States Department of Education: analysis and recommendations. Syracuse, NY: Information Institute of Syracuse; 1999; A report for the US Department of Education.
Keywords: e-reference/ special libraries/ government libraries/ USA/ staff training/ evaluation / delivery technology/ technical standards/ quality standards
Abstract: Detailed report on the e-mail based question and answer services that the US Department of Education offers to customers. Includes sections on Human resource issues, QuIP, software choice, training and evaluation.
Human resource issues:-
Specialists must deal with more customers, new sources of customers, new types of questions and new types of answer (various formats and levels of sophistication)
New skills:-
1) Recognise differing levels of technical skills and sophistication about topics and resources amongst users
2) Understand their organisations policies and the standards for delivering information
3) Be able to (a) make the decision when to instruct and (b) have the resources and skills to provide appropriate training
4) Ability to learn and use new software
5) Learn and maintain good writing skills
Training:-
Addresses training managers, specialists and customers.
1) Training for specialists includes how to identify and deflect out-of-scope questions; how to differentiate and choose from various answers and the cultivation of 'managerial skills' (examples given)
2) Training customers - for those who want to perform more sophisticated searches e.g. use strategies specific to the organisation for more sophisticated searches, evaluate legitimacy of online sources.
Evaluation:-
Checklist provided on pg 61 - addresses: 1) adherence to policies and checklists 2) customer service 3) internal processes 4) human resources
515. Simcox, S. IPL: the Internet Public Library. Ariadne. 1997; (7).
Keywords: e-reference/ Internet Public Library
Abstract: An overview of the University of Michigan's Internet Public Library.
516. Slade, A. L. and Kascus, M. A. Library services for open and distance learning: the third annotated bibliography. Englewood, Colorado: Libraries Unlimited; 2000.
Keywords: distance learning/ bibliography
517. Sloan, B. Collaborative live reference services. 2003.
Keywords: e-reference/ collaboration
Abstract: A listing of collaborative live reference services, i.e. those offered by two or more libraries. Mostly North American, but some Australian and European.
518. --. Digital reference primer. 2002.
Keywords: e-reference/ bibliography
Abstract: A resource providing a basic, general introduction to digital reference services.

519. Sloan, B. Digital reference question logs. 2002.
Keywords: e-reference
Abstract: Provides links to examples of digital reference question logs, i.e. collections of actual questions asked at digital reference sites.
520. Sloan, B. Digital reference services bibliography [Web Page]. 2003. Available at:
<http://alexia.lis.uiuc.edu/~b-sloan/digiref.html>
Keywords: e-reference/bibliography
Abstract: A bibliography of more than 500 items relating to online/virtual/digital reference services. A revised version was posted on 7 April 2003. The previous version, used in the initial stages of the project, had been posted on 14 October 2002.
521. --. E-mail reference sites. 1999.
Keywords: e-reference/ bibliography
Abstract: A list of links to more than 90 e-mail reference sites maintained by individual libraries, mostly in the US but some in Australia, Canada, Netherlands and Singapore.
522. Sloan, B. Electronic reference services: some suggested guidelines. *Reference & User Services Quarterly*. 1998; 38(1):77-81.
Keywords: e-reference/ service guidelines/ USA
Abstract: Suggests some guidelines for the provision of electronic reference services. Issues covered include administration/management (support needed); services (type? nature? extent?); primary clientele (who?); personnel (task distribution, formal statement of responsibilities); infrastructure/facilities (nature of campus technical infrastructure, users access to hardware and software, hardware and software provision for librarians); finances and evaluation (how?, potential for in-depth data gathering via e-mail).
523. --. Ready for Reference: academic libraries offer live Web-based reference: evaluating system use. 2001.
Keywords: e-reference/ academic libraries/ USA
Abstract: Final report of the Ready for Reference pilot project, a collaborative 24x7 live reference service in eight academic libraries in the Alliance Library System in Illinois.
524. ---. Reference service in the digital library: a report on the Ready for Reference project. *Library Hi Tech News*. 2001; 18(10):14-19.
Keywords: e-reference/ academic libraries/ USA
Abstract: Discusses the Ready for Reference service, a collaborative 24x7 live reference service being piloted by 8 academic libraries in Illinois.
525. ---. Service perspectives for the digital library: remote reference services. *Library Trends*. 1998; 47(1):117-143.
Keywords: e-reference/ academic libraries/ USA/ role of librarian/ delivery technology
Abstract: Explores the role of the librarian and of the service perspective in the digital library environment. The article focuses on librarian/user collaboration when the user is in a remote location including the use of e-mail and video-based reference services. 'See You See a Librarian' project, the Interactive Reference Assistance project and the Interactive Reference Service project are discussed and evaluated. A Remote Reference Service model is proposed whereby video reference services are offered on a limited scheduled basis and e-mail reference services are offered on a campus-wide on-demand basis. The model makes effective use of the advantages of both media.
Role of librarian - need for social interaction in the information-seeking process identified; examples and purposes of social interaction provided. Belief that intermediary services should play a crucial and essential role in the ongoing development of digital libraries.
3 major purposes for intermediation in the digital library environment:-
1) Interaction with potential info beneficiaries
2) Interaction with info resources
3) Mediation between info resources and users to add value during the info transfer process.
Matson & Bonski (1997) - 3 roles for librarian in the digital age:-
1) as enhanced service provider in a proactive manner

- 2) as guru of copyright, licensing and electronic redistribution
 - 3) as system interface designer making use of experience with how library users request, use and process information
- Hawthorn's* (1997) 'Redundancy model' versus 'Masters of the Universe model'.
Abbas (1997) - roles for future librarians:-
- 1) gateways to the future and past
 - 2) teachers
 - 3) knowledge managers/workers
 - 4) organisers of networked resources
 - 5) advocates for info policy development
 - 6) community partners
 - 7) 'sifters' of info resources
 - 8) collaborators with technology resource providers
 - 9) technicians
 - 10) individual info consultants

526. Sloan, B. and Stoerger, S. Library support for distance learning. 2002.
 Keywords: e-reference/ bibliography/ library instruction
 Abstract: An informational resource for librarians interested in the many issues of library support for distance learners. Includes a section with selected resources on virtual reference services.
527. Smith, B. Enhancing reference services through technology. *Legal Reference Services Quarterly*. 2001; 19(1/2):133-146.
 Keywords: e-reference/ delivery technology/ implementation / evaluation
 Abstract: Explores the use of e-mail, chat and videoconferencing software for reference purposes. The benefits and drawbacks of each are discussed. A discussion of how technology has changed the way librarians find answers to reference questions is followed by a review of the tools needed for a well-equipped reference desk.
Electronic reference considerations:-
 (1) **Cost-benefit analysis** - assess the potential use of the service against the time, expertise and cost required to create and maintain it.
 (2) **Usage guidelines**
 (3) **Reference tools** - in order to enable the librarian to make full use of the technologies (hardware, software and equipment)
 (4) **Staff and patron training in the use of applicable technology**
 (5) **Promotion**
 (6) **Evaluation methods**
 Conclusion - librarians need to stay abreast of new technology and in so doing, consider how the innovations might be applied to providing new and better reference services.
528. Smith, J. Collaborating with our users: examples from the Excelsior College Virtual Library. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 113-121.
 Keywords: e-reference/ distance learning/ academic libraries/ USA/ user needs
 Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
 Abstract: Discusses the digital reference services of Excelsior College Virtual Library, a partnership between the Sheridan Libraries at Johns Hopkins University and Excelsior College. The service is aimed at non-traditional adult learners across the globe. It discusses some specific needs of the adult learner, and the implications for digital reference services. It explains how dealing with distance adult learners in a virtual environment requires a shift to a more proactive and personalised model for reference services.
 ECVL service based on characteristics of students.
Users needs: characteristics of distance adult learners - need for strong level of emotional support (long time since in education, multiple life responsibilities, information overload, limited information seeking skills, 'technostress' and lack of self confidence); unique backgrounds and life experience (need to directly connect with what they are being taught, personalise learning and want to closely relate to their subject matter).
ECVL model - 3 main aspects: (1) Creation of a climate of respect - careful choice of language, listening to students and prompt responses (2) Development of a personalised service - assisting

students without computers, passing along additional information to students and instructing students by e-mail (3) Attempts to actively connect with students - continuously ask for feedback, participation in online chat sessions and newsletters via e-mail.

Implications (1) Need to spend more time explaining (2) Need to acknowledge their experience (3) Need to provide a safe place for students to ask questions (4) Need to provide transferable skills for continuous learning.

529. Smith, K. Delivering reference services to users outside the library. 1999 & beyond: partnerships and paradigms. Conference and exhibition of the Reference and Information Service Section of the Australian Library and Information Association; Sydney. 1999.
Keywords: e-reference/ academic libraries/ Australia/ delivery technology/ staffing
Abstract: Addresses the issues and practicalities that are involved for libraries that want to provide a "point of need" reference service to users outside the library in the Charles Sturt University, the largest supplier of distance education in Australia. Use NetMeeting.
Technology issues - bandwidth and user access to technology on their computers.
Staffing/management issues - impact of extra work with no added resources; forces rethink of tasks and role; potential for librarians to work from home; potential to use librarians at all campuses.
530. Smith, R. M.; Race, S. F., and Ault, M. Virtual desk: real reference. *Journal of Library Administration*. 2001; 32(1/2):371-382.
Keywords: e-reference/ academic libraries/ distance learning/ USA/ e-resources
Abstract: Addresses the **issues involved in establishing a statewide system of library support for distance learners** and the ongoing challenges to be met. Issues include: 1) Selection of and access to electronic resources
2) Improvements to ILL services 3) Inter-library cooperative agreements 4) Providing and promoting reference services for students and faculty of multiple institutions. Discusses the University of Florida's Reference and Referral Centre service.
531. Sonnenwald, D. H.; Marchionini, G.; Wildemuth, B. M.; Dempsey, B. J.; Viles, C. L.; Tibbo, H. R., and Smith, J. B. Collaboration services in a participatory digital library: an emerging design. *Proceedings of Third International Conference on Conception of Library and Information Science*; 1999.
Keywords: e-reference/ USA/ academic libraries/ collaboration
Abstract: Presents a project at the University of North Carolina that will provide and extend library services through the development of a sharium - a workspace where people can collaborate with others or work independently to explore information resources, learn, and solve their information problems.
532. SOPAG Task Force on Digital Reference. Expanding reference services for the University of California: a White Paper on the relevance of digital reference service to the UC Libraries. 2001.
Keywords: e-reference/ academic libraries/ USA/ implementation/ staffing/ delivery technology/ evaluation
Abstract: A report that examines general issues surrounding digital reference, surveys relevant technological trends and makes recommendations based on the task force's findings. Includes a checklist of features of 4 DR systems used in ARL libraries at Appendix B.
Basic elements of DR service in academic library settings:-
1) Values - any consideration of new models of ref service must begin with the touchstones of traditional ref values e.g. respect for all users
2) Policies - need to have a framework of well-thought-out policies e.g. in relation to scalability, centralisation vs decentralisation, training, providing answers to users vs instructing users, evaluation and assessment, marketing and promotion, distance learning and privacy and confidentiality.
3) Clientele - priorities? considerations like staffing and licensing restrictions on material come in to play.
4) **Staffing** - restructuring, tiered service, additional staff.
5) Technology and scalability
6) Hours
7) Centralisation vs decentralisation - one general DR service for the entire campus vs specialised digital services staffed by experts in subjects or formats?

- 8) Training - in the use of technology.
- 9) Providing answers vs instruction - interactive nature aids instruction.
- 10) Distance learning - DR offers the means to offer in-depth library instruction.
- 11) **Evaluation** and assessment - data gathered can be used to establish hours of service, level of staffing, determination of audience reached, type of questions asked, effectiveness of marketing.
- 12) Privacy and confidentiality - policies

533. Sowards, S. W. Declining that invitation: a response to Jerry Campbell. *Reference & User Services Quarterly*. 2001; 40(3):209-212.
 Keywords: e-reference/ USA
 Abstract: A response to the article by Campbell (2000) discussing the future of reference services in the digital environment. Reservations about Campbell's 4 assertions outlined. 4 assertions were: 1) 'The 55% problem' is a key to the online future of reference 2) that demand for library ref service is in decline 3) that ref staff are 'in denial' about change 4) that sites like Ask Jeeves suggest valid models for alternative services.
534. Sowers, L. and White, M. D. National Museum of American Art Reference Desk: a usage analysis of a digital reference service. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers ; 2000; pp. 153-178.
 Keywords: e-reference/ museums/ USA/ evaluation / quality standards/ performance indicators
 Abstract: Presents partial findings of a multi-part study characterizing the use of the digital reference service offered by the National Museum of American Art and assessing its effectiveness in meeting the information needs of its clients.
Evaluation in terms of effectiveness - 2 measures used: 1) satisfaction (met client's expectations) and 2) usefulness (subsequent use)
 Satisfaction in terms of readability of info, thoroughness of response, authority of the info provided and response time.
 Usefulness in terms of recommendation to others.
535. Sreenivasulu, V. The role of a digital librarian in the management of digital information systems (DIS). *The Electronic Library*. 2000; 18 (1):12-20.
 Keywords: e-reference/ role of librarian
 Abstract: Highlights the roles, functions, competencies and skills of a digital librarian. Very detailed article.
 The digital librarian as a 'symbiotic human-machine guru'.
536. Stacy-Bates, K. K. Ready-reference resources and e-mail reference on academic ARL Web sites. *Reference & User Services Quarterly*. 2000; 40(1):61-73.
 Keywords: e-reference/ academic libraries/ web site design/ USA
 Abstract: Examines the design characteristics of ready-reference and e-mail reference pages on the Web sites of 110 academic libraries in the Association of Research Libraries. Characteristics examined for each site included the wording of page titles and links, numbers of steps from the library's home page to the service pages, organisation schemes, timeliness of resources or responses, and additional means of communication available between patron and librarian.
Recommendations for library reference Web page design:-
 (1) Keep service options within 2 clicks of the home pages.
 (2) Keep the link wording clear.
 (3) Include links to or information about other ways of obtaining reference help.
 (4) Be clear about patrons' eligibility for services.
Conclusion: crucial that library sites feature quality reference services and that they are designed for easy navigation and use by patrons.
537. Stahl, J. 'Have a question? Click here': electronic reference at the National Museum of American Art. *Art Documentation*. 1998; 17(1):10-12.
 Keywords: e-reference/ museums/ USA
 Abstract: Discusses the establishment of a digital reference service at the National Museum of American Art.

538. Stahl, J. R. CDRS at the Smithsonian American Art Museum. n.d.
Keywords: e-reference/ museums/ CDRS/ USA
539. Stahl, J. R. and Kresh, D. Online, virtual, e-mail, digital, real time: the next generation of reference services. *Art Documentation*. 2001; 20(1):26-30.
Keywords: e-reference/ commercial services/ CDRS / Virtual Reference Desk
Abstract: An overview of digital reference developments and initiatives. Includes discussion of commercial services and collaborative projects.
Challenges of delivery: 1) software - none exists that is specifically designed for DR; 2) 24/7 service - user expectation 3) resource sharing - sharing of ref searches, building a knowledge base.
540. Staley, L. E-mail reference: experiences at City University. *PNLA Quarterly*. 1998; 62(4).
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the e-mail reference service at the City University Library, Renton, WA. The advantages and disadvantages of e-mail ref service are discussed and recommendations based on 2 years e-mail ref experience are listed.
Recommendations:-
1) Ask for feedback
2) Include info in requests for clarification
3) Use one central e-mail box to discourage students from corresponding with a particular librarian
4) Include email procedures and limits in advertisements
5) Include a ref questionnaire in any advertisements
541. Stanley, D. and Lyandres, N. The electronic revolution and the evolving role of the academic reference librarian. *North Carolina Libraries*. 1998; 56(3):100-104.
Keywords: e-reference/ academic libraries/ USA/ library instruction/ e-resources/ delivery technology
Abstract: Identifies and discusses effective ways of empowering the increasingly independent users of academic libraries through creative instruction methods and innovative reference services.
Creative instruction methods:-
1) Cooperative teaching - establishing cooperative alliances with the teaching faculty; getting information skills incorporated into the curriculum.
2) Electronic teaching - self-directed, self-paced online tutorials; interactive WWW info literacy modules; informal drop-in sessions on advanced search techniques.
Innovative ref services - examines remote provision, e-mail ref service, videoconferencing. Includes a section on organising electronic information.
542. ---. Reference assistance to remote users. *The Reference Librarian*. 2001; (73):243-252.
Keywords: e-reference/ academic libraries/ USA/ user needs/ delivery technology
Abstract: Identifies and discusses the particular information needs of remote users of academic libraries. Discusses how telephone and e-mail reference, video technology and the Web might be used in providing reference assistance. The pros and cons of each are detailed.
User needs - unrestricted and reliable access to library resources 24/7.
Conclusions:-
(1) Academic libraries should make a commitment to providing equivalent access to information for both on-campus and remote library users.
(2) Librarians directly involved with remote users should have excellent communication and technical skills, be advocates for the needs of remote users and be creative in service development and delivery.
(3) Different technologies suit different patrons either in terms of their access to such services or their level of comfort in using them.
543. Stearns, S. The Internet-enabled virtual public library. *Computers in Libraries*. 1996; 16(8):54-57.
Keywords: e-reference/ Internet Public Library/ USA/ copyright
Abstract: An overview of some virtual library projects in the U.S. including the Internet Public Library. Briefly discusses some legislative issues which will impact on virtual libraries e.g. the Communications Decency Act and the proposed National Information Infrastructure (NII)

544. Stemper, J. A. and Butler, J. T. Developing a model to provide digital reference services. *Reference Services Review*. 2001; 29(3):172-188.
Keywords: e-reference/ distance learning/ academic libraries/ USA/ implementation
Abstract: Presents an organizational model for providing digital reference services to all users who access the library remotely at the University of Minnesota Twin Cities library. The model, known as InfoPoint, was developed for distance learners with the aim of providing a single point of access to over 30 service units. Initial conclusions based on the service's first 2 years of operation are presented.
Planning process - involved an environmental scan; an examination of other service models; presentation to service units; formation of a planning committee and reference question tiers - ownership and scenarios.
Conclusions:-
Organisational change issues
(1) Importance of laying a solid organisational foundation when developing new service especially those prompted by technological opportunity.
(2) Key role played by a planning committee.
(3) The establishment of trust in the system is the ultimate factor in staff's acceptance or rejection.
(4) A sustained demonstration period for the prototype service allows the organisation sufficient time to struggle with, refine, adapt to, and accept changes.
Other issues
(1) In a complex organisation, one size does not fit all.
(2) Staff positioned centrally, who are also making referrals to service units, need to be among the most knowledgeable staff with respect to system level information.
(3) Data must be acquired to test both hypotheses and prevailing assumptions related to new service models.
(4) Create value on the outside and the inside.
(5) Set clear expectations.
(6) Leverage technology to achieve customisation and efficiency.
(7) Serving on the front lines of a digital reference service is not for everyone.
545. Steury, T. Encouraging online questioners to question their questions. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
Keywords: e-reference/ library instruction
Abstract: Discusses the development of a transparent online tutorial (on the question and answer Web site Ask Dr. Universe) to encourage questioners to consider their questions more carefully.
546. Stevenson, C. Information skills for distance learners. *Library & Information Update*. 2003; 2(4):48-49.
Keywords: distance learning/ information seeking skills/ UK/ library instruction
Abstract: Discusses how information skills are taught to distance learners at the University of Sunderland.
Information skills support based on the needs revealed from user feedback - training was far more effective when delivered in a timely way and built into the student's course.
Initiatives - (1) An accredited Information Skills half module is available on WebCT, the university's Virtual Learning Environment (2) Also developing customised units of information skills training which can be embedded into course content.
Conclusion - providing effective services and e-learning training goes a long way to reaching the goal of providing an equivalent learning experience for those who are unable to come to libraries in person.
547. Still, J. and Campbell, F. Librarian in a box: the use of electronic mail for reference. *Reference Services Review*. 1993; 21(1):15-18.
Keywords: e-reference/ academic libraries/ literature review/ USA/ delivery technology
Abstract: A literature review outlining the use of e-mail in US academic libraries e.g. ref questions, ILLs, suggestions for items to be purchased, requesting online searches.
Conclusions (having reviewed the literature):-
1) Menu systems appear to be the most popular and easy to use for patrons
2) Document delivery is the most common type of request

- 3) Staff time commitment must be weighed against the potential low use
- 4) A commuter or geographically disparate setting would seem best suited for such a service

548. Stormont, S. Going where the users are: live digital reference. *Information Technology and Libraries*. 2001; 20(3):129-134.
 Keywords: e-reference/ academic libraries/ USA/ staffing/ delivery technology
 Abstract: Describes the development of the live digital reference service (TalkBack and TalkNow) of the Temple University Libraries in Philadelphia, and discusses the process of creating a new way for users to pose questions. Staffing, digital transactions, promotion, systems support, software options and funding are explored.
Staffing issues - preferable to provide service away from the in-person reference desk; difficulty anticipating demand; need for staff to be available at multiple locations; need to create an environment that provides positive reinforcement to the staff members who operate the service; phase in service gradually to allow staff to become accustomed to the software and new ways of interacting with patrons; allow staff to 'own' part of the project.
Promotion - duties need to be written into someone's job description.
Technical support - need to consider both initial and long term support needs.
Software - in-house versus commercial package? cost benefit analysis needs to be carried out.
Conclusions:-
 (1) Need to provide the online help and services patrons expect.
 (2) Must find creative ways to reach patrons and make them aware of all the resources available to them.
549. ---. Here, there and everywhere: live virtual reference. *Collection Management*. 2001; 26(2):79-87.
 Keywords: e-reference/ academic libraries/ USA/ implementation/ staffing/ marketing/ evaluation
 Abstract: Presents a brief history of the live virtual reference service at the Temple University Libraries. Very similar to article by same author entitled 'Interactive Reference Project - assessment after two years' but has a primary focus on costs associated with the major areas identified.
550. ---. Interactive Reference Project: assessment after two years. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
 Keywords: e-reference/ academic libraries/ USA/ delivery technology/ staffing/ marketing/ evaluation / implementation
 Abstract: Presents a brief history of the Temple University Libraries' real-time reference service and describes the challenges encountered in launching and maintaining the Interactive Reference Project. The major issues that emerged include staffing, promotion, technical support and effectiveness of this mode of service.
Staffing issues:- real-time ref is labour-intensive; uneven, unpredictable patron demand; skeptical librarians; attitude towards technology.
 Solutions to increased work load = distributed staffing (librarians at multiple locations share the question load) and/or using referral process.
Promotional methods - articles in the library and computer services newsletters; promoting the service to supervisors of all the campus computer labs as well as all the staff in the main and branch libraries; multiple links to TalkNow on the libraries Web pages.
Technical support - recommend hiring a full-time programmer or having access to a programmer on an as needed basis. Can also purchase a commercial product that is being updated and supported.
Service effectiveness - methods: 1) link on the TalkNow page which allows students to submit comments 2) at the conclusion of the TalkNow transaction, the librarian will ask the user to rate his/her satisfaction level 3) follow-up questionnaires.
Recommendations for those implementing and managing real-time ref:-
 1) Vital to have the support of executive management
 2) Provide positive reinforcement to the staff members who operate the service and deal with problems as soon as they occur
 3) Give staff discretion to develop their own style and to use their own judgement in answering questions
 4) Phase the service in gradually
 5) Allow staff to 'own' part of the project.

551. Straiton, T. H. Information services in the year 2000 and beyond. *The Reference Librarian*. 1999; (65):3-14.
 Keywords: e-reference/ e-resources/ staffing
 Abstract: Considers the problems and challenges faced by libraries' reference services in adopting and incorporating new technology.
 Challenges: 1) staffing levels 2) staff development - technostress 3) High demands of users for access and assistance 4) lack of standardisation of searching techniques and the formatting of displayed information (training need) 5) librarians inability or lack of desire in accepting new technology 6) changing nature of type and quality of questions 7) increased demand for library instruction
552. Straw, J. E. From magicians to teachers: the development of electronic reference in libraries: 1930-2000. *The Reference Librarian*. 2001; (74):1-12.
 Keywords: e-reference/ e-resources
 Abstract: Takes a historical look at the development of the electronic environment in libraries. Includes a section examining the impact of the Internet on reference services.
553. ---. A virtual understanding: the reference interview and question negotiation in the digital age. *Reference & User Services Quarterly*. 2000; 39(4):376-379.
 Keywords: e-reference/ reference interview/ staff training
 Abstract: Examines the reference interview in the digital library environment. Compares and contrasts it with the traditional face-to-face interview.
Skills required of librarian:-
 1) Familiarity with the prevailing technology
 2) Good listeners
 3) Good written communication
554. Strom, L. The emerging virtual reference desk. *Mississippi Libraries*. 2002; 66(3):71-73.
 Keywords: e-reference/ USA/ evaluation
 Abstract: A brief overview of digital reference issues based largely on the literature. Raises 3 concerns: 1) Cost of switch to digital material 2) Reliability of digital information 3) Evaluating virtual services - via session logs, exit interviews, user polls and transaction, role of Customer Relationship Management.
555. Summers, R. Meeting education information needs through digital reference. *Art Documentation*. 1998; 17(1):3-4, 68.
 Keywords: e-reference/ school libraries/ USA/ expert services/ role of librarian/ delivery technology
 Abstract: Discusses two e-mail based digital reference services for schoolchildren and teachers, AskERIC and KidsConnect. It outlines the background, community, work flow, type of questions received and demand for each service.
Role of librarian - merges traditional ref skills with technical literacy, flexibility and critical analysis of an infinite collection.
556. Summey, T. P. Techno reference: impact of electronic reference resources on traditional reference services. *The Reference Librarian*. 1997; (59):103-111.
 Keywords: e-reference/ academic libraries/ USA/ e-resources/ role of librarian/ library instruction
 Abstract: Investigates **the impact of the growth in electronic resources on traditional academic library reference services** and the effects of how library customers are served by librarians.
 Impact has taken the form of:-
 1) Roles of ref librarians have shifted to that of info providers and facilitators.
 2) Ref encounters have been compared to the medical concept of triage.
 3) Librarians must be able not only to choose the resources necessary to meet info needs, but also have the ability to help users with the intricacies of using the various systems.
 4) Emphasis on training staff and developing instructional programmes.
 5) Librarians must have a degree of technical knowledge in order to be able to troubleshoot.
 6) Librarians must have interpersonal interaction and communication skills in order to put patrons at ease with the new technologies.

- 7) New emphasis on the teaching role for academic librarians.
- 8) Enhanced need for user training and documentation beyond that provided with the systems.
- 9) More institutions offering electronic demos with hands-on components added to make the training effective and the provision of electronic classrooms.
- 10) Increased learning time required by librarians to keep up with the various resources.
- 11) Unrealistic patron expectations of what can be made available through technology.
- 12) The creation of new job titles e.g. Electronic Resources librarian.

557. Syracuse University Library. Web Chat Action Team final report and recommendations. 2002.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: A report on the implementation of a pilot chat reference service.
558. Taher, M. Real-time (synchronous interactive) reference interview: a select bibliography. *Internet Reference Services Quarterly*. 2002; 7(3):35-41.
Keywords: e-reference/ reference interview/ bibliography
Abstract: A list of state-of-the-art publications in the area of real-time reference interview.
559. Taher, M. The reference interview through asynchronous e-mail and synchronous interactive reference: does it save the time of the interviewee? *Internet Reference Services Quarterly*. 2002; 7(3):23-34.
Keywords: e-reference/ reference interview
Abstract: Analyzes the Web-based reference interview and raises the question 'Does it save the time of the interviewee?' This question is analyzed in the context of Ranganathan's Five Laws of Library Science. Provides examples of real-time and non-real time ref interview tools.
Conclusion - no response to the main question as major gap in the literature. Author recommends a holistic evaluation of both synchronous and asynchronous ref services to assess the convergence between interviewer and interviewee.
560. Tarlton, M. and Antonelli, M. Real time virtual reference at the University of North Texas. CCUMC 2000 Annual Conference; Denton, Texas. 2000.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the chat-based Online Reference Help Desk at the University of North Texas Libraries.
561. Taylor, D. and Porter, G. S. The problem patron and the academic library web site as virtual reference desk. *The Reference Librarian*. 2002; (75/76):163-172.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Examines the challenges of dealing with 'problem patron' phenomena in a virtual environment. Lists a number of advantages associated with providing ref service in a virtual milieu.
Problems with e-mail: SPAM; patrons with mental or emotional problems; ease of accelerating and escalating difficult situations and fact it is an extraordinarily poor communications medium for deciphering information needs.
Advantages: 1) Better pacing of staff 2) Calmer opportunity to determine how extensively to respond to query 3) More opportunities for better quality control 4) Greater opportunities for thorough and in depth responses 5) Greater potential for wordsmithing and vetting responses 6) Use of hypertext links can enhance answers 7) Emotional detachment
562. Taylor, M. A digital reference library emerges at Stanton Library. *Australasian Public Libraries and Information Sources*. 2001; 14(9):97-100.
Keywords: e-reference/ public libraries/ Australia
Abstract: Discusses the development of a public digital reference library at Stanton Library, the public library of North Sydney Council.
563. Tennant, R. Of human and humane assistance. *Library Journal*. 1999; 124(11):30,34.
Keywords: e-reference/ delivery technology
Abstract: Discusses some pioneering projects offering e-mail, chat and video conferencing services.
564. Tenopir, C. Electronic reference and reference librarians: a look through the 1990s. *Reference Services*

Review. 1999; 27(3):272-279.

Keywords: e-reference/ academic libraries/ North America/ library instruction

Abstract: A summary of the author's three surveys of electronic reference in North American academic libraries, in 1991-92, 1994-95 and 1997-98.

565. ---. The impact of digital reference on librarians and library users. Online. 1998; 22(6):84-.
Keywords: e-reference/ academic libraries/ North America/ library instruction/ role of librarian/ staff attitudes
Abstract: Discusses the results of a survey of librarians from 68 academic research libraries. Issues examined were attitudes, instruction, and workload and the workplace environment. This is exactly the same article as the one authored by Tenopir and Ennis (1998) with the same title.
566. Tenopir, C. Integrating electronic reference. Library Journal. 1995; 118:39-40.
Keywords: e-reference/ academic libraries/ North America
Abstract: A brief summary of the results of Tenopir's 1991 and 1994 surveys of North American academic libraries. Addressess CD-ROM database availability; intermediary online searching; end user online searching; OPAC availability; access to the Internet for patrons; user expectations; user instruction and integrated reference.
567. Tenopir, C. Plagued by our own successes. Library Journal. 1998; 123:39-40.
Keywords: e-reference/ academic libraries/ North America/ staff attitudes/ library instruction
Abstract: Discusses some of the results of the author's third survey of electronic reference services in North American academic libraries. Addresses: 1) Changes in instruction 2) Impacts of technology 3) Rising expectations 4) Technostress
Changes in instruction:-
i. Been an increase in instruction with more librarians assuming the role of teacher/trainer.
ii. Library instruction focuses on search strategies including the ins and outs of particular systems or search engines and technical details.
Impact of technology:-
i. Digital services have presented a tremendous staff training challenge.
ii. Librarians required to know a lot about how data files are organised and to have knowledge of technical matters.
iii. Expansion of sources.
Rising expectations:-
i. Heightened expectations of what can be found online.
ii. Heightened expectations of what services are/should be available to help user.
568. ---. Reference use statistics. Library Journal. 1998; 123(8):32-.
Keywords: e-reference/ academic libraries/ North America/ e-resources/ library instruction
Abstract: Presents the results of a survey of reference librarians at 44 university libraries in North America. The survey investigated the use of electronic reference sources and how the reference librarian's work had changed in recent years.
Library instruction - teaching good web searching skills occupies a big chunk of a ref librarian's instructional time. Variety of instructional methods used - onsite Internet instruction, point-of-use instruction for individuals, group classes on Internet instruction and printed guides to the Internet.
569. ---. Virtual reference services in a real world. Library Journal. 2001; 126(12):38,40.
Keywords: e-reference/ academic libraries/ North America
Abstract: Discusses the results of a survey of academic member libraries of the Association of Research Libraries that investigated changes in reference services over the last three years and how electronic resources have impacted them.
570. Tenopir, C. and Ennis, L. A decade of digital reference: 1991-2001. Reference & User Services Quarterly. 2002; 41(3):264-273.
Keywords: e-reference/ academic libraries/ North America
Abstract: Discusses the results of four surveys conducted over a decade (1991, 1995, 1997 and 2000) that provide insights into changes that have occurred in academic library reference services due to new technologies. The surveys were of academic members of the Association of

Research Libraries.

Digital sources have brought about changes in the physical environment of the ref room, in the type and range of resources available and in the attitudes and expectations of ref librarians and patrons. The Web is changing what resources are searched, how results are distributed, how instruction is delivered, and relations with faculty.

571. ---. The digital reference world of academic libraries. Online. 1998; 22(4):22-24.
Keywords: e-reference/ academic libraries/ North America
Abstract: A summary of Tenopir's three surveys of electronic reference services in academic libraries in USA and Canada, in 1991, 1994 and 1997. See separate articles.
572. ---. The impact of digital reference on librarians and library users. Online. 1998; 22(6):84-88.
Keywords: e-reference/ academic libraries/ North America/ library instruction/ role of librarian/ staff attitudes
Abstract: Presents the results of a survey of librarians in 68 North American academic research libraries focusing on the three main areas of attitudes, instruction, and workload and the workplace environment in response to the rapid and widespread adoption of electronic media during the last decades.
Changes in attitudes
(1) Heightened expectations from students and to a lesser degree, from faculty
(2) Increased job satisfaction among ref librarians as a result of the proliferation of electronic ref sources
(3) Feelings of being overwhelmed by all the constant changes
Changes in instruction
(1) Increased demand for more intense instruction
(2) Heightened user expectations point to the need for refocusing on instruction by library staff - must include critical examination of the accuracy and reliability of Web content, search strategies for Boolean logic and relevance ranking systems and the ability to deal effectively with a variety of interfaces and systems.
(3) Need for basic computer instruction
(4) Need to instruct at many different levels
(5) Additional instructional challenges brought by remote access
Changes in workload and workplace
(1) Increased workload
(2) More paraprofessionals providing reference service
(3) Longer reference interviews
(4) More challenging questions
(5) Keeping up with technological advances pressures
(6) Changing role of the reference librarian - IT skills/troubleshooting
573. Tenopir, C. and Ennis, L. A. Reference services in the new millennium. Online. 2001; 25(4):40-45.
Keywords: e-reference/ academic libraries/ North America/ role of librarian
Abstract: Traces a decade of change (from 1991 to 2001) in university reference services. Addresses issues such as the range of electronic options - move from CD-ROMs to Web resources; the de-emphasis on mediated services ; online services for end-users; free Web or fee Web issue; fewer questions - more time; the changing nature of questions - more technical; computer literacy versus information literacy; the role of the reference librarian and changes in a new millennium.
574. Tenopir, C. and Neufang, R. Electronic reference options: how they stack up in research libraries. Online. 1992; 16(2):22-28.
Keywords: e-reference/ academic libraries/ North America
Abstract: Results of a 1991 survey of e-reference in ARL libraries in North America.
575. Tenopir, C. and Neufang, R. Electronic reference options: tracking the changes. Online. 1995; 19(4):67-73.
Keywords: e-reference/ academic libraries/ North America/ library instruction
Abstract: Reports the results of a 1994 survey of the academic library members of the Association of Research Libraries which aimed to discover what types of electronic reference services they offered and how these services affected reference librarians' jobs and user and staff

training. This survey is a follow-up of a survey conducted in 1991.
This article is similar in content to others written by Tenopir.

576. ---. The impact of electronic reference on reference librarians. Online. 1992; 16(3):54-56,58 ,60.
Keywords: e-reference/ academic libraries/ North America/ staff attitudes/ library instruction
Abstract: The results of in-depth interviews with librarians from academic libraries in Canada and the US. These interviews aimed at finding out how changes identified in Tenopir's 1991 survey of academic libraries were impacting on librarians. Librarians impressions were divided into 3 main areas: 1) Work environment 2) Formal instruction of users 3) The fundamental nature of ref work
Work environment - increased business at the ref desk; more learning time for librarians; more time spent on manual/technical tasks and changed physical environment.
Library instruction - increasing time spent on online instruction; librarians' instruction had improved; instruction is much more individualised; content of instruction based on teaching users how to structure searches.
Changing nature of ref work - increased user demands and expectations; increased need for full text; revitalisation of ref work.
577. Thomsen, E. Reference and collection development on the Internet. New York: Neal-Schuman; 1996.
Notes: How-To-Do-It Manuals for Librarians Number 66
Abstract: Purpose: to give reference and collection development librarians a sense of the Internet as a community of individuals and organizations who share information through online conversations and online resources. Chapters: 1) The librarian as part of the Internet Community 2) Tools of the trade 3) E-mail groups 4) USENET newsgroups 5) Meet the Rabberatti: rec.arts.books 6) Just the FAQs 7) Gopher and the World Wide Web 8) Library catalogs, databases, and electronic books on the Internet.
578. Thornton, A. Licensed to teach. Ensor, P., Ed. The cybrarian's manual. Chicago: American Library Association; 2000; pp. 206-215.
Keywords: e-reference/ information seeking skills/ library instruction/ information literacy
Abstract: Advice on providing a successful Internet training programme, including an introduction to basic computer skills and information literacy capabilities. Addresses the following areas: 1) Assessing users needs 2) Designing Internet training techniques 3) Training trainers 4) Designating a place for training 5) Promoting your programme 6) Evaluating your programme
579. Tibbo, H. R. Interviewing techniques for remote reference: electronic versus traditional environments. American Archivist. 1995; 58(3):294-310.
Keywords: e-reference/ reference interview/ archives/ USA
Abstract: Provides advice on how archivists should conduct a virtual reference interview. As with face-to-face ref encounters, archivists must set the tone of remote ref exchanges; clarify the clients' questions and information needs; deliver the required info and follow up exchanges making sure the clients have everything they need and that they feel comfortable asking for more info as the need arises. The author offers suggestions as to how these steps can be implemented via electronic mail and discusses management concerns.
Management concerns:-
1) Keeping the required hardware and software running
2) Establishing and maintaining positive attitudes among the staff regarding electronic ref
3) Setting policies for handling e-mail ref enquiries
4) Developing strategies to deal with the likely increase in usage and the new demands posed by a networked environment
5) Staff training and preparation
580. Tickle, T. E. Expanding outreach to a unique user community: the Slavic Reference Service and the Internet. The Reference Librarian. 1999; (67/68):69-83.
Keywords: e-reference/ academic libraries/ USA
Abstract: Discusses the impact of the Internet on the Slavic Reference Service at the University of Illinois.
581. Tin, K. L. and Al-Hawamdeh, S. The changing role of paraprofessionals in the knowledge economy.

Journal of Information Science. 2002; 28(4):331-343.

Keywords: Singapore/ role of librarian/ staff training

Abstract: Discusses the changing roles of paraprofessionals in the knowledge economy and how that has impacted on traditional library services in the Singapore National Reference Library.

The competencies of paraprofessionals and their perceptions were examined.

Changing role of information professional - an Internet-literate user, an IT expert, an information manager, an information consultant, a knowledge analyst, from searcher to coach/trainer/counsellor/mentor.

Changing role of paraprofessional - being assigned more and more tasks that were previously solely the responsibility of professional librarians e.g. cataloguing and inter-library lending.

Competencies - generic and highly specific search skills; command of the search language; mastering the various search interfaces; use of appropriate vocabulary and keywords; sophisticated interpersonal communication skills; ability to filter and evaluate resources.

582. Tinnin, N.; Buckstead, J., and Richardson, K. Remote reference by microcomputer: setup and installation. Proceedings of the 8th Off-Campus Library Services Conference; Providence, RI. 1998: 299-312.
Keywords: e-reference/ academic libraries/ USA/ distance learning/ delivery technology
Abstract: Discusses a system at Austin Community College that uses networked microcomputers for real-time, remote reference work. This is a test-bed project designed to evaluate different approaches to real-time communication between the remote distance learner and the reference librarian.
583. Tobin, C. M. The future of reference: an introduction. Reference Services Review. 2003; 31(1):9-11.
Keywords: reference services
Abstract: An introduction to five white papers (and the responses to these papers) on the future of reference services presented at a Reference and User Services Association (RUSA) programme at the 2002 ALA Annual Meeting.
Papers are posted on the RUSA Web site in a special RUSA forums section on www.ala.org/rusa/forums/index.html and published in Reference Services Review.
General theme running through all the papers was that the demand for ready reference would continue to decrease as patrons were able to find the 'easy' answers for themselves on the Web but that skills of the reference staff will be needed for more complex tasks.
584. ---. Future of reference: the view from a professional association. Virtual Reference Desk Conference 2002; Chicago. 2002.
Keywords: e-reference/ USA
Abstract: Discusses the future of reference, including electronic reference, from the point of view of the Reference and User Services Association of the American Library Association. Includes a discussion of the potential roles of the professional association e.g. development of guidelines and standards.
585. Tomaiuolo, N. G. Aska and you may receive: commercial services on the Web. Searcher. 2000; 8(5):56-62.
Keywords: e-reference/ commercial services/ USA
Abstract: Discusses commercial AskA services in the USA.
586. Tomaiuolo, N. G. and Packer, J. G. "Aska" do's don'ts, and how-to's: lessons learned in a library. Searcher. 2000; 8(3):32-.
Keywords: e-reference/ USA/ public libraries/ academic libraries/ implementation/ expert services
Abstract: Discusses the results of a poll of librarians' impressions of their own (or other) Ask a Librarian services. States that the design for the Aska page is so crucial to the project's success, information professionals interested in developing such services must address several issues:
(1) Minimal information and the invisible patron - recommends that the AskA page and request form stated the parameters concerning the types of requests the site can accommodate.
(2) Who may use the service? Need to specify a primary clientele versus unrestricted access? Suggests techniques for limiting users.
(3) Policy considerations - relating to operation and management of service.

587. Tomer, C. MIME and electronic reference services. *The Reference Librarian*. 1994; (41/42):347-373.
 Keywords: e-reference/ literature review/ delivery technology
 Abstract: A literature review focusing on the use of e-mail as a basis for reference services. In addition it considers the more sophisticated capabilities of mail systems operating in compliance with the Multipurpose Internet Mail Extensions (MIME) and how systems supporting the interchange of complex, so-called 'multimedia' documents may be expected to affect the use of electronic mail for library and info services.
Uses of e-mail: communicating with colleagues; service requests from users via the OPAC; document delivery service; technical assistance; ILLs.
588. Train, M. B. QandAcafe: real time virtual reference. Nixon, C. and Burmood, J., Eds. *Internet Librarian 2001: collected presentations*; Pasadena, CA. Medford, NJ: Information Today, Inc.; 2001: 251-253.
 Keywords: e-reference/ public libraries/ USA/ collaboration
 Abstract: Discusses, the QandAcafe, a collaborative virtual reference service in Californian public libraries.
589. Truelson, J. A. Creating successful e-mail/chat documentation: the process flow diagram approach. *Virtual Reference Desk Conference 2002*; Chicago. 2002.
 Keywords: e-reference/ academic libraries/ USA
 Abstract: Discusses the creation of documentation for the University of Southern California's Ask-A-Librarian E-reference services using the Process Flow Documentation approach, a software documentation method. Service roles, service conditions, service steps and service outcomes are the primary components of this method.
590. Trump, J. F. and Tuttle, I. P. Here, there and everywhere: reference at the point-of-need. *Journal of Academic Librarianship*. 2001; 27(6):464-466.
 Keywords: e-reference/ academic libraries/ USA/ service guidelines/ staff training/ evaluation
 Abstract: Examines digital reference for the altered user culture and point-of-need service products. Describes a pilot project offering chat reference service at Georgetown University, Washington DC. Includes brief sections on developing service parameters, staff training and evaluation.
591. Tunender, H. 3rd Annual Digital Reference Conference. *Library Hi Tech News*. 2002; 19(2):12-14.
 Keywords: e-reference/ Virtual Reference Desk
 Abstract: A report of the 3rd VRD conference entitled 'Setting Standards and Making it real'.
592. ---. Digital reference: trends, techniques, and changes. *Library Hi Tech News*. 2002; 19(4).
 Keywords: e-reference/ delivery technology
 Abstract: Report on an ACRL sponsored pre-conference on digital reference. The three speakers were Janes, Lankes and Coffman. Coffman gave an evaluative overview of the 3 types of virtual reference software - chat, remote control software and web contact centre software.
593. Tyckoson, D. On the desirableness of personal relations between librarians and readers: the past and future of reference service. *Reference Services Review*. 2003; 31(1):12-16.
 Keywords: role of librarian
 Abstract: A white paper on the future of reference service, presented as part of the RUSA programme at the ALA Annual Meeting 2002. Based on Green's paper 'The desirableness of establishing personal relations between librarians and readers in popular libraries' (1876). Argues that the future of reference is part of the evolutionary process and that, by understanding the relationship of reference service to the library and of the library to its community, one can better understand how those relationships will evolve in the future.
Library functions (1) Selecting and collecting information (2) Organising information (3) Serving users
Reference librarian functions (Green, 1876) (1) Reader instruction become very large part of role (2) Assisting reader with enquiries - poor quality (55% rule) and decreasing quantity (3) Aiding reader in the selection of good works - growth of e-resources and advent of the Internet, the reference librarian recommends sources and search strategies in almost every transaction (4) Promotional
 Functions remain constant whilst libraries have changed. Main difference is the tools used.

Future - Constants (1) The library will be measured by its service to the community (2) Reference librarians will perform the 4 functions (3) Personal service will be valued
Changes (1) Newer and better tools will be developed (2) The demand for instruction will rise (3) The demand for factual information will decrease (3) The community will become more diverse (4) The librarians will become more diverse (5) Librarians will become information generators rather than merely information conservators.

594. Tyckoson, D. A. What is the best model of reference service? *Library Trends*. 2001; 50(2):183-196.
 Keywords: e-reference
 Abstract: Discusses how new models of service can enhance or hinder reference provision. Includes discussion of the components and values of the ref service. Models are: 1) traditional ref model 2) teaching-library model 3) tiered ref service model 4) virtual ref service model
 Conclusions:-
 1) For any model to be successful, there is one value that must be emphasised above all others: knowledge of the community that the library serves.
 2) No single model applies to all libraries.
 3) Each model should be measured against its ability to support the values on which it is based.
595. ---. What's right with reference. *American Libraries*. 1999; 30(5):57-63.
 Keywords: e-reference/ delivery technology
 Abstract: Answers Bill Miller's 1984 article 'What's wrong with reference...' Includes a section on e-reference which discusses the use of e-mail.
596. University of Alberta. Virtual reference service pilot project - report. 2002.
 Keywords: e-reference/ academic libraries/ Canada/ staff training/ evaluation
 Abstract: The report of a pilot virtual reference service at the University of Alberta, for the period between October 2001 and April 2002. Appendix C is an example of a User Feedback Survey and Appendix E is a summary of information from staff focus groups.
597. University of California Irvine Libraries Electronic Reference Services Team. Ask a Librarian guidelines. 2002.
 Keywords: e-reference/ academic libraries/ service guidelines/ USA/ delivery technology
 Abstract: Includes guidelines on shifts, answers, non-affiliated users, referrals and comments/complaints/suggestions. Appendix A provides some guidelines when using chat.
598. --. Report and recommendations. 1999.
 Keywords: e-reference/ academic libraries/ service guidelines/ USA/ evaluation
 Abstract: The first report of the team charged with introducing an electronic reference service for the UCI Libraries. It includes guidelines for responding to questions in Appendix 1 and an example of a user survey in Appendix 5.
Planning & Implementation - gives examples on pg 4 of policies and procedures which were established in relation to answering questions, archiving, sharing expertise, referral process and template development.
599. University of Florida George A. Smathers Libraries. Chat communication tips [Web Page]. 2001.
 Available at: <http://www.uflib.ufl.edu/hss/ref/rxchat.html>
 Keywords: e-reference/academic libraries/USA/delivery technology
 Abstract: Some advice on effective techniques in conducting chat reference transactions.
600. University of Guelph. Questions @ your desk?, answers @ your library: virtual reference @ the University of Guelph [Web Page]. 2003. Available at:
<http://www.lib.uoguelph.ca/reference/VRD/index.html>
 Keywords: e-reference/academic libraries/Canada/implementation/evaluation
 Abstract: Web pages devoted to the virtual reference service at the University of Guelph in Canada. Includes a service model, details of the planning process, and results so far.
Service model - Mandate: to teach researchers the skills to do the research themselves; Point of need service; Virtual reference team members responsibilities; Privacy and Question & Answer policies.
Planning process - Information sessions for stakeholders; staff training in LSSI; adjustment to library systems; promotional measures (examples).

Results (1) Evaluation via usage statistics, session transcripts, a web survey, a detailed post survey and informal feedback (2) User questions (examples given) similar to those received at the 'in library' desks.

Future - Aim: expand user community via liaison with teaching faculty, increasing VR hours and increasing VR staff.

601. University of Leicester. University Library ELITE Project [Web Page]. 2001. Available at: <http://www.le.ac.uk/li/distance/eliteproject/index.htm>
Keywords: e-reference/academic libraries/distance learning/UK/delivery technology
Abstract: Provides details of the University of Leicester's Electronic Library, IT and Staff Education (ELITE) Project, which aimed to establish and develop the I&CT infrastructure and the skills knowledge base which are required for underpinning the delivery of electronic library services to distance and other learners. Includes details of a trial chat reference service (HumanClick), and an annotated list of other (mostly American) 24-hour reference services.
602. University of Waterloo Information Services Management Committee. Virtual reference feasibility study report. 2002.
Keywords: e-reference/ academic libraries/ Canada/ delivery technology/ implementation
Abstract: A report on the feasibility of introducing a virtual reference service at the University of Waterloo in Canada. Addresses a number of questions including: 1) What impact would virtual ref have on current library services? 2) How would we staff the service? 3) What furniture, equipment, hardware and software would be required and at what cost? 4) Risks - software stability, staff and user interest. The report recommends that the service be introduced as soon as possible using LSSI virtual reference software. Appendix II provides a checklist of criteria for software evaluation.
603. Vessberg, V. Digital reference service at Stockholm University Library. Discussion Group on Reference Work, part of the 65th IFLA General Conference; Bangkok. 1999.
Keywords: e-reference/ academic libraries/ Sweden/ delivery technology
Abstract: Discusses the e-mail based Ask a Librarian service at Stockholm University.
604. Viggiano, R. and Ault, M. Online library instruction for online students. *Information Technology and Libraries*. 2001; 20(3):135-138.
Keywords: e-reference/ distance learning/ academic libraries/ USA/ library instruction/ delivery technology
Abstract: Describes the provision of library instruction and reference services to students enrolled in distance learning courses at 73 Florida-based colleges and universities by the Florida Distance Learning Reference and Referral Center. Explains the use of chat software (ConferenceRoom Professional Edition).
Potential offered by chat software:-
(1) Many distance learners are already familiar with this type of technology.
(2) It can be a cost-free option for international students.
(3) Offers students with disabilities another option for communicating with staff.
Considerations for chat instruction:-
(1) Staffing - need for adequate staff.
(2) Registration - to ensure adequate staffing.
(3) Use of pre-written scripts helpful.
(4) Anticipate technical problems and have a back-up plan.
(5) It's an advantage to have software that has collaborative browsing capabilities.
(6) Management of chat sessions important.
605. Viles, A. The virtual reference interview: equivalencies. Discussion Group on Reference Work, part of the 65th IFLA General Conference; Bangkok. 1999.
Keywords: e-reference/ reference interview
Abstract: A brief discussion paper on the electronic reference interview providing some suggestions for virtual equivalencies of non-verbal behaviour e.g. Eye contact - 'Ask a Librarian' symbol blinks once when the search screen is first accessed.
606. Vine, R. Software for interactive online reference service. *Cyberpulse*. 1998; (9).
Keywords: e-reference/ delivery technology

Abstract: Provides some examples of chat (Buddy) and call centre (Balisoft LiveContact) software.

607. Virtual Reference Desk. AskA service etiquette: do's and don'ts of using an AskA service. n.d.
Keywords: e-reference
Abstract: Some general rules for students, teachers and parents using an AskA service.
608. --. AskA services and the Big6 skills information problem-solving approach. n.d.
Keywords: e-reference/ Virtual Reference Desk/ information seeking skills
Abstract: VRD guidelines on using the Big6 approach to answering questions and completing tasks. The 6 steps lead students through the process of identifying, locating and using information sources to reach a final goal.
Big 6 steps:-
1) Task definition - define the information problem and identify the information needed in order to complete the task.
2) Information seeking strategies - brainstorm all possible sources and select the best sources.
3) Location and access - locate sources and find information within sources.
4) Use of information - examine information in sources and extract relevant information.
5) Synthesis - organise information from multiple sources and present the result.
6) Evaluation - judge the result (effectiveness) and judge the process (efficiency).
609. --. Facets of quality for digital reference services: Version 4. 2000.
Keywords: e-reference/ quality standards
Abstract: Outlines important characteristics and features (i.e. facets of quality) for building a digital reference service for all audiences, including the K-12 educational community. The facets are divided into 2 main categories: user transaction and service development/management. Each 'facet' is presented at 3 different levels: (1) Base - required for network membership (2) Current practice - state of membership (3) Goal - objective of membership.
User transaction - includes those components that occur during the question-answering process i.e. accessibility, prompt turnaround, clear response policy, interactive and instructive.
Service development/management - involves decisions made in creating and maintaining the service that affect the overall quality and user satisfaction i.e. authoritative, trained experts, private, reviewed, provides access to related information and publicised.
610. --. Interview schedules. 1997.
Keywords: e-reference/ USA/ expert services
Abstract: Transcripts of interviews with the primary contacts for the digital reference services identified by the VRD's Expert Panel as exemplary services (Note: descriptions of the services have been printed off, but not the transcripts). These services were: How Things Work; Ask Shamu; MAD Scientist Network; Ask Dr Math and Ask Joan of Art.
611. Virtual Reference Desk. Using AskA services with students. n.d.
Keywords: e-reference
Abstract: Some FAQs about when, how and why to use AskA services with K-12 students.
612. Wadham, R. Virtual reference. *Library Mosaics*. 2001; 12(6):20 .
Keywords: e-reference/ USA/ Virtual Reference Desk/ CDRS
Abstract: A brief overview of virtual reference.
613. Wang, R. Discovering a defined path: information-seeking behaviour of users and online reference services. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. *Implementing digital reference services: setting standards and making it real*. London: Facet Publishing; 2003; pp. 159-168.
Keywords: e-reference/ academic libraries/ user needs/ USA
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Discusses a survey of 84 community college students that aimed to explore the relationship between users and the use of online reference services.

614. Ward, D. Using virtual reference transcripts for staff training. *Reference Services Review*. 2003; 31(1):46-56.
 Keywords: e-reference/ academic libraries/ reference interview/ USA/ staff training
 Abstract: Discusses a study at the University of Illinois where graduate student workers at a university reference desk were asked to analyse transcripts of actual virtual reference transactions and the reference interviews conducted in them using the standard of RUSA's behavioural guidelines (1996). This study sought to increase the students' awareness of reference standards and expectations for reference desk behaviour and to help the group come to a consensus about how the reference interview should be conducted locally in the online and in-person environments.
 Data from study demonstrates that chat transcripts are a viable means for aiding staff training in reference interview skills.
615. Ware, S. A. ; Howe, P. S., and Scalese, R. G. Interactive reference at a distance: a corporate model for academic libraries. *The Reference Librarian*. 2000; (69/70):171-179.
 Keywords: e-reference/ academic libraries/ distance learning/ delivery technology/ USA
 Abstract: Discusses the Telebase Help Desk service as a model of an Internet-based interactive reference service. Telebase is an information gateway service that offers web-based or windows-based access to a host of popular bibliographic and full text databases.
Conclusion - the role of the university library in the virtual age of higher education will be determined in large part by the level of interactivity achieved.
616. Washington State Library Statewide Virtual Reference Project. Background information. 2003.
 Keywords: e-reference
 Abstract: The information summarized here is intended to provide a picture of customer needs and expectations that might affect decisions made by libraries considering the implementation of digital reference services. It includes links to policy documents from: the Internet Public Library, QandANJ (South Jersey), Columbia University, the UK Ask a Librarian service, and New York Public Library.
617. Wasik, J. M. AskA services and funding: an overview. 1998.
 Keywords: e-reference/ expert services
 Abstract: Some advice on seeking funding for, and establishing, an AskA service.
618. Wasik, J. M. Asking the experts: digital reference and the Virtual Reference Desk. *D-Lib Magazine*. 2000; 6(5).
 Keywords: e-reference/ Virtual Reference Desk
 Abstract: A very brief introduction to the VRD project.
619. Wasik, J. M. Building and maintaining digital reference services. Syracuse, NY: ERIC Clearinghouse on Information and Technology; 1999; ERIC Digest EDO-IR-99-04.
 Keywords: e-reference/ USA/ service guidelines
 Abstract: An overview of the growing digital reference movement and its implications on sponsoring organizations. Examines current practices in the creation and maintenance of such services.
AskA Starter Kit - 6 stages:-
 1) Informing - preliminary research into the area
 2) Planning - service policies, procedures and methods must be developed and evaluated to ensure alignment with overall organisational goals.
 3) Training - the development of a comprehensive training plan, including training materials, activities and tools, is necessary for preparation of an effective staff.
 4) Prototyping - need to pilot-test service in a controlled environment to identify and correct problems.
 5) Contributing - once launched, it is important to develop ongoing publicity and resource development to support the service.
 6) Evaluating - should be regular.
620. Wasik, J. M., Compiler. Digital reference resources [Web Page]. 2003. Available at:
http://www.vrd.org/pubinfo/proceedings99_bib.shtml

Keywords: e-reference/bibliography

Abstract: A resource list that was also included in 'Digital reference service in the new millennium' (2000). Updated on 16 April 2003.

621. --. Information for sale: commercial digital reference and AskA services. 2000.
Keywords: e-reference/ commercial services
Abstract: An annotated list of commercial services.
622. Wasik, J. M. Information professionals chart future of Internet Q&A. Update Semiannual Bulletin. 2001; 21(3).
Keywords: e-reference
Abstract: An overview of the VRD Conference 2000. 'Hot topics' included: 1) the problem of scalability 2) quality criteria 3) evaluation methods 4) competition from commercial services 5) new software technologies
623. Wasik, J. M. A report of library-related AskA services. 1998.
Keywords: e-reference
Abstract: An annotated list of AskA services (all North American) that have some sort of library affiliation.
624. Wasik, J. M. and Lankes, R. D. The virtual reference desk: supporting education through a network of human expertise. Proceedings of the Internet Librarian Conference; San Diego, CA. Medford, NJ: Information Today, NJ; 1999: 198-202.
Keywords: e-reference/ school libraries/ USA/ Virtual Reference Desk
Abstract: Discusses AskA services for the K-12 community.
625. Wasman, W. Ask Dr. Dino, or, my life as an electronic reptile. American Libraries. 1993; 24(2):122-123.
Keywords: e-reference/ USA
Abstract: Discusses 'Dr. Dino', a natural history e-reference service provided as part of the Cleveland Free-Net electronic community.
626. Watstein, S. B. Scenario planning for the future of reference: five white papers posit the future and raise the bar for us all. Reference Services Review. 2003; 31(1):36-38.
Keywords: reference services
Abstract: A response to the five white papers on the future of reference presented as part of the RUSA programme at the 2002 ALA Annual Meeting.
Author suggests (1) the challenge of looking beyond our current models of reality and considering a future that is radically different merits the attention of all those concerned with the overall public service mission of our organisations (2) how well we respond to the challenge will ultimately guarantee our future.
627. Webb, K. M. and Barr, B. Implementing virtual reference for OhioLINK: 79 peas in a pod. Lankes, R. D.; McClure, C. R.; Gross, M., and Pomerantz, J., Eds. Implementing digital reference services: setting standards and making it real. London: Facet Publishing; 2003; pp. 123-134.
Keywords: e-reference/ academic libraries/ USA
Notes: Drawn from the Third Annual Virtual Reference Desk Conference, 12-13 November 2001, Orlando, Florida.
Abstract: Discusses the implementation of virtual reference services for the OhioLINK consortium of 79 academic libraries.
628. Weissman, S. Considering a launch? Library Journal. 2001; 126(2):49.
Keywords: e-reference/ implementation
Abstract: Outlines 12 factors that libraries should consider when planning to implement an electronic reference service. These are:-
1) Who are you doing this for?
2) How does it fit in to your work?
3) What's your policy? Use existing ref policy and review the licenses for electronic products.
4) Which staffers will do it? Choose the enthusiastic.
5) How do you train staffers? Peer coaching is very good.

- 6) Do you archive Q&As for the public? NB privacy issues.
- 7) How are replies signed?
- 8) What's your turnaround time?
- 9) Will you use autoresponders to acknowledge receipt of a question? NB these are rarely successful.
- 10) Will you go outside your own service to other sources/experts online to answer your patron's question or just direct him/her that way?
- 11) Will you build an FAQ file/page? Important for high-volume or speciality operations.
- 12) Where do you learn more?

629. ---. E-ref characteristics. 2002.
 Keywords: e-reference/ public libraries/ USA/ delivery technology
 Abstract: Some observations based on 8 years of reference experience in bulletin board, chat and e-mail formats.
630. ---. Know your audience. Library Journal (NetConnect Supplement). 2001; (Spring 2001):42.
 Keywords: e-reference/ public libraries/ schools/ USA/ delivery technology
 Abstract: Discusses the homework chat service at Morris County Library, Whippany, NJ.
 Outlines lessons learnt:-
 1) Burnout is nothing compared to boredom 2) It's more important for you to learn about your audience than it is for them to learn about you 3) Remember to think about how you will measure the service before starting it 4) Work from what they use not from what you think they might want or should have.
631. ---. Shoptalk: answers to real-world problems. Library Journal NetConnect Supplement. 2000; (January 2000):28.
 Keywords: e-reference/ implementation
 Abstract: Offers advice to libraries about to set up an electronic reference service. Addresses issues such as keeping on top of demand (restricting publicity); models to follow (VRD); location of current research (Library of Congress); other library initiatives; staff training.
632. West, J. Information for sale: my experience with Google Answers. Searcher. 2002; 10(9).
 Keywords: e-reference/ commercial services/ USA
 Abstract: Some thoughts on Google Answers, a fee-based question answering service introduced in 2002.
633. West, K. Managing and staffing a virtual reference service pilot project. Feliciter. 2002; 48(2):64-65.
 Keywords: e-reference/ academic libraries/ Canada/ staffing
 Abstract: An overview of a pilot virtual reference service introduced at the University of Alberta Libraries. Briefly outlines the models (staffing, service and management) used and recommends this approach for future service pilot projects but not for ongoing services.
Staffing - service provided from staff offices and all staff members who provide ref service were involved.
634. Westwood, K. Lights! Camera! Action! American Libraries. 1997; 27(1):43-45.
 Keywords: e-reference/ delivery technology/ law libraries/ USA
 Abstract: Discusses an interactive TV reference service provided by the Minnesota State Law Library to inmates at the Moose Lake Correctional Facility. Includes 2 brief sections on North Carolina State University's and the University of Michigan's experiments with interactive TV.
635. White, M. D., Ed. Analyzing electronic question/answer services: framework and evaluations of selected services. College of Library and Information Services, University of Maryland at College Park; 1999; CLIS Technical Report no. 99-02.
 Keywords: e-reference/ USA/ quality standards/ evaluation
 Abstract: Develops an analytical framework based on systems analysis for evaluating electronic question/answer services operated by a wide range of type of organizations, including libraries. Issues addressed for each service are:-
 (1) Parameters of service - questions
 (2) Parameters of service - clients
 (3) Administration

- (4) Staffing and training
- (5) Hardware and software
- (6) Ease of use, instructions to client
- (7) Responsibility to clients
- (8) Query form
- (9) Acknowledgement
- (10) Question negotiation
- (11) Question-answering process
- (12) Response guidelines
- (13) Coping with demand
- (14) Archiving
- (15) Quality control
- (16) Evaluation
- (17) External recognition

636. White, M. D. Diffusion of an innovation: digital reference service in Carnegie Foundation master's (Comprehensive) academic institution libraries. *Journal of Academic Librarianship*. 2001; 27(3):173-187.
 Keywords: e-reference/ academic libraries/ USA
 Abstract: Analyses academic digital reference services in institutions categorized as Master's (Comprehensive) Universities by the Carnegie Foundation for the Advancement of Teaching. Focuses on the extent and rate of diffusion, characteristics of libraries, and modifications of the innovation during implementation.
637. White, M. D. Digital reference services: framework for analysis and evaluation. *Library & Information Science Research*. 2001; 23(3):211-231.
 Keywords: e-reference/ USA/ evaluation / service guidelines/ staffing
 Abstract: Presents a framework for analyzing and evaluating digital reference services based on systems analysis. The framework consists of about 110 questions related to 18 categories in 4 broad areas: mission and purpose; structure and responsibilities to client; core functions and quality control.
- 1) **Purpose of service**
 - i. Mission, objectives, statement of purpose
 - ii. Parameters of the service: questions
 - iii. Parameters of the service: clients
 - 2) **Structure and responsibilities to the client**
 - i. Administration
 - ii. Staffing and training
 - iii. Hardware and software
 - iv. Ease of use, instructions to the client
 - v. Responsibilities to the client
 - 3) **Core functions**
 - i. Query form
 - ii. Acknowledgement
 - iii. Question negotiation
 - iv. Question-answering process
 - v. Response guidelines
 - vi. Coping with demand
 - vii. Archiving
 - 4) **Quality control**
 - i. Quality control
 - ii. Evaluation
 - iii. External recognition
- A more detailed breakdown of each component can be found in Appendix A pp. 225-230.
638. ---. Questioning behavior on a consumer health electronic list. *Library Quarterly*. 2000; 70(3):302-334.
 Keywords: information need
 Abstract: The research reported in this article studies questioning behaviour in information encounters that occur informally in an electronic environment, a consumer health-oriented electronic list. A detailed summary of findings is provided on p 324-5.

639. White, M. D.; Abels, E. G., and Kaske, N. Evaluation of chat reference service quality: pilot study. *D-Lib Magazine*. 2003; 9(2).
 Keywords: e-reference/ academic libraries/ public libraries/ USA/ quality standards
 Abstract: Reports on a pilot evaluative study of chat-based reference services in an academic library and in a public library. The study examined several aspects of these services from the information seeker's perspective including the overall session, the chat or negotiation process and the provision of answers including the sources used. It specifically addresses quality of output by assessing the accuracy and completeness of answers provided.
Conclusions:-
 ❖ Answer accuracy is higher than for in-library reference service
 ❖ Answers often consisted only of referral to one or more web sites; rarely did information specialists comment on their factors for selecting the site
 ❖ Reporting average session length, queuing time, and number of turns per session as quantitative measures that can be compared across services and questions. Future study should also incorporate measures of down time and lag time since these seem to influence judgements of user satisfaction with the overall encounter.
 ❖ Usefulness of and complexity involved in incorporating different types of questions into an evaluative study of chat reference service especially in a multi-type library study
 ❖ A need for a measure that reflects the quality of experience of the chat session and suggests both positive and negative factors that should be incorporate into that measure
640. Whitlatch, J. B. Evaluating reference services in the electronic age. *Library Trends*. 2001; 50(2):207-217.
 Keywords: e-reference/ evaluation
 Abstract: Looks at how traditional research methods (surveys, questionnaires, observation, interviews and case studies) can be used effectively when evaluating reference services in the electronic environment.
Surveys and Questionnaires - issues: technical problems; potential for bias low; low response rates; questionable validity; consider comfort level with the Internet survey form.
Observation - information on electronic ref transactions: content analysis of questions, issue of user privacy; analysis of library Web sites; observational methods are useful for testing the effectiveness of different types of answering sources and for determining the difficulty that users encounter with online ref tools.
Interviews - difficulty reaching users; use of online focus groups (chat technology).
Case Studies - great potential to improve our understanding of the quality of DR services, of the effectiveness of DR services and the combination of methods best suited to evaluate them.
641. ---. Reference futures: outsourcing, the Web, or knowledge counseling. ALA Annual Conference; Atlanta. 2002.
 Keywords: e-reference
 Abstract: Provides some visions of the future in reference work within an increasingly electronic environment. The author discusses ref service provision in light of Total Quality Management and finds current provision lacking. Recommendations for future actions: 1) substantial investment in staff training 2) development of effective and continuous feedback methods 3) librarianship courses must include core courses devoted to marketing skills 4) the ALA must provide models that develop effective assessment of library services that can be easily and effectively administered at a reasonable cost.
642. Whitridge, K. and Jeske, M. PARLREF: digitizing the reference request process. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
 Keywords: e-reference/ parliamentary libraries/ delivery technology/ Canada
 Abstract: Discusses PARLREF, the intranet-based automated inquiry management system used by Canada's Library of Parliament.
643. Whitwell, S. C. A. Internet Public Library: same metaphors, new service. *American Libraries* . 1997; 28(2):56-59.
 Keywords: e-reference/ Internet Public Library/ USA/ copyright
 Abstract: An overview and discussion of the University of Michigan's Internet Public Library. Discusses amongst other things, its role alongside that of the local library; selection policy in relation to the Internet and the impact of the Communications Decency Act and copyright.

644. Wielhorski, K. Teaching remote users how to use electronic information resources. *The Public-Access Computer Systems Review*. 1994; 5(4):5-20.
 Keywords: e-reference/ information seeking skills/ library instruction/ user needs
 Abstract: Examines the categories and characteristics of remote users, training challenges, and ways that emerging electronic capabilities can be used to enhance traditional bibliographic instruction methods.
Challenges:-
 (1) Develop users' procedural knowledge (hardware and software).
 (2) Develop users' conceptual knowledge of how information retrieval works.
 (3) Teach effective searching techniques.
 (4) Helping remote users to capture and manage information.
Methods of training remote users:-
 (1) Self study materials
 (2) Individualised instruction
 (3) Group instruction
645. Williamson, J. The reality of virtual reference: a view from the edge. *Feliciter*. 2002; 48(3):110-111.
 Keywords: e-reference/ academic libraries/ Canada/ reference interviews/ delivery technology
 Abstract: The observations of a librarian participating in the Virtual Reference Service Pilot Project at the University of Alberta Libraries. Observations: 1) similarities between VR and traditional ref 2) the ability to multitask is essential 3) lack of normal social cues of body language or facial expression 4) certain protocols that need to be observed in the chat environment e.g be clear, brief 5) today's students are entirely comfortable with the informal chat environment 6) skills of professional librarian stand individual in good stead regardless of the medium or message.
646. Wilson, M. Understanding the needs of tomorrow's library user: rethinking library services for the new age. *Australasian Public Libraries and Information Services*. 2000; 13(2):81-86.
 Keywords: user needs/ staff training/ performance indicators/ implementation
 Abstract: Discusses library services in the electronic age. Proposes that providing facilities and services simply because they can be is insufficient; must provide the services people want and need and therefore librarians need to know what those services are. Discussion of Equinox, a library performance measurement and quality management project with the aim of providing a standardised performance measure across European libraries for electronic services.
User needs - (1) materials are available at all times (2) staff with expertise to advise and train users in the use of services and new technology
Staff training - need for structured, accredited training in relation to the above.
Promotion - need to continually market new and old services.
Performance indicators - examples are: number of logins per month; library computer workstation use and many more. Emphasis is on technology. Author believes need performance indicators which measure client satisfaction.
Guidelines on introducing any services or facilities:-
 (1) The services must fit clients' needs rather than administrators etc. agendas
 (2) If you are going to institute a service, make sure you deliver
 (3) Services are more than information
647. Wilson, M. C. Evolution or entropy? Changing Reference/User Culture and the future of Reference Librarians. *Reference & User Services Quarterly*. 2000; 39(4):387-390.
 Keywords: e-reference/ role of librarian
 Abstract: Addresses issues relating to the changing functional relationship between the reference librarian and the user, based on the observation that the advance of information technology has altered the values, attitudes and beliefs of library users, and consequently their microculture. These changes affect user valuations of ref services and call for a revised service model that will offer optimum services appropriate for the Information Age.
Role of librarian - greater emphasis on training users to access and evaluate information sources and assist them in expressing their information needs.
648. ---. Evolution or entropy? The changing reference culture and the future of reference librarians. Lankes, R. D.; Collins, J. W., and Kasowitz, A. S., Eds. *Digital reference service in the new millennium: planning, management, and evaluation*. New York: Neal-Schuman Publishers; 2000; pp. 47-57.

Keywords: e-reference/ role of librarian

Abstract: Addresses issues that relate to the changing functional relationship between the reference librarian and the user, based on the observation that the advance of information technology, particularly the Internet, has altered the values, attitudes, and beliefs of library users, and, as a consequence, their micro-culture.

Same article as that by same author entitled 'Evolution or Entropy? Changing Reference/User Culture and the Future of Reference Librarians'

649. Witten, S. Being RAD: reference at a distance in a multi-campus institution Mahoney, P. B., Ed. 10th Off-Campus Library Services Conference; Cincinnati, Ohio. Mount Pleasant, MI: Central Michigan University; 2002: 423-438.
Keywords: e-reference/ academic libraries/ USA
Abstract: Discusses the implementation of a pilot collaborative live reference service at the Maricopa County Community College District libraries in Phoenix, Arizona.
650. Wolpert, A. Services to remote users: marketing the library's role. *Library Trends*. 1998; 47(1):21-.
Keywords: academic libraries/ distance learning/ USA
Abstract: Discusses the marketing challenges presented to academic libraries by distance learning.
651. Wöhnert, B. The public library's role in the Danish information society: demand for new competencies? 67th IFLA Council and General Conference; Boston, MA. 2001.
Keywords: e-reference/ Denmark
Abstract: Discusses e-reference developments in Denmark, in particular the conclusions of a conference organised by the Danish Interest Group on Reference Work that discussed the future for reference work when virtual tools take over.
652. Young, C. L. and Diaz, K. R. E-reference: incorporating electronic publications into reference. *Library Hi Tech*. 1999; 17(1):55-62.
Keywords: e-reference/ e-resources/ USA/ web site design
Abstract: Describes how librarians are using the Web to create publications for users through HTML documents that provide access to Web and other electronic resources.
Tools for users:-
Some libraries have built Web sites that anticipate the needs of both their local users as well as those of any Web surfer. *My Library* and *Help Yourself* are academic library sites that allow users to design their searching to specifically what they are looking for.
Ability to customise a Web page so that the user can have specific resources and information available every time s/he logs in.
653. Yuan, H. A brief look at eGain Live, Web contact software for the implementation of digital reference services. *LIRT News*. 2001; 23(4).
Keywords: e-reference/ delivery technology
Abstract: Provides an example of Web contact software, eGain Live, that runs on an e-commerce platform yet is employed in library digital reference services. Allows users to browse a Web site to get instantaneous live assistance from a human librarian through their Web browser via text chat, escorted (or shared) browsing, online form assistance, telephone callback and voice-over-Internet Protocol (VoIP).
654. Yue, J. Digitization and outreach in academic libraries. *Colorado Libraries*. 2000; 26(3):34-35.
Keywords: e-reference/ USA
Abstract: A short overview of digital reference services. Addresses the who, what, when, why, which and how of digital reference.
655. ---. The use of ICQ in providing real-time reference services. *Virtual Reference Desk 2nd Annual Digital Reference Conference*; Seattle. 2000.
Keywords: e-reference/ academic libraries/ USA/ delivery technology
Abstract: Discusses the use of ICQ (chat) software to provide real-time reference at the University Libraries of the University of Colorado, Boulder. Issues such as privacy, staffing, marketing/promotion and technical implementation are briefly discussed.

656. Zick, L. The work of information mediators: a comparison of librarians and intelligent software agents. *First Monday*. 2000; 5(5).
Keywords: e-reference/ role of librarian
Abstract: Examines differences and similarities between human and software information mediators. The author views a collaborative future and provides examples of such collaboration.
Critical characteristics of the new information professional - 1) guide in the face of an uncertain future 2) collaborate 3) prioritise and maintain agility and flexibility in the face of changing goals 4) empower 5) understand the core capabilities of one's organisation, work group and colleagues.
These suggestions are almost identical to the goals of the development of intelligent software agents.
Conclusion - librarians and intelligent software agents must work together to efficiently balance workloads in the most optimal way for a particular user and in that particular user's specific context.
657. Zumalt, J. R. and Pasicznyuk, R. W. The Internet and reference services. *Reference & User Services Quarterly*. 1998; 38(2):165-.
Keywords: e-resources/ USA/ public libraries
Abstract: A study that sought to test the Internet's effectiveness at answering reference questions. The Internet was judged in relation to depth, accuracy and durability. The research pointed to 4 implications surrounding the question of the Internet and library practice:-
1) The Internet is a worthwhile ref investment
2) Some libraries have much to gain from Internet access
3) The Internet should figure prominently in the ref bag of tools
4) The Internet as a whole is a stable ref medium
658. Zumalt, J. R. and Smith, R. A. Internet reference service: general sources and trends. *Journal of Library Administration*. 2000; 30(3/4):335-350.
Keywords: e-reference/ delivery technology/ e-resources/ copyright
Abstract: Provides an annotated list of useful sites but also considers: 1) Licensing and copyright - trend amongst some libraries to employ product managers, a full-time person charged with coordinating database acquisition and licensing 2) Consortia building - helps libraries endure the upward spiral of acquisition costs 3) Emerging technologies - chat, videoconferencing and voice recognition technology.