# The Evaluation of Worldwide Digital Reference Services in Libraries

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# The Evaluation of Worldwide Digital Reference Services in Libraries

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Dedicated to those who are always mentally by my side
giving me love and encouragement,
regardless of the physical distance between us

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# Preface

As Karl Popper once pointed out, 'all things living are in search of a better world'. Digital reference services are evolving and developing into a better world. This is because the reference librarian is always in pursuit of more efficient ways to satisfy the user's information need. For example, globalisation is increasingly commonplace in a number of fields, and now plays a role in the provision of digital reference services. Indeed, by aiming to deliver a reference service free from temporal and spatial limitations, digital reference services are becoming characterised by internationalisation.

After describing preliminary knowledge and evaluating existing digital reference services, this book depicts a collaborative project with cross-cultural scope in terms of both the project members and contents. From an international standpoint, the book reports on the e-mail reference service project from the user's perspective. This international cooperative project was undertaken by groups from German and Chinese institutions, and evaluated e-mail reference services conducted in nearly 150 libraries all over the world. The book intends to outline the status quo of digital reference services in libraries worldwide through comparing the two groups' results. The book also focuses on the different views of the distinct cultural groups.

During the process of writing this book, I moved a number of times. Indeed, the writing procedure itself has been an international journey. The book was originally conceived in Beijing, the capital of China. Then, half of the text was written in Stuttgart, a major city in Germany. Finally, it was finished in Toronto, a metropolitan city in Canada. It has travelled from an ancient eastern country, through a western European country and borne fruit in a young country in northern America. During my stays in different countries, I have experienced various cultures and learned much more about them. Although a tiring journey, I feel that the book has greatly benefited from this cultural voyage.

I would like to take this opportunity to thank many people. I am grateful to my parents, younger brother, lover, former supervisors

Professor Weihan Diao and Tinghe Lu's family and their son Charles Lu's family for their love, support and constant encouragement. I am also very thankful to Professor Ingeborg Simon, under whose inspiration I first started research into the subject, and by whose invitation, I was able to return to Germany to conduct further research on the topic. I also would like to express thanks to the students who participated in the project for their hard work. I cannot forget the great support from the Alexander von Humboldt Foundation, the German institution renowned for the promotion of international research cooperation. It is thanks to the Foundation's support that I was able to visit Germany twice to conduct my research. Just as the Foundation declares, it does indeed play an active and important role in promoting universal academic communication.

In a book on exemplary research that I read recently, encouragement from the editor is mentioned many times. In fact, I have a physical experience on this point. It is Ruth Rikowski, the editor of Chandos Publishing's information professional series, who first inspired me to write a book. After an exhausting period, I talked with Ruth about the subject of the book and her reaction was immediately positive. While writing the book, Ruth also gave me lots of encouragement. Here, I would like to take this opportunity to say a great thanks to Ruth for this encouragement and help. I also would also like to express my gratitude to Dr Glyn Jones for his help.

The e-mail reference service is essentially a transaction between two persons. This book aims to reveal one side of this service through reporting the evaluation of such a service from the user's perspective. An ancient Chinese idiom says that to win a war, one must know both oneself and one's enemy. If we take the reference service as a war, we could say that we now know half the knowledge essential for victory. More and more endeavour is expected in continuously improving the world of the reference service with harmonisation and beauty. I truly hope that this book contributes to this goal!

# About the author

**Dr Jia Liu** is currently undertaking research in the Wuerzburg University Library with the second resumed fellowship of the Alexander von Humboldt (AvH) Foundation. Before that, she was a visiting scholar of the Faculty of Information Studies, University of Toronto, Canada. Before she went to Canada in the summer of 2006, she had been a guest professor of the Faculty of Information and Communication, Stuttgart Media University, Germany with the support of the German Academic Exchange Service. In the same faculty, she initially implemented a project with the first resumed fellowship of the AvH Foundation. The digital reference service has been the fundamental subject of all of the research and teaching activities during the abovementioned periods. Her research interests also include metadata and digital libraries. From October 2002 until November 2004, Dr Liu implemented a research project on the subject of metadata and its applications in the digital library in Germany, Sweden and the UK with the fellowship of the AvH Foundation. She has also been associate professor of the Department of Information Management, Peking University, Beijing, China, where she got her PhD.

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# 1

# Introduction

As is customary, the first chapter provides a brief introduction to the work. This is especially necessary for this book because it originates from a project rather than independent research. Indeed, some of the basic information given here is not suitable for any of the subsequent chapters. This preface describes the origin of the book, and introduces the research project from which the book is derived. The general description addresses the philosophy, purpose, scope, evaluation criteria, workflow and difficulties of the project. Subsequently, the research methods used during the creation of the work are presented. Finally, the structure of the book will be outlined.

## Origin

This book is based on a research project implemented by groups from one western and one eastern country. By reporting the results of the project, the author aims to provide the reader with an understanding of e-mail reference services in libraries worldwide.

It is well known that the adoption of information and communication technology (ICT), especially the progressively common usage of the network, has brought both challenges and opportunities to the traditional library world. With respect to reference services, growing awareness of information needs and wide utilisation of ICT have led to more participants than ever before. However, the situation also provides the reference service librarian the possibilities and facilities to serve users more efficiently in a much broader area. Digital reference services are a direct outcome of the dramatically rapid development of ICT in the context of library evolution. Emerging with the popularisation of the computer network, although digital reference services are relatively new in the library world, they have developed remarkably quickly over the last decade.

Evaluation is an effective way of providing formal evidence to establish the status of the library service so the library can target efforts to improve its quality. Evaluation is particularly worthwhile for promoting digital reference services. In reality, however, practical projects for evaluating such services are not as common as those for dealing with other library services. This could be one of the most important reasons for initiating a project to evaluate a library's digital reference service.

Under the macro internationalisation environment, such a project might set out to record the similarities and differences in digital reference service provision around the world. Indeed, it would be very interesting to compare how digital reference librarians around the world serve their users, and how the services may or may not differ according to cultural and geographical backgrounds.

In the middle of March 2005, Professor Ingeborg Simon of the Faculty of Information and Communication, the Stuttgart Media University (Hochschule der Medien, HdM), Stuttgart, Germany, visited Dr Jia Liu, then Associate Professor of the Department of Information Management, Peking University (PKU), Beijing, China. In the spring, the season when most flowers blossom on the beautiful PKU campus, Professor Simon suggested a cooperative student research project between the two institutions. Dr Liu agreed with the abovementioned concerns and together they set the fundamental tone of the project according to them. One month later, the new research project came into reality.

The project was entitled 'Evaluation of Worldwide Digital Reference Services in Libraries'. It started on 1 April 2005 and ended on 15 June in the same year. Two student groups (one from HdM and one from PKU) implemented the project while the two teachers acted as the mentors on corresponding sides. Table 1.1 summarises the basic information of all participants, and lists of the project members can be found separately in

**Table 1.1** **Project participants**

| | Germany | China |
|---|---|---|
| Mentor | Ingeborg Simon, Professor | Dr Jia Liu, Associate professor |
| Institution | Faculty of Information and Communication<br>University of Media<br>Stuttgart, Germany | Department of Information Management<br>Peking University<br>Beijing, China |
| Participants | 15 undergraduate students | 14 undergraduate students<br>9 graduate students |

Chapters 4 and 5. The subproject on the German side was in fact the students' task as part of their seminar course on online reference service evaluation, supervised by Professor Simon, whereas the participants on the Chinese side were all volunteers. More detail about the subprojects is provided in subsequent chapters.

The Alexander von Humboldt Foundation, Germany, a top-level institution for supporting global academic communications provided vital support that gave the author the opportunity to concentrate on writing this book during the first period of its creation.

## *Philosophy*

No matter the field or sector, the ultimate aim of service is to meet the user's need. With the change of society and development of technology, service evolves continuously. For example, the existence of digital reference services is the result of evolution in library services. Compared with traditional library reference services, which have benefited from longstanding regulations to establish and evaluate the service, digital reference services are still at the initial stage and there is much to do before they are perfected. Under the various cultural and geographical backgrounds, the contents and quality of digital reference services in libraries may differ greatly. Nevertheless, until March 2005, no project had provided an international vision about such services.

The general aim of the project was to evaluate digital reference services, especially e-mail reference services, in libraries worldwide. Online testing was used to provide an international insight into this field using realistic demonstrations. In the meantime, as the two participant groups were rooted in different national and cultural backgrounds, the project was international in another sense. The project also gave an insight into the cultural differences of people from various countries while implementing the same project.

The project broadly reflects increasing cooperation between China and Germany. The two countries have become good partners in many fields and benefited greatly from the cooperation. This project highlights a further possibility in collaboration between higher education institutions in these two countries, illustrating how globalisation is spreading into each corner of the world.

It is also necessary to mention that the evaluators' professional knowledge sets them apart from the regular users, who had no advance knowledge about digital reference services. On this point, the results of this project are relatively reliable.

## Purpose of the project

Simply speaking, the purpose of the project was to promote worldwide digital reference services in libraries through providing formal evaluation data and making comparisons on the basis of the evaluation results. Of course, the mentors also hoped that the students themselves would benefit from the project.

The project aims can be categorised as follows:

- *To evaluate worldwide digital reference services in libraries*: This is the main purpose of the project. The quality of a service cannot assess itself. Evaluation by actually using the service is the best way to demonstrate whether it meets the user's need. Digital reference services represent a new kind of service developing rapidly over the last decade. The mentors initiated the project to examine existing e-mail reference services in libraries worldwide. Through the project, they intended to define the international status quo in the field. The information uncovered by the research would help librarians target service improvements more easily.
- *To provide the students an opportunity for international communication*: Both mentors have significant international experience in academic communication. Before this project, in addition to communicating with foreign colleagues, Professor Simon had organised or participated in organising several international student conferences, while Dr Liu had done her research in world-famous academic institutions respectively located in Goettingen (Germany), Lund (Sweden) and Oxford (UK) with the fellowship of the Alexander von Humboldt Foundation, Germany. The two professionals were therefore well aware of the necessity and importance of international academic communication, and wanted to enable their students to also have such a chance. During the implementation of the project, the students' horizons were broadened from different angles. The students tested the libraries all over the world. In addition to several libraries in their home countries, the majority of the libraries they evaluated were foreign ones. During the evaluation procedure, they got to know the current status of e-mail reference services in different countries and areas, and acquired experiences in communicating with foreign librarians. Although each institution was conducting its own subproject, the two groups maintained a close cooperative relationship. This was a good opportunity for the students to deal with partners with various perspectives.

- *To provide the students a chance for corresponding in English*: As the libraries tested were universal and the project members came from one eastern country and one western one, English was used as a common language. This was both an opportunity and challenge to the participating students. Situated in Europe, the German students were in a position to have had reasonable opportunity to communicate with other people in English. In mainland China, meanwhile, foreign languages, especially English, have been extensively taught since the Cultural Revolution. Since then, most educated Chinese people begin to learn English from their early childhood. In this project, the two teachers changed the possibility to necessity, obliging their students to practise their English. Fortunately, the students found this rewarding, and enjoyed extending their horizons through communicating with people from different cultures in addition to practising written English.

## Scope

Digital reference services are not the exclusive province of libraries. They are used by a variety of institutions, such as museums, archives, government agencies, information consultants etc. This book, however, only considers the role of digital reference services in the library context. As there are countless libraries all over the world, it is neither possible nor necessary to evaluate the services conducted by all of them. Nevertheless, libraries at a variety of levels are likely to manifest significant differences. Hence, during the early period of the project, it was essential to define the scope of the libraries for testing.

First, library type was established, as the project leaders initially only wanted to evaluate university libraries' digital reference services. While there is no problem in finding such libraries in developed countries, it was later found that in some developing countries, especially in Africa, few university libraries provide such service. Consequently, the category was extended to include national libraries, as national and university libraries normally represent the highest level of library in a given country or area. Based on this, the results should represent the top level of the digital reference service in the countries or areas examined.

The evaluators made an effort to choose five libraries (either national or university library) in each country or area, across five continents. Due to uneven development across the different countries, there was a degree of variation in the number of libraries chosen in some countries. In the

USA, for example, where the digital reference started the earliest and thrives well, a total of 35 libraries were tested during the project.

At the end, the total number of effective samples on both German and Chinese sides was less than the number initially expected, i.e. 200. Differences between the two group's results, and more details about the distribution of the evaluated libraries in terms of the library type and continents, are provided in the corresponding chapters, with a comparison made in the last chapter.

Because of the limited time and energy of the participants, online reference services in their entirety were not evaluated. Only e-mail reference services, the most popular digital reference service at the time, were taken into account.

## *Criteria*

To save time and guarantee the high quality of evaluation criteria, the project members adopted existing criteria rather than compile new ones.

The USA is the birthplace of digital reference services, and they have developed well across the country. The US professionals are pioneers in exploring the field of online reference and setting up regulations for the service. In 2005, the American Library Association issued the 'Guidelines for behavioral performance of reference and information service providers'[1] which were revised by the Management and Operation of User Services Section (MOUSS) Management of Reference Committee and approved by the Reference and User Services Association (RUSA) Board of Directors in June 2004. The original RUSA guidelines[2] were published in 1996 and dealt primarily with face-to-face interactions between reference staff and library users. Recognising the emergence of new types of reference services with the tremendous development and wide adoption of networks, the professionals updated the original guidelines. As soon as they were published, the guidelines gained a high reputation in the field of reference service. The guidelines include regulations related to the so-called 'remote' reference service. As digital reference services represent one kind of such remote reference service, the RUSA guidelines were chosen as the basic evaluation criteria in the project.

In the RUSA guidelines, there are five main areas: approachability, interest, listening/inquiring, searching, and follow-up. In the meantime, three distinct categories (general, in person and remote) have been added (where appropriate) under each. 'Remote' guidelines were defined as 'Additional guidelines that are specific to reference encounters by

telephone, e-mail, chat, etc., where traditional visual and non-verbal cues do not exist'.

In Appendix A, the RUSA reference guidelines are reproduced for reference. Sets of questions were designed on the basis of these guidelines for evaluation according to different criteria during the project.

## Workflow

The international libraries were evaluated through online tests. There were some differences between the workflows of the German and Chinese student groups; however, the following represent the general steps undertaken by both groups:

- *Selecting libraries for evaluation*: The German students were responsible for choosing libraries for evaluation located in various countries and areas. In principle, five libraries, including the national library and university libraries, from one country or area were selected. To qualify for inclusion, the library had to provide a regular digital reference service.
- *Analysing the evaluation criteria and specialising them*: The mentors had assigned the students to use existing evaluation criteria, i.e. the abovementioned RUSA guidelines. Before evaluating the libraries, the students researched the regulations to see whether they were completely suitable for the evaluation or whether they needed to be amended or supplemented by anything. The Chinese students thought the objective criteria were too general, so they further specialised them and made them more case-sensitive.
- *Testing evaluation*: At the beginning of the project, it was decided that 200 libraries would be evaluated. To gain some advance experience, the participants set a pretest period before the official start of evaluation. During this period, only a few libraries were evaluated. Based on the feedback from the test, the students modified the methodology and strategy to some extent.
- *Evaluating the libraries*: Both subproject groups designed two questions for enquiry. They sent the questions to the chosen libraries and then evaluated the digital reference provided by them according to the evaluation criteria. In the event that either the question or answer could not be well understood, a multiple e-mail correspondence ensued. This procedure took the longest time during the project.

- *Collecting and organising the results*: After evaluation, results were collected from different evaluators and then summarised. They were organised into Excel files and made ready for further analysis.
- *Comparing the results and presenting them*: PowerPoint files were created individually by the two groups and presentations on the basis of the files were given separately in Stuttgart and Beijing. In the files, different methods and patterns had been used to provide comparisons as clearly as possible.

Thanks to the fellowship provided by the Alexander von Humboldt Foundation, Dr Liu returned to Germany until December 2005 to implement a research project based on this initial project and began to write the present book. In addition, Professor Simon wrote a brief report on the project, which was published in the third issue of 2006 of the German journal *BuB: Forum Bibliothek und Information* [*BuB: Forum of Library and Information*].

## Difficulties

The implementation of the project experienced both expected and unexpected difficulties. The most prominent are listed below:

- *Non-native language*: Considering the project was aimed at evaluating digital reference services worldwide, the coordinators specified that English was the only language to be used during the whole project. Obviously, English is not the mother tongue for either the Chinese or German participants. Consequently, while they communicated with the evaluated libraries in this foreign language, it is quite possible that there were some linguistic difficulties. However, it was not necessary for the library being evaluated to use English as its working language. Thus, language-related difficulties might also have happened on the library's side. In either case, modification or further explanation of the questions might have been requested. This prolonged the time for receiving a reply to the initial inquiries.
- *Time differences*: As the libraries for evaluation are located in different parts of the world, time differences between them and evaluators were inevitable and had to be taken into consideration. In addition, the Chinese and German groups had different schedules, which sometimes also caused delay as regards response.

- *Students' limited time and energy*: On the German side, this project was the official task of the mentor and the students who participated in her seminar programme 'Evaluation of the Online Reference Service' in the summer semester of 2005. In other words, this was their obligatory work. Each week, except during the holidays, regular time was assigned for them to meet and discuss with one another. This was completely different on the Chinese side. All the Chinese mentor and student participants were volunteers, so neither their time nor energy could be guaranteed. The author was very thankful for the Chinese students who managed to do this extra work, as their study burden was already very heavy.

## Methodology

The research methods adopted during the project, in addition to other research methods also used in this book, are detailed below:

- *Questionnaire*: The project evaluation tool was a questionnaire with a variety of sets of questions. Based on this form, the participants tested the library and collected data.
- *Observation*: Online investigation was the principal method used in the project. The evaluators sent a question to each library's digital reference service provider and then evaluated the service according to the quality of the reaction. Both enquiries and replies were transmitted through networked communication.
- *Qualitative and quantitative mixed*: Both qualitative and quantitative methods were adopted in the project. Except those questions regarding the concluding judgment, most of the questions in the evaluation tool were qualitative. Later, during the summarisation period, the qualitative method was converted to the quantitative one so as to draw conclusions.
- *Comparison*: Digital reference services inevitably develop differently in different countries and areas. Comparison was therefore a primary research method while writing the book. The evaluated results from the German and Chinese sides were compared on many aspects with some analysis.
- *Literature survey*: Not only does this book report a project, but it also provides a basic description of the development, main principles and

some practices in the field of digital reference services. This required the collection of many documents in either printed or electronic format. The experiences and research outcomes from the literature have been used to support and complement those viewpoints conveyed in this book.

## Structure

Although it is prepared on the fundament of a project aimed at evaluating digital reference services in libraries worldwide, the book is far beyond a report of the project. Its scope is much more extensive and its content is much deeper than the project alone.

A further five chapters follow this introduction. Two chapters address the general understanding of digital reference services and the evaluation of such services. The following three chapters report the project.

Chapter 2 provides fundamental knowledge in the field of digital reference services in the library. The four sections address primary knowledge, the variety of digital reference services, cooperative digital reference services and other issues. In the first section, different terms used to describe the service, definitions, characteristics and development of the digital reference service will be discussed. In the second section, before introducing the digital reference service provided by the library, there is an overview of such service offered by other institutions and a simple comparison between these services is made. The section focuses on frequently asked questions, e-mail and chat reference services. The third section addresses cooperative digital reference services. In the last section, three issues related to the digital reference service are discussed briefly, which are necessity of guidelines and standards, virtual ready reference collection, and multilingual cooperative digital reference services.

Chapter 3 focuses on describing the efforts on evaluating the digital reference service in the library. First, the importance of evaluating digital reference services is discussed. Second, the target for evaluation (comprehensive, multi or single approach) is discussed. Third, common methods for evaluating digital reference services are outlined, namely, survey and questionnaire, observation, interview and case study. Fourth, a general description of the workflow of an evaluative research project is proposed, and each step of the workflow is briefly described. Finally, several standards and criteria for evaluating the online reference service are noted.

Chapters 4 and 5 are actually parallel. After a brief overview of the subprojects implemented by the German and Chinese group, group

division and work distribution, timetable, workflow and flow of each group are reported step by step. The rules of the RUSA guidelines related to the evaluation results are interpreted, with the German group's outcomes in Chapter 4.

Comparisons of the evaluation results from both sides are the main topic of the final chapter. At first, general comparison, comparison of the results and comparison of opinions in terms of the cooperation are made separately. Then, experiences and lessons learned from the project are outlined, serving as good reminders for future project members. Coming next are the conclusions drawn from various angles. Finally, some perspectives are put forward.

Following the texts there are some appendices, including the RUSA 'Guidelines for reference services', project instructions for decaling the task of the participants, the evaluation guide for recording and collecting data, and lists of libraries evaluated by the German and Chinese groups. The libraries the German project members evaluated are represented in a single list. Excepting the national libraries, the libraries tested on the Chinese side are separated according to the continent where the library is located. A range of information is provided, including the library's exact name, name of the country or area to which it belongs, and the library's URL.

At the time of writing this present text, the German student participants had just graduated. During the graduation ceremony held on 17 February 2006, it was most gladdening to see how joyful their young faces were. From the bottom of her heart, the author wishes all of them a bright future. In the summer of the same year, the Chinese undergraduate students also ended their study for their bachelor degrees. The author sincerely hopes that all participants have greatly benefited from the project as expected and will remain active in the international community hereafter.

## Notes

1. American Library Association (2005) 'Guidelines for behavioral performance of reference and information service providers', available at: *http://www.ala.org/rusa/stnd_behavior.html* (accessed 15 March 2006).
2. RUSA (1996) 'Guidelines for behavioral performance of reference and information services professionals', *Reference Quarterly* 36(Winter): 200–3.

# 2

# Basics about digital reference services

For a while in its history, the library was principally a place to collect and store books. It was once the privilege of the nobles and people working in the churches or cloisters to use the library's collection. With the appeal for human equality and common education, the library began to open its doors to the public. Since S. R. Ranganathan proposed his five laws of library science, the idea of serving the public has become increasingly dominant in the international library community. In addition to material circulation, the reference service is one of the fundamental services provided by the library to its users. Parallel to the development of society and changes in the way people work and live, the types of reference service and their contents have evolved dramatically. Digital reference services represent the latest stage in the evolution of reference services, and have emerged as a response to the intense information need in the digital age. This innovation demonstrates the library world's ongoing endeavour to meet its users' needs more efficiently by extending its services beyond its physical walls.

To illustrate the usefulness of the library, a professor once gave the example of a person who wanted to buy some furniture for his newly purchased house – instead of going directly to the furniture shop, he went to a nearby public library for some catalogues and other related materials. Nowadays, in such a case, many more possibilities are open to the person searching for the furniture information. One such option is to use a real-time service to get instant help from the reference librarian. A networked reference service can be very helpful in easing and improving people's work and life. The reality has demonstrated that the digital reference 'makes assistance available to the users at point of need in an easy and convenient manner'.[1]

In this chapter, some basic knowledge about digital reference services will be introduced to provide readers with a primary description on the subject. First of all, an overview of digital reference services will be given,

including the different terms and definitions in the field. The second section will introduce the two primary types of digital reference service (e-mail and chat reference service) in addition to frequently asked questions (FAQs). Collaborative digital reference services will be examined in the third section. Finally, three issues related to digital referencing, i.e. necessity of guidelines and standards, virtual ready reference collection and multilingual cooperative digital references, will be discussed briefly.

## Primary knowledge

Digital reference services in the library represent one of the latest services that the library provides to its users. Through this evolving service, the library extends its services to the world beyond the building where it is physically located.

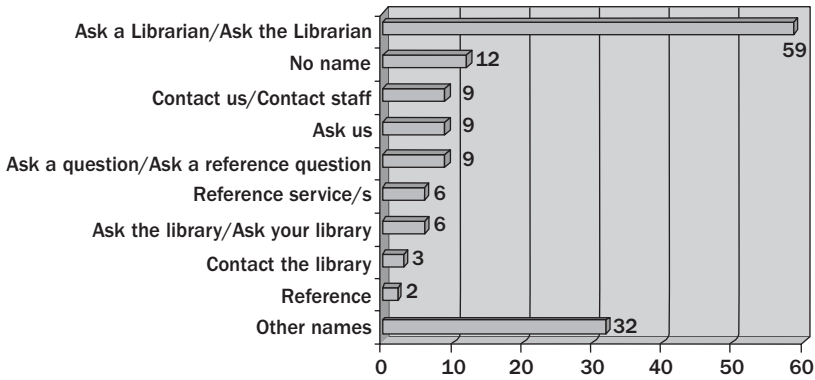
As with many other new terms, such as 'digital library', the term 'digital reference service' has many variant forms in the literature. The following are some of the most popular:

- digital reference;
- virtual reference service;
- electronic reference service/e-service;
- Ask a Librarian/Ask the Librarian service.

No matter what the service is called, whether 'digital', 'virtual', 'live', 'real-time', 'interactive', 'web-based' or 'synchronous' service, its essence is to provide the reference service via the computer network. The term 'digital reference service' is perhaps the clearest for reflecting the connotations of this kind of service, so this has been used most frequently (but not exclusively) in the present book.

Many names are used to identify a library's digital reference service facility. The German project members observed the digital reference services of 147 libraries during the project. As shown in Figure 2.1, 59 of these libraries (40.1 per cent) had adopted either 'Ask a Librarian' or 'Ask the Librarian' to denote their network-based reference service. Compared with other names, these two were by far the most popular. Results of the Chinese group were similar. As these libraries are either national libraries or large university libraries, it is reasonable to suggest that the phenomenon shown here is representative.

**Figure 2.1** Names of digital reference services in libraries (German students' statistics)




There has been no authoritative definition of 'digital reference services'. Indeed, it is common for service providers to create a new definition according to personal understanding and experience to describe the digital reference service on offer. However, a number of researchers have put forward their own viewpoints.

The reference expert William A. Katz was famous for his two-volume monograph on reference work, *Introduction to Reference Work*,[2] which has been honoured as the 'bible' in the area of reference service in the library sector worldwide. In his book, *Digital Reference Services*, Mr Katz defined the digital reference service as, 'an online reference interview which can run to less than a minute to "as long as it takes" to reach a satisfactory response'.[3]

In their project for assessing digital reference service, Charles R. McClure and R. David Lankes, describe it as 'human-intermediated assistance offered to users through the Internet'.[4]

A widely accepted definition of virtual reference services comes from the 'Guidelines for implementing and maintaining virtual reference services' prepared by the US MARS Digital Reference Guidelines Ad Hoc Committee:

> Virtual reference is reference service initiated electronically, often in real-time, where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present. Communication channels used frequently in

> virtual reference include chat, videoconferencing, voice over IP, co-browsing, e-mail, and instant messaging.[5]

Finally, a research paper from Joann M. Wasik describes, 'Digital reference and AskA services are Internet-based question-and-answer services that connect users with experts in a variety of subject areas'.[6]

According to the definitions above, it can be surmised that digital reference services are a kind of reference service provided on a computer network platform, and that human experts are involved in such service. The service gives the user, who commonly is not physically present in the library, access to digital information professionals for help. The online reference service is attractive to both the user and the library itself. On one side, the user requires more effective support to meet their special information needs via the communication platform or the internet. In the so-called 'sea of the information', it is very easy for the user to get lost; indeed, the difficulty in finding the right information is rising in many cases. The average user needs help from the information professional – and the library is the place where information professionals as well as information resources accumulate. Facing the challenge from increasing competition in providing information, the library has to find a solution to keep its position as the knowledge and information centre. As the Pew Internet and American Life Project report *The Internet Goes to College* revealed back in 2002, nearly three-quarters (73 per cent) of college students said they used the internet more than the library, while only 9 per cent said they used the library more than the internet for information searching.[7] Since then, the number of people using the internet has grown significantly. For example, internet usage grew 182.0 per cent from 2000 to 2005 (see Table 2.1).[8] Higher awareness of the library cannot be achieved through library advocacy alone. The practical option is to offer more powerful evidence to prove its importance and necessity in the information society. The digital reference is the right service for the library to show how its function cannot be replaced.

The digital reference service is not simply reference work without a desk. It has evolved from traditional library reference work as a response to increasingly common networking and the changing lifestyle and needs of the user. The computer network is the essential platform on which people now work and communicate. It is thus understandable that conducting digital reference services on this platform is also becoming popular.

**Table 2.1** World internet usage and population statistics

| World regions | Population (2006 est.) | Population (% of world) | Internet usage, (latest data) | % Population (penetration) | Usage (% of world) | Usage growth 2000–2005 |
|---|---|---|---|---|---|---|
| Africa | 915,210,928 | 14.1 | 22,737,500 | 2.5 | 2.2 | 403.7 |
| Asia | 3,667,774,066 | 56.4 | 364,270,713 | 9.9 | 35.7 | 218.7 |
| Europe | 807,289,020 | 12.4 | 290,121,957 | 35.9 | 28.5 | 176.1 |
| Middle East | 190,084,161 | 2.9 | 18,203,500 | 9.6 | 1.8 | 454.2 |
| North America | 331,473,276 | 5.1 | 25,801,428 | 68.1 | 22.2 | 108.9 |
| Latin America/ Caribbean | 553,908,632 | 8.5 | 79,033,597 | 14.3 | 7.8 | 337.4 |
| Oceania/ Australia | 33,956,977 | 0.5 | 17,690,762 | 52.9 | 1.8 | 132.2 |
| World Total | 6,499,697,060 | 100.0 | 1,018,057,389 | 15.7 | 100.0 | 182.0 |

Source: *www.internetworldstats.com* (c) Copyright 2006, Miniwatts Marketing Group. All rights reserved.
Internet Usage and World Population Statistics were updated for 31 December 2005. Demographic (population) numbers are based on data contained in the World Gazetteer website (*http://world-gazetteer.com/*). Internet usage information comes from data published by Nielsen/NetRatings, by the International Telecommunications Union, by local network information centres, and other reliable sources.

In the middle of 2001, Carol Tenopir asked 70 major US research librarians to describe changes in their reference services over the past three years and the role of electronic resources in this. The results revealed:

- all offered e-mail services as well as the traditional telephone, fax, etc.;
- about one-third reported some form of real-time digital reference;
- almost all had this type of digital reference in the planning stage;
- many believed that real-time digital reference would become as common as telephone, e-mail and similar older services in only a few years' time.[9]

The survey concluded that 'the tendency is that the digital reference service will become one of the important types of reference services in the library without any doubt'.[10]

Further research by Joe Janes and his colleagues found that by 2000, 45 per cent of academic libraries and 12.8 per cent of public libraries offered some type of digital reference service.[11]

More encouraging proof comes from the Library of Congress. In June 2002, it began to use QuestionPoint, currently the most popular software for digital reference services. The earliest usage statistics showed that within the first six months of using the software, i.e. up to December 2002, the library received 35,206 questions. The following calendar year, it received 55,932 reference questions through QuestionPoint. Monitoring then switched to the fiscal year (from October to next September). For fiscal year (FY) 2004, it received 47,729 questions; for FY2005, 58,611 (the installation of an 'intermediary page' in 2004 caused a reduction in questions in FY2004 from the previous year, although the numbers are back up now).[12] Because the time periods are not uniform, it is difficult to compare the data accurately; however, Figure 2.2 illustrates the increasing trend of digital reference usage. Significantly, this is not an isolated phenomenon but rather a very common trend in the library community.

At present, digital reference services form a standard part of reference work in medium to large-sized libraries as well as numerous small libraries. As mentioned on the Virtual Reference Canada website, 'whether it is e-mail reference, chat reference or an automated routing system, as is the case with Virtual Reference Canada, virtual reference is significantly influencing the delivery of high-quality library services'.[13] No matter what kind of digital reference the library provides and how complex or simple it is, the provision of such service has been an outstanding driver for the library to step further into the digital age.

**Figure 2.2** Number of reference questions received by the Library of Congress

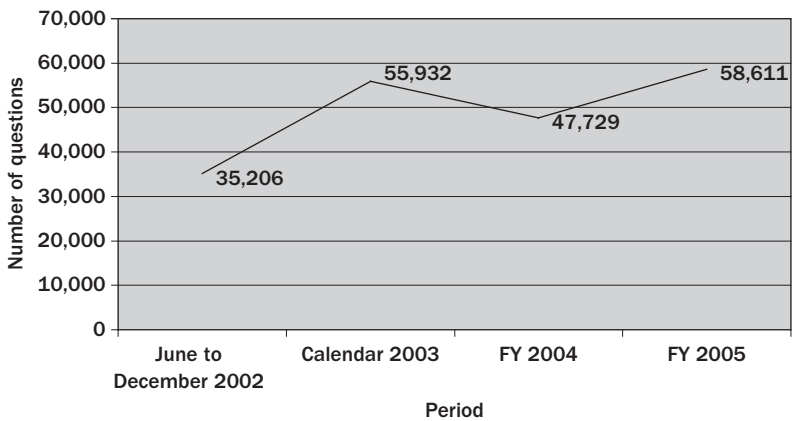
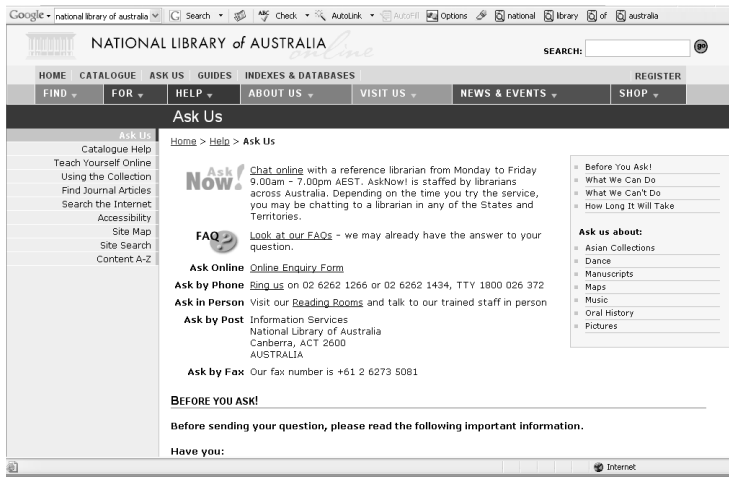


**Figure 2.3** **Reference services provided by the National Library of Australia**




Despite being in the digital age, the library continues to offer traditional reference service methods in addition to providing service electronically. As the problem of aging becomes more serious, this principle becomes more prominent. Just as the television could not take the place of the radio completely, traditional methods, such as telephone, fax and mail, have been kept so that people can use the method they find most suitable (see Figure 2.3). As the five library laws stipulate, everybody should have access to the library service.

## Variety of digital reference service

The library is not the only institution that provides digital reference services. Other kinds of institutions such as museums, archives, art galleries, government agencies and information consultants also conduct reference service on the internet. Some of these services are free, while some are available for a fee. For instance, under the name of 'Ask Joan of Art', the Smithsonian American Art Museum provides an e-mail based reference service to its patrons, to support their use of the print and electronic reference resources. The patron is sent a brief and factual answer to their enquiries, or pointed to sources directly. More detailed information about this service can be seen on its web page (Figure 2.4).

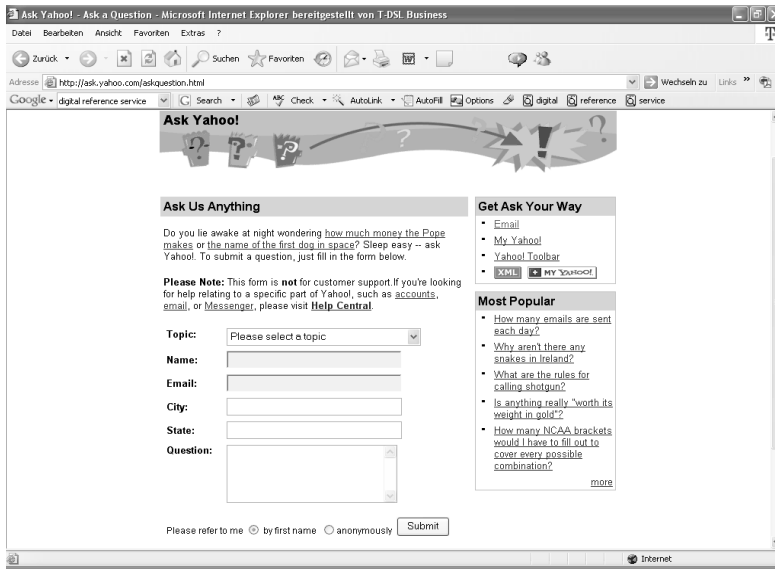
**Figure 2.4** Web page of 'Ask Joan of Art'


In addition, some advanced search engine systems provide e-mail-based reference services, such as 'Ask Yahoo!' (Figure 2.5). As the figure shows, the enquiry web form provided by this service is fairly simple compared with that requested by a professional online library service.

The mechanism of this kind of service is that a person employed by the search engine company responds personally to enquiries. Both the question and answer are sent via e-mail. The reply usually includes the URL of the best website among those that have been found with the search engine. However, this assumes that the website has been included in the hidden database of the search engine. As of 2000, 'the total search engine coverage of the Internet is 42 per cent with no single search engine indexing more than about 16–18 per cent of the Internet'.[14] This implies that a vast amount of information resources out of the database would be excluded. This is the congenital disadvantage of such a service.

Table 2.2 offers a simple comparison between the answers to the same question from 'Ask Yahoo!' and the Library of Congress 'Ask a Librarian' service. Both services return a window immediately after receiving the question. However, as Figure 2.6 displays, the Library of

**Figure 2.5** Web page of 'Ask Yahoo!'




Congress service provides information as to the status of the question and other useful matters other than confirmation of the question and its receipt. An acknowledgment e-mail is sent to the user's e-mail box simultaneously. By comparison, 'Ask Yahoo!' simply refers the user to its 'Past Questions by Category' service, in case the information can be retrieved there. In addition to the obvious differences between the web pages, Table 2.2 displays more details of the comparison.

Although this is only a random test in which it is impossible for everything to be discovered, it shows some fundamental differences between the e-mail reference services from these two digital service providers. In a word, the library-related digital reference is much more professional and trustable and makes the user more comfortable.

In the face of many competitors, the library has expanded its traditional reference work and developed new ways to provide more efficient services. 'A library's success in this environment is dependent upon using the traditional strengths of librarians – identifying, organizing, indexing, evaluating, disseminating information – to create new services.'[15] Using its own advantages as well as recognising the patron's evolving needs and technical capability, the library has explored a new era to serve its patrons.

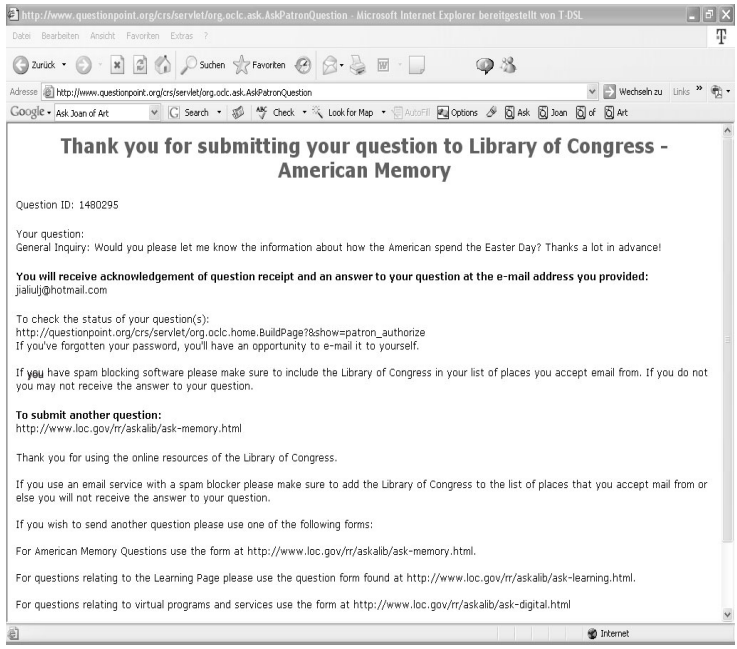
**Table 2.2** **Simple comparisons of the replying procedure**

| | **Ask Yahoo!** | **Library of Congress Ask a Librarian** |
|---|---|---|
| Question: Would you please tell me something about how Americans spend Easter Day? Thanks in advance! | | |
| Way of sending the question | Simple enquiry web form | Enquiry web form asking for more background information about the user and enquiry |
| Replying time | Never | Two hours and five minutes<br>Even on Saturday (31 March 2006)<br>Far less than the promised time (five working days) |
| Way of getting the answer | The user has to research the question unaided, saving appropriate information under a particular subject category;<br>this must be repeated, as the user does not know when (or if) the answer will appear | Receiving an e-mail message to the e-mail address the user left at the outset |
| Answer | No answer<br>No explanation for why the question is not answered | Detailed answer in friendly tone |
| Follow-up | Nothing | Ask question survey |

One of the first reference services to go online was said to be the Electronic Access to Reference Service (EARS), launched by the University of Maryland Health Services Library in Baltimore early in 1984.[16] After more than ten years of service, the library has accumulated many useful experiences and lessons in this field. As Joseph Janes argues:

> regardless of the growth of commercial Q&A services, the role of the librarian is largely the same as it has been ... working with people to determine the nature of their information needs,

**Figure 2.6** Web pages after sending the enquiry




> identifying potentially valuable sources of information to help them satisfy their needs, evaluating those sources, and presenting them in a useful way.[17]

Broadly speaking, a library's digital reference service can be divided into two opposite categories: asynchronous and synchronous. With the former service, the patron submits a question and the librarian responds at a later time; with the latter, the patron and librarian communicate in real time.[18] The asynchronous service uses e-mail reference, current awareness and so on, while the synchronous or real-time service is implemented with chat, voice-over internet protocol, videoconferencing, SMS, instant messaging and so forth. Most of these services are free, although some are fee-based. Additionally, some services are universally and unconditionally available, while some libraries, especially university libraries, only provide online service to their staff and members as well as special registered patrons.

R. David Lankes introduces the concept of lag time into the general digital reference model, and argues that real-time and asynchronous services in fact follow the same model.[19] However, for descriptive convenience, this book still classifies the digital reference model in the way stated above.

Although the FAQ function is not addressed above, it is an important facility, and as such will be explored below. Following this, two popular types of mature-stage digital reference service will be described. A comprehensive overview of the different kinds of virtual reference services currently available can be found in Diana Chan's 'Virtual reference service: an overview'. [20]

## *FAQ*

The FAQ function is not just an archive of frequently asked questions and their answers, but also includes questions and answers that the reference librarian judges to be of great value. Such archives are established using the librarian's own evaluation skills and tools. The archives deal with the routine work of the library and other common information. All digital reference service systems recommend this section as the first procedure of virtual reference services, and it has become an essential feature of most digital reference systems.

As an intellectual institution, the library has traditionally provided a service to its users without generally asking for payment. As the library

does not make money by itself, this rule ensures that it needs external financial support. Expenditure is therefore always a problem for the library administrator. Indeed, the librarian is very often asked to provide a more modern, improved service, such as a digital reference service, with neither new staff nor more money. Furthermore, a digital reference service is very demanding with respect to time and energy. The purpose of the FAQ archive is to relieve the digital reference librarian from repeat enquiries so that they can best use their limited funding to focus on other new enquiries.

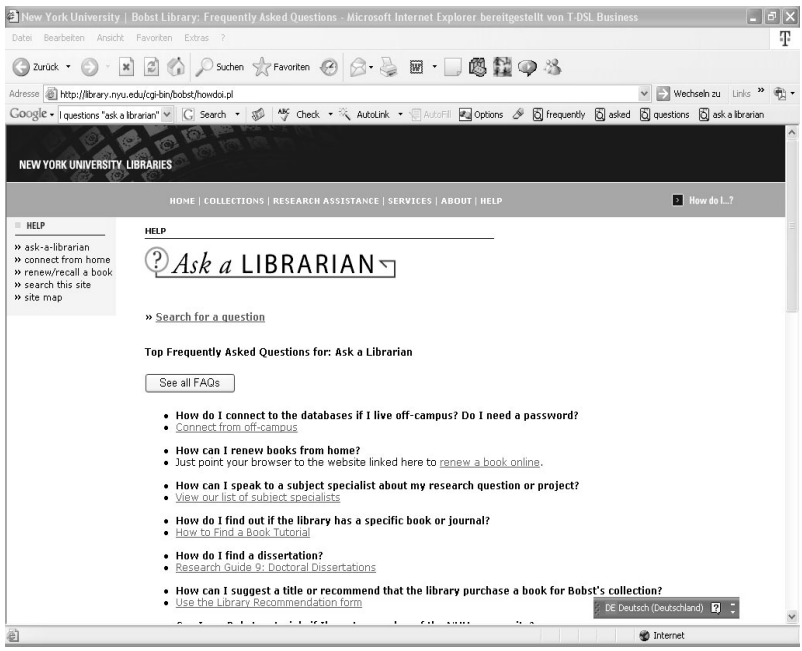
At the same time, the digital reference user may also benefit from the service. FAQ archives provide the opportunity to learn the many features of the service as well as the range and depth of the questions that might be asked. On the basis of this knowledge, the user can check their own enquiry and then judge whether the question has been previously asked, and whether it is proper to submit the enquiry to a particular service. Although one patron's question might not match completely with that of another, browsing the FAQ list may provide sufficient inspiration. Other people's questions, as well the answers, can offer new knowledge or guide the user to think from a new angle.

An excellent FAQ example comes from the New York University Library 'Ask a Librarian' service. Figure 2.7 shows the most frequently asked questions of the database. At the same time, the visitor also has the option to browse all the FAQs by clicking the 'See all FAQs' button in the middle of the web page. The user can also search for a question in the database. The user is recommended to visit these resources before starting a reference session. Only under the case that these resources cannot meet the user's information needs would it be necessary to contact the online reference librarian for help.

In some virtual reference services, the user can even suggest a question to be a permanent addition to the FAQ archive. This can be done by filling out and submitting a defined form. This can be a good way to encourage patrons to use the FAQ function more actively.

In many libraries, knowledge base software has been adopted for managing the FAQ database. There are many advantages to adopting a knowledge base in managing the FAQ database. In addition to being able to improve information sharing among users, the knowledge base becomes a searchable database. This function enables the patron to use the database more conveniently. Furthermore, in an FAQ service managed through the knowledge base, the questions and answers can be searched separately so that the privacy of the individual is protected while the currency of the information is sustained. The 'Ask a Librarian'

**Figure 2.7** New York University Library 'Ask a Librarian' FAQs

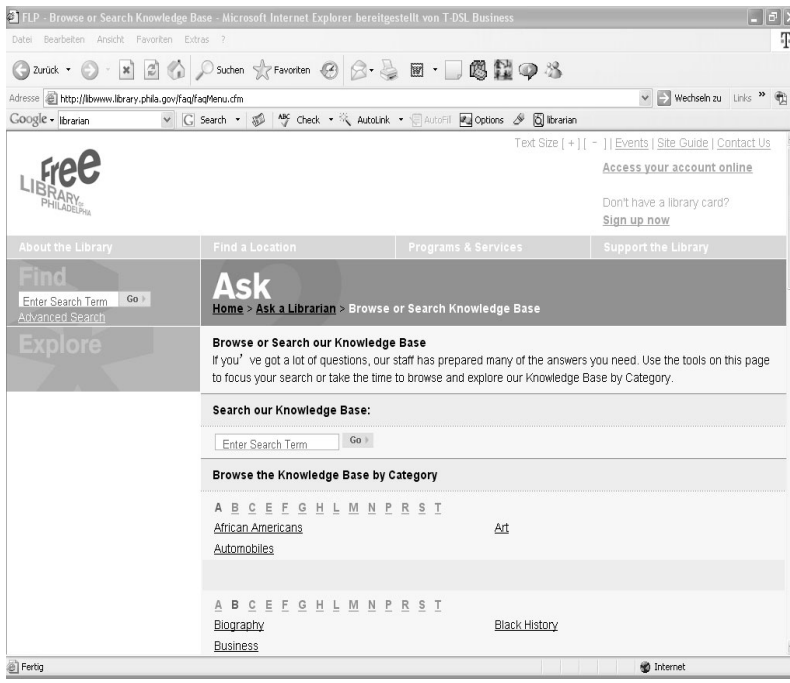



service of the Free Library of Philadelphia (FLP) reminds the user to check out its extensive knowledge base and provides separate windows to enable the user either to visit its most popular knowledge base topics or browse or search the FLP knowledge base (Figure 2.8). While browsing the knowledge base, the user needs to check the categories arranged alphabetically and then view the special questions under the particular category.

Sometimes, besides FAQ, the library provides other services that can be used before contacting the digital reference librarian. For instance, the Library of Congress 'Ask a Librarian' service establishes the 'Virtual Reference Shelf' website. On its web page, there is a selected list of free internet reference tools with links compiled by the librarian. The user is encouraged to review these resources before contacting the reference librarian for help. Such links to external resources can help the user to find information themselves, rather than taking time to use the digital reference service. This also works as a type of elementary education in the field of information literacy.

Unfortunately, some users exaggerate the uniqueness of their enquiries, and do not consult such archives before sending their own

**Figure 2.8** Free Library of Philadelphia 'Browse or search the knowledge base' window




questions. With this in mind, the digital librarian has not to only provide as much essential information as possible but must also make the FAQ archive user-friendly. Additionally, as mentioned above, inviting the user to suggest new FAQs could also be a good solution. Through this way, the archive may both attract the user and enrich the FAQ database simultaneously. To an extent, the visitor may be encouraged to use the service again.

Finally, it is necessary to note that user privacy must not be compromised. Accordingly, including the patron's enquiry into the FAQ archive requires their explicit permission. The 'Guidelines for implementing and maintaining ad hoc reference services' provide clear prescriptions for protecting the patron's privacy:

> Virtual reference communications between patrons and library staff should be private except as required by law.

> 5.3 Reference transactions may be used in the creation of databases and FAQs but care should be taken to maintain the privacy of patrons and the confidentiality of patrons' inquiries.[21]

## *E-mail reference service*

E-mail reference services can be divided into two subcategories: the basic e-mail reference service and the web form-based reference service. Using e-mail to send specific information requests to the librarian's given address began soon after e-mail communication became widely available. The web form-based reference service can be considered as an extension and improvement of this basic e-mail reference service.

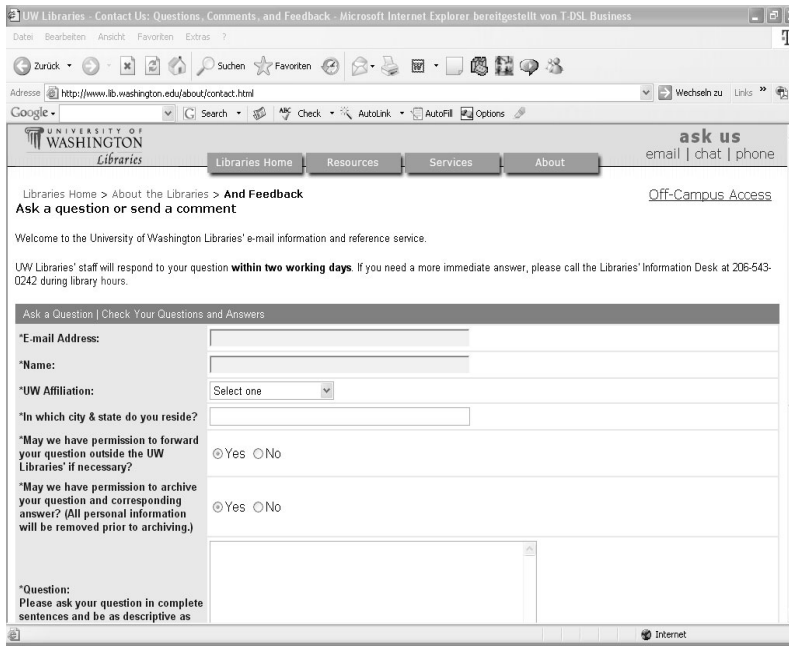
When using the web form-based reference service, the patron will be asked to complete a request form, and will later receive a response via e-mail. Web forms range from very simple to rather complicated.

The simple web form only requests crucial information. In addition to the question, the form usually requires the user's name, e-mail address, affiliation, etc. The University of Washington Libraries' e-mail information and reference service request form (Figure 2.9) belongs to such a category. It takes very little time for the user to fill the blanks.

By comparison, the complex web form is much more demanding. At first, the user will be asked to provide a lot of personal information, such as name, e-mail address and affiliation. They might also be requested to detail their education level, reason for the information search and so on. By knowing as much as possible about the patron, the digital reference librarian can provide a response to best meet the patron's need. The Internet Public Library (IPL) 'Ask a question form' (Figure 2.10) is a good example in this category. IPL is a pioneer in conducting both e-mail and chat reference services. As displayed in the figure, in order to help the user as precisely as possible, IPL attaches descriptions to explain the necessity of almost each block in the form.

The disadvantage of the simple e-mail reference service is that effective reference interviews cannot be conducted. Although the exchange of more e-mails may solve such problem in a sense, it would be better to get as much background information as possible about the user and the query in advance. This is the intention behind the complicated web-based query form. Nevertheless, it is preferable to let the patron keep the right to choose which fields to complete. This may mean making some web form fields obligatory while some leaving some optional. The patron could also be given the opportunity to choose whether or not the enquiry e-mail should be archived.

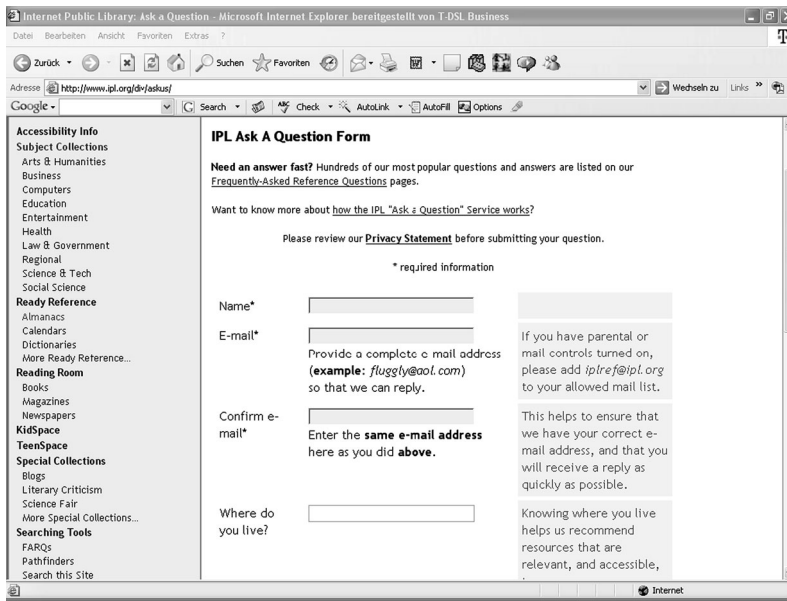
**Figure 2.9** Sample of a simple e-mail reference service web form




The response time of e-mail reference services ranges from two to five working days. This gives reference staff sufficient time to prepare the best answers using variety of means if necessary. Kristine Stacy-Bates once examined the responses of e-mail reference services on 111 sites provided by academic libraries in the US Association of Research Libraries. One of the conclusions she drew was that 'accuracy of response and use of direct or indirect answers were different for the various query types. The differences in type of response were expected due to the differences in type of query; the low accuracy rate on the population query was not expected.'[22]

As a part of a traditional reference service, current awareness has been considered for introduction into the digital environment. This could be as a follow-up or complement to the e-mail or chat reference service. Through the e-mail reference service, librarians get to know some users' special interests and concerns. When the library introduces a new database or service, it may be possible to inform the user whose interest or research subject is matched via the current awareness service. Although seemingly at the margin of the conventional reference service, current awareness services have been offered by libraries for a long time.

**Figure 2.10** **Sample of a complicated e-mail reference service web form**




A complete form is available from: *http://www.ipl.org/div/askus/*

Current awareness services have now been adopted by some digital libraries (e.g. the Research Papers in Economics digital library), and so a similar application should also be possible in the digital reference community.

One advantage of the face-to-face reference service is that the patron might get immediate help from the librarian to reduce confusion and improve their enquiry. Through the interactive interview, the patron and librarian follow a step-by-step approach to the information need, which can be too time-consuming to achieve via e-mail. Very often the librarian needs two to five business days to reply to an e-mail enquiry, although the response time is often shorter than promised. Such a problem is overcome by a real-time service, such as chat reference service.

## *Chat reference service*

The first 'live' customer chat service may be traced back to a fee-based reference and document delivery service provided by a company called

Telebase.[23] Using the chat service, the patron could get immediate help for satisfying an information need without delay and regardless of physical location.

> Chat is a text-based conversation that takes place in real-time between a librarian (and a user). Using special software, the librarian and patron type their messages to each other and receive each other's messages instantly. This service allows more natural and interactive conversations to occur, because unlike e-mail reference services, the patron feels like a librarian really is on the other end of the conversation.[24]

This is an effective method to deliver an immediate reference service to remote user populations. As such, the chat service is considered the best means for providing the digital reference and has been a hot discussion topic. In some cases, because of the obvious advantage over other kinds of digital reference service, chat reference is even considered synonymous with digital reference. For example, Ann Marie Breznay and Leslie M. Haas define the digital reference as 'the act of providing reference service via the web in real-time'.[25] As they declare in the same paper, the chat reference 'makes assistance available to the users at point of need in an easy and convenient manner'.[26]

For the user, a chat reference service might be one of the easiest ways to put forward a question and then get an immediate reaction. All that is required is to fill out a simple form in advance, and then start chatting with the librarian by hitting the 'start session' button. During the session, the patron follows the reference librarian's guidance until finding the resource that meets his needs. For the chat reference librarian, the task is much more challenging. Under the chat reference environment, there is often a heightened sense of pressure to respond to the user's query as quickly as possible. Key to successful response is understanding the enquiry precisely through reducing confusion gradually. Some additional skills are necessary in this context. Based on his own experience, David S. Carter, the former director of the IPL, has offered many practical suggestions for conducting successful chat reference.[27] He recommends that chat reference should take into account suitable equipment (e.g. a Mozilla-based browser), language (often delightfully informal), a sketch of the patron (getting it from every possible channel), pauses with periodic reminding, the art of prodding, short response, kind of resource (networked information resources are recommended) and so on.

Chat reference is much more complicated than e-mail reference, needing more staff and technical support. The features and needs of chat reference services can be found in Table 2.3. This is a a simplified version of the table created by R. David Lankes for the general digital reference model.[28]

Over time, a variety of software has been used to implement and improve chat reference services. The multi-user object oriented environment was used in the first real-time online reference service offered by the IPL in autumn 1995. In early chat reference, simple instant messaging software and locally developed open source software were employed. A major turning point in chat reference occurred with the adaptation of web-based contact centre software, which could fulfil almost all of the needs during a chat session, including co-browsing, patron queuing, tracking usage and so on. The development of the QuestionPoint package was a milestone in the digital reference environment, as it combines software for chat and e-mail reference in the

**Table 2.3** **Features and needs of the chat reference service**

| Feature and need | Real-time approach |
|---|---|
| **Co-browsing** | |
| To share licensed resources to identified patrons remotely | Proxy servers |
| **Queuing** | |
| To form patron queues for an available resource based on some priority measure | Queues for 'waiting rooms' |
| **Screen sharing** | |
| To manipulate user resources at the desktop level | Applet installation |
| **Expert routing** | |
| To send a question to the right expert based on certain criteria | Creating different queues |
| **User evaporation** | |
| To identify when a session was ended by patron choice rather than wondering if there is a technical problem, or if the user is simply taking a long time to respond | Having the patron affirmatively close a session (normally by hitting a button) |

cooperative environment. In the foreseeable future, voice-over IP, network meeting and other software with more complex features might be incorporated into the chat reference service. The selection of proper software for the chat reference is crucial for its success and development. The Teaching Librarian website offers an index of chat reference services sorted by software used.[29]

As chat reference services can be very expensive, and much preparation work is necessary before the start of the service. Advance instruction is necessary, as it is difficult for the user to read instructions during the chat process. Adequate resources are fundamental for guaranteeing a successful chat service. In addition, both expert knowledge and communication skills are essential when providing assistance in the practical chat session.

As with the face-to-face reference service process, through the online interview, the librarian and user approach the real information need through step-by-step modification of the query. During online communication, the librarian can send the web page to the user, who can check whether the reply is useful, using software with co-browsing functionality. This is the greatest advantage of the chat reference service compared with other reference modes, such as e-mail, instant messaging, telephone and fax.

The advantages of using chat for online reference can be summarised as:

- feels like a live reference interaction;
- eliminates problems of mishearing;
- user can save chat session text to refer to later;
- helpful for those with hearing or speaking impairments;
- can ease communication among those for whom English is not a first language.

Disadvantages of using chat for online reference include:

- takes time to adjust to the short, telegraphic messages sent back and forth;
- traditional reference interviews are probably not possible given the limits of what can be typed;
- does not allow for any non-verbal communication between user and librarian (there are no visual or auditory cues about the user, etc.);

- user may not have same level of patience with the librarian's efforts to help (in the online world, users typically expect everything to be instant, convenient and efficient);
- if user logs off prematurely, it may not be immediately apparent to the librarian, especially if the librarian is busy looking up something in a book or on a computer for the user;
- misspellings from the user;
- some librarians do not feel comfortable offering a reference service in this environment;
- cannot physically point to things (such as a page in a book) in the same way as at a reference desk.[30]

Users at different levels, especially in the university setting, have different preferences with respect to choosing digital reference methods. In March 2003, the University of Illinois at Chicago library examined the interrelationships among digital services in the library, focusing especially on the provision of reference and information services in the digital environment. Among other things, the project identified the number of questions the 'Ask a Librarian' service received between April 2003 and March 2004 through different digital reference modes (see Table 2.4). From this and other user-related statistics, the project members concluded that: 'E-mail was used more frequently for submitting questions. Faculty (77.1 per cent), graduates students (62.2 per cent), and visitors (71.7 per cent) were most likely to use e-mail; undergraduates were most likely to use chat (66.5 per cent).'[31] Additionally, based on his experience at Baruch College, Stephen Francoeur also commented that 'graduate students tend to be heavier users of e-mail reference and undergraduates fans of chat'.[32] Once again, these facts prove the

**Table 2.4** **Total questions asked of the 'Ask a Librarian' service at University of Illinois at Chicago Library, April 2003 to March 2004**

| | April | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chat | 98 | 31 | 43 | 43 | 50 | 112 | 113 | 79 | 64 | 102 | 107 | 152 | 994 |
| E-mail | 119 | 68 | 98 | 80 | 103 | 163 | 122 | 102 | 43 | 106 | 139 | 148 | 1,291 |
| Global question | 5 | 2 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 15 |
| Total | 222 | 101 | 145 | 125 | 154 | 275 | 235 | 181 | 107 | 208 | 247 | 300 | 2,300 |

necessity for maintaining different ways of delivering the reference service, as argued previously.

As mentioned above, a potential disadvantage of chat reference is that the virtual reference librarian suffers high pressure as regards the limited time. During the transaction, the librarian needs to pay full attention to satisfying the user's information needs. Meanwhile, they might be trying to minimise their response time as they worry about the build-up of patrons queuing to chat. If the enquiry is very complicated and few resources are to hand, the librarian may become more stressed. The collaborative digital reference service comes into being to solve such problems through sharing responsibilities within a network.

## Cooperative digital reference services

Digital reference services offer the potential for 24/7 service, free from spatial and temporal limitations. Nevertheless, it is unlikely that a single library would be able to offer all its patrons a genuine 24/7 service. In a sense, the library faces a dilemma. Ideally, it would like to provide such service as the digital reference hype has described, but the necessary financial and human resource investment makes this prohibitively expensive. In practice, few individual libraries or systems have the staff or the funds to offer a 24/7 service. Commonly, the work is divided according to the time arrangement; thus, during the standard working day (e.g. from 9 am to 5 pm), the library's own staff usually reply to queries. The digital reference service normally provides a clear statement on this point at an obvious position on the homepage. During the period extending this working day, some libraries arrange limited staff to manage the digital reference service. In some cases, professional librarians provide reference services from home during the non-working day.

With the growth of the World Wide Web, networks are now being used to support cooperative digital reference services, bringing a real 24/7 online service closer to realisation. Importantly, the online environment is uniquely suited to consortia models of work. The rapid popular growth of QuestionPoint is an excellent example of the tremendous development of collaborative digital reference services. As a virtual reference desk service, QuestionPoint includes local and global reference management tools and a 24/7 cooperative reference service.

By the end of 2002, over 300 libraries (40 per cent of which were outside the USA) were actively using QuestionPoint,[33] while a recent statistic reported that 'more than 1,700 libraries in 23 countries are using QuestionPoint'.[34]

The collaborative digital reference service was developed to provide digital references with shared information (e.g. knowledge base) and human resources more efficiently. It enables the 24/7 reference service to come into being and bring the individual library out of the abovementioned dilemma. It provides access to the shared experience of a network of reference librarians and subject experts on multiple levels, and reduces the working pressure by sharing it with partners within the network.

> The goal of the collaboration is to assist each service in reaching a higher standard of service to its patrons. Some services already meet a high standard for many criteria, although each has the capacity to increase service in some areas.[35]

According to Judith A. Truelson:

> there are several important benefits associated with collaboration. The first is the ability to offer virtual reference service on a time-share basis. An Australian/New Zealand-US collaboration affords the opportunity of offering 24/7 service without staffing nights in either location. Because of the 24-hour difference in time zones, each location can cover the other's night hours. Second is the automatic building of a database of all question and answer pairs, with capacity for editing Q&As, thus providing re-use possibilities, and options for self-service by users.[36]

The members of the virtual reference desk recognised that the primary benefit of participation in a collaborative digital reference service network is 'the ability to off-load out-of-scope and overflow questions (those that exceed the service's capacity for response) to the network for redistribution'.[37]

Initially, cooperation in digital reference provision happened only among the different departments within a single library, most commonly the large-scale and comprehensive library. In the Library of Congress, for instance, prior to the implementation of QuestionPoint in June 2002, around 200 librarians in 25 or so different reading rooms answered questions through e-mails with no central staff to coordinate the work.[38] This working model was very common among university libraries.

Since then, increasing numbers of library consortia have been established to provide a cooperative digital reference service. Some cooperative digital reference service consortia have been set up according to the region and type of the library, while some have been established to provide comprehensive coverage of a particular subject. For example, the Washington Research Library Consortium (WRLC) 'Ask a Librarian' service is a virtual reference service staffed by librarians from six WRLC schools in the Washington, DC area, including the American University, Catholic University of America, Gallaudet University, George Mason University, George Washington University, Marymont University, and the University of the District of Columbia.[39] This consortium was established in the early 1990s and its members have since conducted many cooperative activities including, since spring 2002, the provision of virtual reference services.

Nationwide cooperation in online reference services is becoming a reality. Canada is one of the countries to initiate a national virtual reference network. Information providers across Canada have now greatly enhanced access to reference information with the introduction of the Virtual Reference Canada (VRC) service. Hosted by the former National Library of Canada (now a part of the Library and Archives Canada), VRC is a free, dynamic and bilingual (English and French) initiative undertaken among the Canadian library and research institution community.[40] It is remarkable that different kinds of information institutions have been involved in VRC, including 'all types of Canadian libraries, information centres, archives, museums, art galleries and other research institutions that pride themselves on offering high-quality reference services'.[41]

In addition, international cooperation has also begun in the field of online services. Judith A. Truelson has presented practical guidelines:

> for establishing a QuestionPoint collaborative virtual reference partnership between academic libraries in Australia/New Zealand and the USA. These guidelines reflect the practices of the state-of-the-art collaborative QuestionPoint partnership, 'AskASERL' as well as the unofficial standards and guidelines for virtual reference services established by IFLA and NISO. [42]

She has also suggested a five-step procedure for forming an international virtual reference partnership. At the beginning of the twenty-first century, a consortium of public, national and academic libraries launched the pilot phase of a free online reference service to put researchers in quick touch with the library that could best answer their

questions. On 17 November 2000, the Collaborative Digital Reference Service, a project hosted by the Library of Congress in collaboration with the national libraries of Canada and Australia and some 60 other institutions, began taking questions that were submitted through consortium members.[43] 'The pilot program aimed to establish methodologies and systems for implementing a collaborative 24/7 reference service for libraries working together to serve diverse library user populations around the world'.[44] As the digital reference team of the Library of Congress 'Ask a Librarian' service, the Global Reference Network grew out of the project, and is now a facet of the QuestionPoint software network. 'Currently, it is possible to librarians using QuestionPoint software to refer reference questions to other libraries within the network, if they feel that other libraries may be able to provide additional support or expertise on particular types of questions'.[45] It is expected that such global cooperation will reach a new level in digital reference services and could also be a solution to problems such as non-native language and non-registered usage.

As cooperative digital reference services spread among various institutions, the establishment and comprehension of the commonsense and widely agreed protocol among partnering institutions will prove more important than within the independent environment. According to the International Federation of Library Associations and Institutions' 'Digital reference guidelines', collaborators must:

- establish a common vision of the services the new entity will provide;
- develop common guidelines for practice and procedures;
- build trust between partners – establish accountability;
- think through the issues that may constrain the delivery of shared resources, e.g. copyright law, licensing agreements, liability, national information policies, etc.[46]

## Other issues

The reference service is in fact very complicated, as it deals with transaction between human beings during which there might be numerous variants. With such a personalised service, many issues should be taken into consideration. For example, the reference interview is crucial to the success of a successful reference transaction. In the 2002 Annual Conference of the American Library Association, the

Reference & User Services Association (RUSA) president's programme, 'The reference interview: connecting in-person and in cyberspace' was selected as one of the major reference service programmes.[47] The autumn 2003 issue of *Reference Service & User Services Quarterly* accumulates three papers about the reference interview.[48–50] In the meantime, user privacy in the online reference is also a key issue. Neuhaus, Van Fleet and Wallace conducted comprehensive research on privacy and confidentiality in digital reference services and reported their investigation results in several meaningful tables.[51]

It is not possible to address all the issues in this book. As such, only three issues will be discussed briefly. These are fundamental to any digital reference service, and are attracting increasing attention.

## Necessity of guidelines and standards

The digital reference is a very practical and complicated matter that deals with many aspects, such as technical requirement, funding support, staffing, audience and so forth. To assure a successful, long-term digital reference service of high quality, especially in the collaborative environment, requires a set of well-developed and maintained guidelines. As Vera Fullerton comments, 'the unique nature of digital reference introduces a new realm of issues and challenges. The need for guidelines and standards becomes even more important as consortium-wide digital reference services continue to evolve.'[52] Bennett, Kasowitz and Lankes add that 'it is clear that there is a need for standards as digital reference evolves from a handful of AskA service and libraries offering digital reference to a common means of interacting with users'.[53]

As it is fairly labour-extensive to create such guidelines, some authoritative institutions have established widely accepted standards for common reference. A number of guidelines for digital reference services are available via the internet. Some of the most well-known ones include:

- IFLA (2006) 'Digital reference guidelines', available at: *http://www.ifla.org/VII/s36/pubs/drg03.htm* (accessed 14 March 2006).
- RUSA and MOUSS Management of Reference Committee revised (2004) 'Guidelines for behavioral performance of reference and information service providers', available at: *http://www.ala.org/ala/rusa/rusaprotools/referenceguide/guidelinesbehavioral.htm* (accessed 13 March 2006).

- MARS Digital Reference Guidelines Ad Hoc Committee and Reference and User Services Association (2004) 'Guidelines for implementing and maintaining virtual reference services', available at: *http://www.ala.org/ala/rusa/rusaprotools/referenceguide/virtrefguidelines.htm* (accessed 13 March 2006).
- The Virtual Reference Desk (2003) 'Facets of quality for digital reference services. Version 5', available at: *http://www.vrd.org/facets-06-03.shtml* (accessed 28 April 2006).

Additionally, 'the NISO Standards Committee AZ – Networked Reference Services – is developing a Question/Answer Transaction Protocol (QATP) to support exchange between digital reference systems collaborating in the processing of a question'.[54] The one-year trial of the digital draft of the protocol started on 5 April 2004. The digital reference world is currently looking forward to the release of its official version.

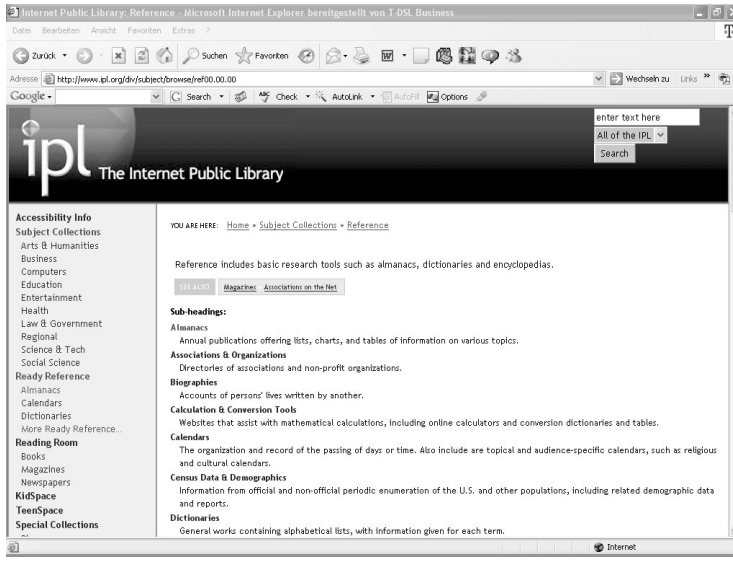
These guidelines and standards are effective tools for guiding libraries to implement a standardised service and helping them to control the quality of the online reference service they provide.

## *Virtual ready reference collection*

Although the digital reference service makes it easier to deliver the service to the remote user, the nature of the virtual reference environment presents challenges that are different from face-to-face exchanges. In the digital reference environment, especially during the chat session, the librarian has a heightened sense of pressure to respond to queries, and as such does not have an abundance of time to look for materials for the user. If the reference librarian also were only to use Google, one of the most popular search engines, for searching resources, what sense would it make for the user to ask for help from the library? A popular Chinese idiom says that for success in a venture, one must prepare one's tools well in advance. In other words, effective tools are prerequisites to success. Collection development for the digital reference (in this case, development of the ready reference collection) is just as important as in traditional circumstances. It has been suggested that 'a first step taken by libraries developing chat reference services would include the compilation of a Virtual Ready Reference Collection (VRRC)'.[55]

It is recommended to use networked information resources when supplying digital reference services. Thus, VRRC is normally composed of the elite ready-reference websites that are most often used during the

**Figure 2.11** Internet Public Library Ready Reference web page




online reference service. The IPL has set a good example for establishing an extensive VRRC. From the relevant web page (Figure 2.11), it is clear that a variety of digital reference websites have been accumulated according to the individual categories. Such a selection is not only necessary for the reference librarian but also very helpful to the user for self-education and self-service.

## *Multilingual cooperative digital reference*

A person who speaks English and Chinese planned to visit the French province of Alsace. As she could not find any information in English about accommodation in the area, she sent an e-mail enquiry to the National Library of France 'Ask a Librarian' service. She received a quick reply, giving her the URL of a website. Unfortunately, all the information in both the reply and the website was only in French. This is just a simple example of a language-related problem regarding digital reference services. Similar problems might happen in many cases that cause inconvenience and obstacles to the user.

One piece of encouraging news comes from the Berlin Central and Regional Library (Die Zentral- und Landesbibliothek Berlin, ZLB).

Berlin is an international metropolitan area with a large foreign population. Having considered the situation where many patrons might not be able to speak German, while the reference staff could not understand questions in foreign languages, ZLB provides a multilingual virtual reference service. After the QuestionPoint patron interface was available in several languages and had been translated into German, ZLB began using QuestionPoint in 2003, under the name InfoPoint. In 2004, ZLB signed an agreement with the Paris Library of Public Information (Bibliothèque publique d'information) to use QuestionPoint as the basis for cooperative virtual reference services, with each library placing question forms on its own website in the language of its counterpart library. Having made progress with three languages (German, English and French), the next step was to add Turkish, as Berlin has a large Turkish population. ZLB now actively looks for additional partner libraries in other countries in order to expand its service in additional languages. After a slow start, the number of libraries interested in participating in this endeavour increased rapidly in 2006. [56]

As of 9 December 2006, ZLB was offering digital reference services via InfoPoint in 17 languages, namely, Chinese, Czech, English, Estonian, Finnish, French, German, Greek, Italian, Korean, Latvian, Magyar, Polish, Romanian, Russian, Swedish and Turkish (see Figure 2.12). More will be coming in the future. The patron may start by choosing a question form in any one of the 17 languages. For example, in the case of clicking the 'English' button as shown in Figure 2.12, then a window with a question form in English will come next, as Figure 2.13 indicates.

If the question posted on the QuestionPoint form on the ZLB website is in a language that cannot be handled by the ZLB staff, it will be sent directly to the partner library to be answered. Conversely, ZLB has German-language forms on the websites of the partner libraries and when necessary it answers the German questions posted there. This requires that the libraries have 'branch reference desks' on the websites of the participating libraries within the cooperation network. If there is no QuestionPoint patron interface in the respective language, the partner library provides the translation. Both the partner libraries and patrons have benefited significantly from this type of reference service. In addition, having more library partners in various language areas also means a major increase in the number of queries. However, as Paul S. Ulrich, the information services librarian of ZLB, has said, 'We have to open the language doors so patrons can ask questions in a language they feel comfortable with, not a language the library is comfortable with'.[57]

**Figure 2.12** Berlin Central and Regional Library virtual reference service homepage

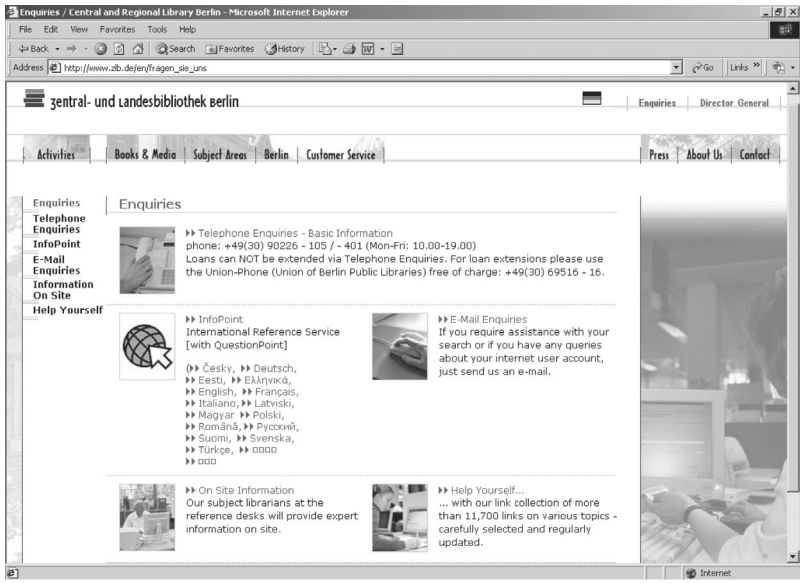
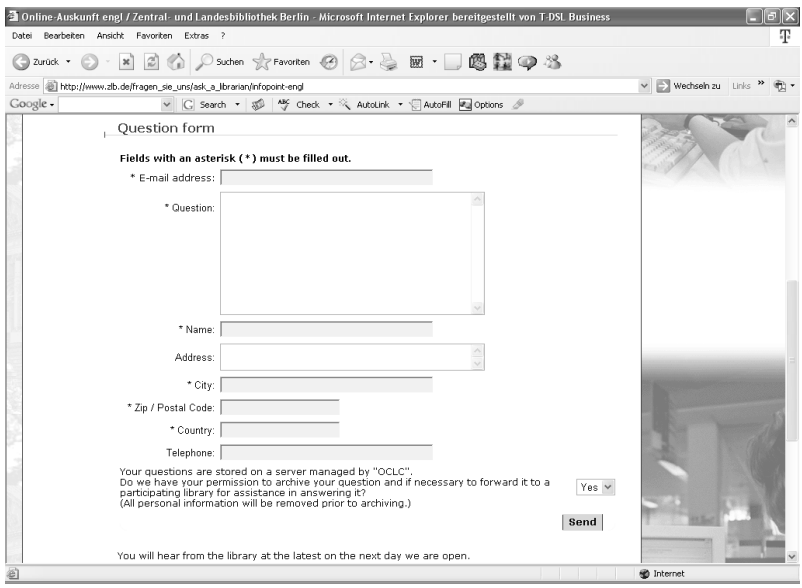



**Figure 2.13** English version of the Berlin Central and Regional Library question form



Many technical requirements for digital reference services have been met gradually. Now, it is time to turn more attention to the human need. With growing internationalisation, calls for respecting and maintaining the diversity of culture and language are growing louder. The digital reference serving the human intellectual need cannot lag behind. A brighter future with sustainable development of digital reference services is to be expected.

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# Evaluating digital reference services

In a live webcast from the Library of Congress on 10 February 2003, Joseph Janes argued that the digital reference service would do matter if 'we serve more people better and more efficiently than before'.[1] The rise in the number of digital reference users has proved that online reference services really do matter. However, vague and empty advocacy alone cannot reflect the true importance of the digital reference service, or how well or badly it functions. Practical evaluation is the only way to provide such evidence.

At the beginning of the twenty-first century, many people commented that evaluation of digital reference services was still underdeveloped. McClure and Lankes describe that 'Most libraries don't have good measures of the effectiveness of providing reference services electronically, and the only thing certain about the future of the rapidly changing reference environment is continued change'.[2] A survey of digital reference services conducted in 2002 also found that only 9 per cent of respondents had evaluated their services.[3] Many professionals have since worked to address this absence of thorough evaluation. Indeed, a variety of efforts have now been made towards evaluating online reference services, with many websites publishing useful information resources for such evaluation. The USA was one of the first countries to develop online reference services successfully. The American Library Association (ALA) established the Project Assessment and Evaluation website,[4] which collects a range of good instructions on project assessment as well as specific tools and techniques in the digital reference field. Furthermore, the establishment of standards and criteria in the field implies that assessment of digital reference services has entered into a stable period of development.

In this chapter, three sections will be dedicated to a series of discussions on the subject of digital reference service evaluation. The first section will describe the necessities and importance of digital reference

evaluation. The targets for evaluation will be discussed in the second section as the evaluation scope gets progressively narrower. The third section addresses the evaluation methods suitable for digital reference services. An evaluation workflow is suggested in the fourth section. Finally, some standards and criteria for evaluating digital reference services will be outlined.

## Necessity and importance

Van House et al. describe evaluation as the 'comparing of "what is" with "what ought to be"'.[5] McClure notes that evaluation tells us whether a project is effective with respect to the goals and objectives of the organisation and whether the service uses allocated resources efficiently.[6]

To establish a user-oriented service, the institutions involved in providing the digital reference service need to evaluate their service regularly. Evaluation can provide proof to show whether the service meets its users' needs properly, on which aspect improvements should be made, whether the costs for the service are economical, whether staffing for the service is reasonable, and so forth. As Wasik declares:

> without proper assessment and evaluation, it is virtually impossible to identify whether the service is actually meeting its goals, and whether the service is making the best use of its available resources. Some organisations, however, are reluctant to evaluate their services, as such undertakings can be both expensive and labor-intensive.[7]

As library budgets are shrinking, evaluation is particularly important for developing digital reference services.

> Library administrators need strong, grounded metrics and commonly understood data to support digital reference services, assess the success of these services, determine resource allocation to services, and determine a means for constant improvement of digital reference within their institutions.[8]

In an cooperative working environment, it is essential to determine common definitions of successful and qualified digital references. Service evaluation has become the final element in guaranteeing the success of the service. At the Virtual Reference Desk (VRD) Conference held in

October 2000, Seattle, 'the growing digital reference community identified assessment of quality as a top research priority'.[9] Each guideline for implementing digital reference services takes evaluation as a necessary procedure. For example, the 2004 'Guidelines for implementing and maintaining virtual reference services' prepared by the MARS Digital Reference Guidelines Ad Hoc Committee, Reference and User Service Association stipulate that 'a virtual reference service should be analyzed regularly, using input from staff and patrons, to evaluate its effectiveness and efficiency, with the goal of providing a high-quality service'.[10] In addition, the evaluation procedure has now become an inevitable part of the policy and strategy for implementing an institution's digital reference service to ensure its sustainable development.

In fact, 'as with any service, digital reference services benefit from regular evaluations to ensure a quality product and to gather data for continued support from the organisation'.[11] The practice has demonstrated that 'ongoing review and assessment helps ensure quality, efficiency, and reliability of transactions as well as overall user satisfaction'.[12]

# Evaluation targets

After the necessity and importance of evaluation is confirmed, targets for evaluation should then be decided. From comprehensive approaches to one aspect or several aspects, the scope and depth of the digital reference assessment may differ significantly.

## *Comprehensive approaches*

Many endeavours take a comprehensive approach to evaluating their digital reference service. In this way, they aim to evaluate as many aspects of the service as possible.

Marianne Hummelshoj presented a model of evaluating and developing reference services on library websites via the internet. The model illustrated four types of services: information services, value-adding services, communication services and transaction services.[13] Suggesting a best model of a reference service, Tyckson argues that:

> reference service is based upon a set of core functions that have remained valid since the earliest days of the pubic library

> movement. Inherent in those functions is a set of core values, including accuracy, thoroughness, timeliness, authority, instruction, access, individualisation, and knowledge.[14]

These core values have maintained the same importance in the networked reference service environment. Providing more detail, Jo Bell Whitlatch states that members of the organisation that provides the digital reference service should focus on the following key values:

- *economics*: the cost or productivity of services;
- *the process*: aspects of librarian/reference system and user interaction;
- *resources*: books, indexes, databases, staffing levels, equipment and design of physical or electronic environment;
- *product/outcomes*: information or knowledge obtained by users.[15]

McClure and Lankes identify the following areas to be included in the assessment of evaluation and impact:

- outcome measures (quality of answers);
- process measures (effectiveness and efficiency of the process);
- economic measures (costing and cost-effectiveness of digital reference);
- user satisfaction (degree to which users engaged in digital reference services are satisfied with the process and the results).[16]

As a further step, they suggest some quality standards for a successful digital reference service, as recorded in Table 3.1.

A consortium of experts, under the auspices of the US Department of Education's VRD, developed detailed levels of digital reference quality. The group recommends ten indicators for evaluating a digital reference service:

- *accessibility*: availability via the Web;
- *prompt turnaround*: a target of 100 per cent response within one to two working days;
- *clear policies*: from question-answering procedures to types of answers provided;
- *interactive*: real-time reference interviews and response;
- *instructive*: provision of subject experts to answer queries, in addition to offering clues to what the user may obtain;

**Table 3.1** Quality standards of the digital reference services

| Quality standard | Description |
|---|---|
| Courtesy | The behaviour of the library or institution's staff |
| Accuracy | The 'correctness' of answers provided by a digital reference staff member |
| Satisfaction | Users' determination of their success in interacting with the digital reference service |
| Repeat users | The percentage of users that reuse a service after first encounter |
| Awareness | The population user group's knowledge that the service exists |
| Cost | The cost per digital reference |

Source: Lankes, R. D., Gross, M. and McClure, C. R. (2003) 'Cost, statistics, measures, and standards for digital reference services: a preliminary view: academic libraries', *Library Trends* (Winter), available at: *http://www.findarticles.com/p/articles/mi_m1387/is_3_51/ai_102270884* (accessed 23 February 2006).

- *authority*: subject experts who can answer questions and tell the user how to find answers online;
- *privacy*: all communications between users and the library are considered confidential;
- *review and evaluation*: a periodical process to check user and staff satisfaction;
- *provide related information*: show basic resources on the Web as well as lists of links, frequently asked questions, etc.;
- *publicise services*: inform potential users of the value that can be gained from use of the service.[17]

Overviews about digital reference evaluation can be found in research such as Wasik's 'Digital reference evaluation',[18] and Gross and colleagues' 'Assessing quality in digital reference services: overview of key literature on digital reference'.[19]

## Focusing on an institution or a consortium's digital reference service

To satisfy diverse user needs as best as possible, many libraries provide a range of internet-based reference services. Evaluation of the different

kinds of digital reference service provided by an institution or a consortium can be very useful in measuring the popularity of each system, identifying its user base and understanding patrons' preferences. Through such evaluation, the pros and cons of various digital services in the same setting can be identified and be compared. Such information found through the evaluation will help guide the administrator's decisions in balancing staffing, financial investment and so on between the different services. Furthermore, such evaluation can provide a good opportunity to display the superiority of digital vs. traditional reference services, as well as the underlying similarities between the two. Normally such assessment is more practical and concentrated compared with the comprehensive approach. The abovementioned core values, indicators and facets could definitely be used in such a case, in addition to any specialities peculiar to the specific project.

A recent evaluation of the Southeastern Louisiana University Library's 'Ask a Librarian' service included an unobtrusive observation of current practice through a detailed examination of archived reference transactions, as well as an assessment of future needs through a survey of users. Through this evaluation, the library assessed the effectiveness of its e-mail reference service and planned the implementation of a new real-time digital reference service.[20]

Ruth A. Hodges evaluated digital reference services from a user perspective, by examining the digital reference questions received at a southeastern USA consortium-affiliated library from January to March 2001. Content analysis and descriptive statistics were used to analyse the data regarding the general subject, item type, question type and information services/policy.[21]

Evaluation of the digital reference service in the consortia environment might be more difficult to implement than in the independent institution due to the necessity of broader collaboration and synthesis. In the spring of 2002, the Washington Research Libraries Consortium (WRLC) launched a six-week virtual reference pilot, marking the first time in which reference librarians across the consortium collaborated on a service of this magnitude. The pilot ended in May 2002 and the summer was spent evaluating and assessing the service. The data and anecdotal evidence collected demonstrated great interest among patrons for virtual reference, and alleviated some of the concerns expressed by librarians during the initial proposal of this service. The data generated during the project provided invaluable information on patron behaviour, librarian training needs, when to offer the virtual reference service, and the

number of weekly staff hours each consortium library should contribute. The pilot showed that:

> creating a culture of assessment is becoming a priority within libraries and this should be extended to virtual reference services. It should not be limited to the pilot phase; assessment should be an integral part of the service in order to continue learning and improving it.[22]

## *Focusing on a single digital reference service*

As described in the previous chapter, digital reference service can be roughly divided into two opposite categories, namely asynchronous and synchronous. In turn, these two kinds of service include their own sub-categories. Some evaluation projects focus on evaluating only one particular kind of digital reference among these categories.

The e-mail reference service is an early reference service provided on the network. Nevertheless, research and evaluation of this service has never received much attention. The number of such studies is far lower than those evaluating the chat reference system, which appeared later but is much more complicated. Horn and Kjaer evaluated the University of California, Irvine 'Ask a Question' service, which at that point was an e-mail reference service. Their paper examined the three methods used by the library to evaluate its electronic library service: statistical analysis, user surveys and quality review.[23] The project that will be explored in depth in the next chapters also enriches this area.

Almost from its very beginning, the chat reference service became the focus of evaluation studies. With its growing popularity, there have been an increasing number of projects evaluating the service, with studies getting progressively deeper as evaluation methods and standards have developed. For instance, White et al. reported a pilot study for evaluating chat reference service quality. This involved:

> obtrusive observation techniques to look at several aspects of chat-based reference service 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 addressed the quality of output by assessing the accuracy and completeness of answers provided to chat reference service clients.[24]

In addition, Ronan and colleagues identified obstacles to evaluating chat reference, which they grouped into four areas: organisational structure, scarcity of resources, newness of the service, and difficulty in developing techniques of assessment or applying existing methodology. They also provided some recommendations to handle these obstacles.[25]

Some research has evaluated multiple kinds of digital reference. For example, Kaske and Amold, together with their students, made a simultaneous evaluation of chat and e-mail reference services. They developed a set of 12 questions for 36 chat services and 36 e-mail services. Using their results, they outlined general observations on the quality of electric reference services.[26]

Evaluation focusing on latest online services, such as instant messaging, is understandably popular. Ruppel and Fagan, for example, surveyed university students who used Morris Messenger, the instant messaging reference service at Southern Illinois University Carbondale's Morris Library.[27]

Evaluation of different kinds of digital reference often needs different methodology. For instance, the following questions could be used for evaluating the chat reference service but not the e-mail reference service:

- How much time is taken for the librarian to react?
- What technology is used for sharing the information resource with the user?
- Does the librarian guide the user to find the information resource through describing the searching strategy?
- Does the librarian end the session before the user is completely satisfied?

## *Focusing on one aspect of the digital reference service*

The topic of digital reference services is very broad, and deals with many tiny issues. Each individual issue could be a good subject for evaluation. Some studies evaluate only a particular aspect of the digital reference service in order to focus energies on conducting research in great depth. The session transcript and satisfaction survey are often used in evaluating the online reference:

> The session transcripts capture the reference interview for the first time, providing a useful tool for both training and evaluation. The satisfaction survey generated at the end of the session is also quite

> useful in getting feedback from our patrons. Virtual reference takes advantage of these and other assessment tools.[28]

Question negotiation that is crucial for a successful chat session is also an interesting issue for research. For example, Janes and Silverstein discuss question negotiation and the technological environment.[29]

The cost issue is an important aspect of digital reference services that has recently received significant attention. The economics of digital references are inevitably a hot topic for evaluation as finance is the lifeline of the library. According to R. David Lankes:

> assigning costs to reference service is a complicated task but one that must be faced in order to realistically assess the true costs of doing business, to make assessments about the most efficient ways to provide services, and to determine how to share the costs of this service in setting up and participating in collaborative service models.[30]

A select bibliography focusing on documents about measuring and evaluating reference costs is provided in the proceedings of the 2003 Virtual Reference Desk Digital Reference Conference.[31] Though the digital reference is not the sole focus of all these documents, many useful experiences and lessons in evaluating the cost of digital reference services can be found in the documents included in this list.

Murfin and Bunge offer four methods for assessing cost effectiveness in academic libraries:

- formula for determining the full cost of the reference transaction;
- a reference service cost-effectiveness index based on success, helpfulness, accessibility and time/cost;
- cost (time taken) per successful question;
- a cost-benefit formula.[32]

These formulas were used in the Wisconsin-Ohio Reference Evaluation Program. They could be taken as the starting point for addressing the current issue of how to evaluate the cost of a digital reference service.

## Evaluation methods

J. C. Bertot, C. R. McClure and Ryan J. McClure suggest that assessing the quality of services in an electronic or networked environment is

complex and requires multiple methods of assessment. Meanwhile, for the assessment techniques to be useful in a library setting, the procedures and methods need to be practical and easily implemented.[33] Both these points should be noted when choosing a method for evaluating a digital reference service.

In fact, evaluating a digital reference service should be easier than evaluating a traditional reference service such as a face-to-face or telephone reference service, as it is feasible to get the text-based record for the online reference session, which is a fundamental document for evaluation. Lankes and colleagues point out that 'digital reference lends itself to greater and more precise analysis ... in digital reference an auditable record of the whole reference transaction is available for analysis'.[34]

Nevertheless, until Melissa Gross et al. published an overview of key literature on digital reference in November 2001, 'the majority of the evaluation attempts reported are anecdotal, suffer from weak methods, and provide only a limited analysis of the service'.[35] According to their summary, the main strategies used in evaluating digital reference systems are the analysis of question logs and user surveys. Fortunately, more methods have been successfully adopted in the field since then.

In respect of evaluation methods, it has been questioned whether traditional research methods invented in the printed world could be applied to assess reference services in the digital environment. Having examined a number of previous research projects, Jo Bell Whitlatch argues that traditional research methods remain useful, and outlines the application of four such methods for evaluating reference services in the online environment.[36] Joann M. Wasik has also compared applications of the same evaluation methods identified by Whitlatch.[37]

Generally, the methods mentioned most frequently for evaluating the digital reference service are:

- *Survey and questionnaire*: 'A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population.'[38] The internet is particularly suited to conducting surveys and questionnaires, though the response rate might not be as high as expected. As a part of follow-up, surveys and questionnaires can be sent as soon as an online reference service transaction has ended. Sometimes, the inclusion of a survey or questionnaire in the follow-up procedure is considered the final part of a digital reference session.
- *Observation*: Observation is much easier to be conducted in the face-to-face situation. In the traditional environment, unobtrusive

observation is very often used for collecting data that could be tested directly from the interaction. As with the virtual reference service, 'observation has taken the form of sending questions with predetermined answers to services to test their responses'.[39] During the chat session, a few important parameters could be set with this method. These could include the time between the user sending the enquiry and the digital reference librarian or system first reacting; friendliness and timeliness of the reference librarian to the patron; sharing the research strategy with the user, etc.

- *Interview*: The reference service is conducted through interaction between the reference librarian and the user. Interview is an important method for the reference librarian to collect information about the real user need. It is time-consuming to have interviews via e-mail, but feasible via chat, instant messaging and so on. Through such real-time interaction, the digital reference librarian helps the user to achieve their information need step by step. For the evaluating purpose, much information could be gained from individual and focus group interviews.
- *Case study*: The case study uses a combination of assessment methods to analyse services in a particular situation. The experiences and lessons gained from the special case might be extended to a more common environment. This method is often used in the digital context because it can be conducted without leaving too much to chance. It has great potential to help researchers and practitioners to improve their understanding of the digital reference service.

Each method has its own strength and weakness. Consequently, it would be good to use as many as possible so as to achieve effective evaluation results.

## Evaluation workflow

Evaluation is essential for administrating the virtual reference. Accordingly, each guideline for implementing the reference service should take the evaluation into consideration and address it appropriately. As prescribed in IFLA's 'Digital reference guidelines', the following work should be done to evaluate the digital reference:

- conduct user surveys of both patrons and staff; monitor concerns, problems and questions from staff and patrons;

- compile and evaluate statistics of service activity, as well as possible technical or policy issues;
- implement changes to services based upon statistical analysis, and librarian and patron feedback.[40]

Evaluation projects should encompass a number of different procedures, and written evidence should be maintained for future examination and modification. A general description of the workflow of an evaluation project is proposed below, which could be extended to other areas:

- *Planning an evaluation project*: During the initial period, the project aim, target for evaluation, research methods, participants, etc. should be planned. As the duration of the project would normally have been defined before this period, it should be possible to create a timetable for the project, including clear job distribution. If applicable, the investigation questionnaire should be created at this point.
- *Selecting samples*: Sample selection has a major effect on the evaluation results. The size and scope of the sample should be carefully considered at this stage. In some cases, it is better to prepare more samples than are really needed. Under such circumstances, the extra samples can be used to substitute the invalid samples so as to guarantee the success of the whole assessment project.
- *Designing an assumption*: Hypotheses and general questions are normally used for focusing the purpose of the study. The hypothesis implies the prediction of the project result. The general research question outlines the researcher's initial interest. Together, the hypothesis and general research question make the research more deliberate and rigorous.
- *Evaluating and collecting evaluation data*: In a sense, the above steps are preparation for the project. When the preparation is complete, the project enters into this official stage. Investigations with the questionnaire (if applicable) and interviews would be conducted at this point. It would be ideal to use qualitative descriptive statistics and quantitative measurement data comprehensively so as to create a more objective conclusion.
- *Analysing the evaluation data*: The evaluation data often only reflect the phenomena. Content analysis and other unobtrusive methods might be used to dig out the essence hiding behind the surface. Applications, such as Excel, are good tools for organising and

analysing the data. Tables and graphics are undoubtedly very useful for displaying results in a direct and vivid manner.

- *Checking the validity of the assumptions*: Based on the analysis of the evaluation data, the researcher should be able to make a judgment about the validity of the assumptions made previously. The answer to the general research question should be also achieved at this stage.
- *Writing the final evaluation report*: In the final stage, a report about the project should be produced, with the most important findings outlined in its conclusion. The judgment and, if necessary, modification of the hypotheses and answers to the general question should also be included in the final report. Ideally, suggestions for further research would be advanced at the end of the report.

The above is only a brief outline about a project for assessing digital reference services. More in-depth instructions about the steps of an evaluation programme are available from the University of Wisconsin – Extension's 'Program development and evaluation' website.[41] Although the website is not specifically designed for a digital reference evaluation project as such, it provides a series of extensive reference materials about implementing an assessment programme, offering the reader thorough guidance from the preparation period until the end of the project.

## Standards and criteria

Criteria and standards for assessing online reference services have been the focus of several researchers, from which successive research and practice have benefited very much. In addition to the guidelines mentioned in the previous chapter, certain standards and criteria have been developed from projects to define a successful digital reference session and provide guidance to realising such success.

Katz notes that successful reference transactions are effectively about good customer service, which involves establishing good communication, building relationships, and above all, listening to users.[42] Bennett et al. also argue that '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'.[43] These are both general prerequisites for a successful reference service.

Further efforts have subsequently been made in establishing systematic standards and criteria in evaluating the digital reference. Charles McClure et al. provide a practical set of guidelines and procedures for the assessment of digital reference services in a project funded by the Online Computer Library Center, the Digital Library Federation, the Reference and User Services Association and a number of public and academic libraries.[44] This project has had a profound effect on the following activities for establishing standards and guidelines for the digital reference and conducting the digital reference service. In addition, the board of the Digital Reference Education Initiative (a project headed by the VRD) provides a set of rubrics to describe core competencies for the performance of digital reference. These competencies can serve as a basis for training, the development of standards and policy, and as a framework for digital reference assessment.[45]

There have been also discussions about the standards for evaluating the virtual reference service provided by consortia. In the context of the collaborative digital reference service, standards are vitally important for stipulating the behaviour of the various participants. Early in 2000, Kasowitz, Bennett and Lankes identified a working set of standards to assess individual digital reference services designed for the VRD's AskA consortium. They found that the standards could serve as a model for digital reference consortia and cooperation in general. Therefore, they conceived the standards in the context of traditional and digital reference evaluation, described the process by which the standards were created and revised, presented the standards as defined by multiple levels of adherence, and applied the standards to other digital reference contexts and consortia.[46] The VRD, sponsored by the US Department of Education, provides an extensive discussion of and framework for the assessment of digital reference services used by the VRD to set a standard of services for participants in this network. These standards are applicable to all types of digital reference services, including K-12 services and consortia.[47]

Some criteria and standards have been developed for evaluating one or more aspects of the digital reference service. According to Mizzy and Mahoney, the selection criteria of the electronic materials that are preferred during the digital reference session usually include factors such as authority, scope/coverage, accuracy/objectivity, currency, organisation/ease of use, uniqueness, reliability and special features.[48] Lankes et al. established a set of standards especially for measuring and evaluating the cost of digital reference services.[49] They propose two categories of standards, namely utilisation and technical standards (see Table 3.2).

**Table 3.2** **Preliminary typology of digital reference standards**

| | | |
|---|---|---|
| Utilisation | Quality | Courtesy |
| | | Accuracy |
| | | Satisfaction |
| | | Repeat users |
| | | Awareness |
| | | Cost |
| | Performance measures | Descriptive |
| | | Log |
| | | User |
| | | Cost |
| | | Staff |
| Technical | Question interchange | |
| | Profile | |
| | Knowledge base | |

Source: Lankes, R. D., Gross, M. and McClure, C. R. (2003) 'Cost, statistics, measures, and standards for digital reference services: a preliminary view: academic libraries', *Library Trends* (Winter), available at: *http://www.findarticles.com/p/articles/mi_m1387/is_3_51/ai_102270884* (accessed 23 February 2006).

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# 4

# Views from the western world: evaluation by the German team

The focus of this book now shifts to the project first mentioned in the introductory chapter, which is in fact the main reason behind this book. The research project in question was undertaken simultaneously by students in Germany and China. The present chapter provides detailed information about the working procedures and results on the German arm of the study, while the following chapter provides similar information for the Chinese arm.

Based on the presentation files and reports completed by the German project members, this chapter follows a logical approach to report the subproject implemented by the German group, clarifying items of potential confusion, and correcting discrepancies identified within the research documents.

In total, there are four sections in this chapter. The first section deals with the participants and work distribution of the German group's subproject. Following this, the subproject timetable will be discussed. The third section describes the workflow, while the final section reports the results.

## Group division and work distribution

Under the guidance of Professor Ingeborg Simon, 15 German students from the online reference service evaluation seminar participated in the project (Table 4.1). They were divided into six teams as below:

- project management;
- specialised literature;

**Table 4.1** German participants

| | |
|---|---|
| Mentor | Professor Ingeborg Simon |
| Specialised literature team | Anja Seitz |
| | Dana Wipfler |
| Project management team | Isabell Leibing |
| | Stephanie Löb |
| Testing libraries team | Tanja Blickle |
| | Christian Herbart |
| | Barbara Linter |
| Guidelines team | Lena Grether |
| | Beate Luik |
| Evaluation team | Ninja Benz |
| | Christina Kammerer |
| | Isabelle Reichherzer |
| | Margit Wünsch |

- testing libraries;
- guidelines;
- evaluation;
- presentation.

Each team was responsible for one task or several tasks within the project. For example, the project management team's responsibilities were:

- coordination of the teams;
- time management;
- preparation, moderation and taking the minutes at the meetings;
- cooperation with the Chinese students;
- writing the overall report.

In addition, all information and materials about the project were ultimately accumulated by the project management team.

The project instruction document (see Appendix B) was used for clarifying the participants and work of each team.

## Timetable

This cooperative project was initiated as part the online reference service evaluation seminar at the Faculty of Information and Communication, Stuttgart Media University. It was carried out during the summer semester of 2005.

The milestones of the German side's subproject are as follows:

- 1 April: collect and preview the literature, design main question and hypotheses.
- 22 April: select libraries for evaluation, set up guidelines and scenario.
- 25 April: pretest and then start the test officially.
- 6 May: end of the test and start of evaluation.
- 27 May: present the statistical results of the evaluation.
- 14 June: presentation.
- 15 June: draw conclusions and discuss.

## Workflow

The implementation of the project on the German side could be divided into three periods:

- *preparation*: collecting and previewing literature, drafting criteria, main question and hypotheses, selecting libraries, drawing up evaluation guide and scenario, and pretesting;
- *test*: testing libraries and recording and collecting data;
- *summarisation*: organising statistical results with Excel, making conclusions and having discussions.

### *Collecting and previewing literature*

In 2004, a student of the Stuttgart Media University wrote a thesis on the subject of reference services; this is the first item in the following literature list. At the beginning of the summer semester of 2005, Professor Simon invited the students to take a look at this thesis, before

collecting more professional documents for reference. The following list was subsequently created:

- Kupfer, D. (2004) 'Die Interaktion im Auskunftsdienst: Face-to-face-, Telefon-, e-mail- und Chat-Auskunft im Test [The interaction in reference services: face-to-face, telephone, e-mail and chat reference service on trial]', diploma thesis, Stuttgart Media University.
- Reference and User Services Association (2004) 'Guidelines for behavioral performance of reference and information service providers', available at: *www.ala.org/ala/rusa/rusaprotools/referenceguide/guidelinesbehavioral.htm*.
- Dewdney, P. and Sheldrick Ross, C. (1994). Flying a light aircraft: reference service evaluation from a user's viewpoint', *Reference Quarterly*, 34(2): 217–30.
- White, M. D., Abels, E. G. and Kaske, N. (2003) 'Evaluation of chat reference service quality', *D-Lib Magazine* 9(2), available at: *www.dlib.org/dlib/february03/white/02white.html*.
- Mayr, P. (2002) 'Von Geschichten Checklisten und würdevoller Transformation. Wege zu benutzerfreundlichen (Bibliotheks)-Websites [From histories, checklists and qualified transformation: the way to the user-friendly websites (of libraries)]', *BuB* 54(4): 233–5.
- Schulz, U. (2002) 'Das stiehlt nur meine Zeit: über die Nutzungsqualität von Bibliothekswebsites [It only steals my time: about the use quality of the library websites]', *BUB* 54(4): 224–9.

In this reference list, the RUSA guidelines were regarded as the fundamental document for creating the project's evaluation criteria. Other documents in the list were useful for the students to get primary knowledge about the digital reference service before evaluating the service.

## *Drafting criteria, main question and hypotheses*

While designing the evaluation criteria, the German team members established two sets of criteria, namely objective and subjective. The objective criteria followed the RUSA guidelines, dealing with five main areas of the remote reference service, as below:

- approachability;
- interest;
- listening/enquiring;

- searching;
- follow-up.

Additionally, the team set up five subjective criteria for the purpose of quantitative statistics. The subjective criteria were drafted on the basis of the Dewdney and Ross (1994) article. These were:

- friendliness;
- understanding the question;
- usefulness of the response;
- patron satisfaction;
- willingness to return.

Meanwhile, to define the fundamental tone of the project, the project team defined the main question, as 'How user-friendly and professional is the e-mail reference service from foreign patron's point of view?' The main question was driven by four principal hypotheses:

- e-mail reference services are not as universally user-friendly and professional as they should be;
- e-mail reference services differ from country to country;
- e-mail reference services in Scandinavia and the USA are more user-friendly and professional (due to longer experience);
- Chinese and German students evaluate reference services differently.

In the final period of the project, the conclusion was informed following reappraisal of the hypotheses.

## *Selecting libraries*

The German project members planned to evaluate the e-mail reference services of 200 libraries from across the world. While looking for the libraries for evaluation, the following points were considered:

- providing e-mail reference service in English;
- free of charge;
- available for everybody;
- on all five continents (the Americas, Europe, Africa, Asia, Australasia).

The project initiators, i.e. the two teachers, initially wanted to evaluate only university library e-mail reference services. However, when the students searched these services, it was found that the number of available services meeting all of the above conditions was far below what they wanted. It was therefore necessary to expand the type of the libraries to be evaluated. As such, national libraries were added to the sample, as the evaluators believed that such libraries normally represent the top level of library service in a particular country or area.

The following strategies were taken when pursuing the libraries:

- *Searching on the internet*: The following websites were used in searching for libraries for evaluation
  - *Libweb: Library servers via WWW* (*http://lists.webjunction.org/libweb/*): Licensed under a Creative Commons Attribution-Noncommerical-ShareAlike licence, the Libweb website currently lists over 7,500 pages from libraries of over 135 countries all over the world and is updated daily. The user may either browse through categories organised according to the names of the area, or search with keywords such as location, library type, name or other information.
  - *The European Library* (*http://www.theeuropeanlibrary.org/portal/index.html*): Hosted by the National Library of the Netherlands, the European Library is useful for checking the content of European national libraries. The portal offers access to the both digital and non-digital resources (books, magazines, journals, etc.) stored in the 45 national libraries of Europe. The students made use of the list of the libraries within this website to identify the European national libraries for evaluation in this project.
  - *Universities in Africa (http://www.uni-koeln.de/phil-fak/afrikanistik/weblinks/uniafrika.shtml*): On this web page, the Institute of Africa Studies of the University of Cologne provides a list of the universities in Africa. It helped the project members to locate the African universities that are not as easily found as universities in other continents.
- *Checking the atlas*: Atlases were very useful tools for the students to search for cities they assumed would have a university. After locating the university, they checked whether its library met the inclusion criteria.

## *Drawing up the evaluation guide and scenario*

The so-called evaluation guide (see Appendix C) in this project is actually a questionnaire. It is both a tool for testing e-mail reference services and a data-gathering instrument. The evaluation guide was drafted on the basis of the previewed literature as well as the main question and hypotheses. A logical questionnaire was key to the success of the whole project.

At the beginning of the evaluation guide, information about the name of the student doing the test, name, homepage, continent and country of the library, and date and time of sending the question and receiving the response, as well as the period in hours were recorded. The body of the evaluation guide was then divided into two parts, one dealing with evaluation according to the objective criteria, the other containing questions about evaluation according to the subjective criteria. The first part was subdivided into three sections which were then separated in terms of the test procedure, as below:

- Before using the reference service
  - approachability;
  - interest;
  - formal criteria.
- During the reference service
  - enquiring;
  - friendliness.
- After the reference service
  - judgment of the response;
  - follow-up.

While one group was designing the evaluation guide, another group developed the scenario for the evaluation. For this scenario, they posed as students with an enquiry. In order to get comparable results, the same enquiry e-mail was sent to every reference librarian consulted as part of the project. The mail was as follows:

> Dear ladies and gentlemen!
>
> My name is [...] and I'm a student from Germany.
>
> I'm writing a seminar paper about the theme 'Kyoto protocol'. I'm especially interested in the realisation of the protocol in your country and the consequences for your country.

Therefore I need the following information and would be very pleased if you could help me.

1. The statement and the reaction of your government.
2. Which measures have already been taken and which measures are planned?
3. Articles of important newspapers and publications regarding the 'Kyoto protocol' in your country.

Thank you!
Best regards,
[...]

While drawing up the test question, the following conditions were considered:

- response has to be researchable on the internet;
- library catalogue can be integrated;
- database use can be assumed;
- test question must be related to each country;
- scenario plausibility (i.e. German student addressing a foreign university library);
- enquiry should be possible;
- comparability of responses.

The general principle was that all libraries should have the same chance.

## *Pretesting*

During the prestest period, the validity of the evaluation guide was checked. Two issues were given special attention during this period:

- Is the evaluation guide practicable for the test persons?
- Is the question comprehensible for the libraries? Do the responses make sense?

At the end of the pretest, any necessary modifications were made to the evaluation guide.

## Testing libraries and recording the data

After the pretesting period, the official test started on the German side, lasting for two weeks. The project members used the evaluation guide as the tool to test the e-mail reference services and recorded the data during the test.

According to the list of the libraries selected in advance, 150 libraries were appropriate for evaluation. Nevertheless, because of technical problems and some libraries restricting service to their own members only, 24 libraries subsequently had to be replaced.

The following problems were met during the test:

- As regards the e-mail reference service, many libraries asked for very detailed web forms whereas some libraries provided only e-mail addresses. Such services do not qualify according to the concept of 'e-mail reference service'.
- Some libraries do not offer an e-mail reference service or only offer such service to their members.
- In some areas, for example, Asia and Central and South America, only a few libraries offer e-mail reference services. In addition, some of the e-mail reference services tested were provided in a language other than English.
- On initial inspection of some websites, some libraries did not appear to offer an anglophone reference service, e.g. on the University Library of Thailand homepage. During the test it was also found that there were no e-mail reference services in English in the libraries of some European countries (such as Italy and France), parts of North America (French-speaking Canada) and in areas of Africa where websites are in the language of the former colonial government.

## Organising and analysing the data

The related team members collected the data recorded in the test period and organised the statistical results with Microsoft Excel, a spreadsheet for storing, organising and manipulating data. Diverse tables and graphics were created with Excel for displaying the statistics.

Data analysis from various angles was conducted to enable project members to draw a variety of conclusions in the next stage. The greater the depth of analysis, the more discoveries were found.

## Drawing conclusions

At the end of the project, various conclusions were drawn on the basis of the evaluation results and in-depth discussions. On reappraising the hypotheses, the first conclusion was that reference services are not yet universally user-friendly and professional. However, the response rate was highly meaningful – only 71 of 147 libraries answered. Users' readiness to use the same reference service again nevertheless stood at approximately 70 per cent, even though the objective criteria were evaluated 852 times negatively and 535 times positively.

Regarding the other hypotheses, the conclusions were as follows:

- *Reference services differ from country to country*. Countries with more extensive information experience offer a more professional reference service. This recognition was only partially confirmed. Tendencies can be determined with both the objective and the subjective criteria. Within this test, Australia ranks highly in terms of both criteria. While the USA could likewise obtain a good result according to the objective criteria, it has a lower position with respect to readiness to return. Europe was evaluated moderately, while African libraries received the worst evaluation altogether. However, the result shows that the USA and Scandinavia, despite greater information experience, do not fulfil the assumption. Some deficits were found here.
- *According to the objective criteria, the comparison between the libraries giving answers and those without answers makes it clear that the situation is better with the libraries giving answers, which got 289 positive evaluation results, while the libraries without answers received 205 positive evaluations*. Thus, the difference on this aspect is not serious. With this test, the testers accorded more weight to the usefulness and quality of the response than to the friendliness of the response.

At the end of the project, the German participants made the following evaluation about the project:

- Despite only having about ten weeks to conduct the project, it was successfully completed. Organising the group into teams has ensured effective development of the different fields.
- The individual team members were experts in their own field of work. Had the teams' working strategies been more transparent, however,

this would have added to the educational element for everyone. Unfortunately, this was not possible because of the very limited time to realise the project.

- As the Chinese and the German project group were organised differently, it was unfortunately not possible for the teams to communicate with each other directly. Communication was conducted exclusively via the Chinese and German project management teams, which was a pity for the other project members on both sides.
- Important for the success of the project was the good communication between the individual teams and their coordinators, the arrangements with the student project management team, as well as with Professor Simon.
- The engagement and the motivation of the project group have been important factors in successfully realising such a large project in such a short space of time. Everyone involved should be congratulated on their efforts.

Presentations were shared not only within the project member groups but also to the students at the lower grade after the project ended.

## Results

The German project members decided to evaluate the e-mail reference service of 150 libraries, which included 10 African libraries, 20 Australian libraries, 32 Asian libraries, 41 American libraries and 47 European libraries. Appendix D provides a list of the libraries tested. During the test, it was found that 24 libraries did not fit the inclusion criteria. These were replaced by another 24 libraries, also listed in Appendix D.

In the practical test, 147 libraries were tested, including 127 university libraries and 20 national libraries. The distribution of these libraries as well as other data can be seen in Table 4.2. Figure 4.1 provides a visual representation of the geographical distribution.

Of the 147 tested libraries, 71 (48.3 per cent) replied to the e-mail enquiries from the project members while 76 (51.7 per cent) did not reply. Figure 4.2 shows the international distribution of the libraries that did respond to the enquiries.

**Table 4.2** Distributions of the evaluated libraries in terms of library type and continent

| | National library | University library | Total |
|---|---|---|---|
| Asia | 4 | 24 | 28 |
| Americas | 1 | 50 | 51 |
| Africa | 1 | 8 | 9 |
| Europe | 8 | 36 | 44 |
| Australia | 6 | 9 | 15 |
| Total | 20 | 127 | 147 |

**Figure 4.1** Distribution of the evaluated libraries

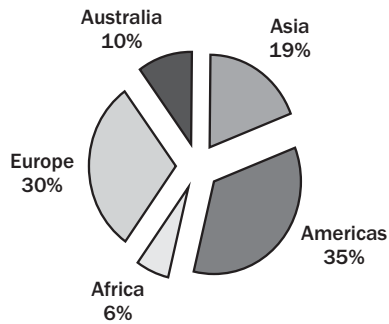
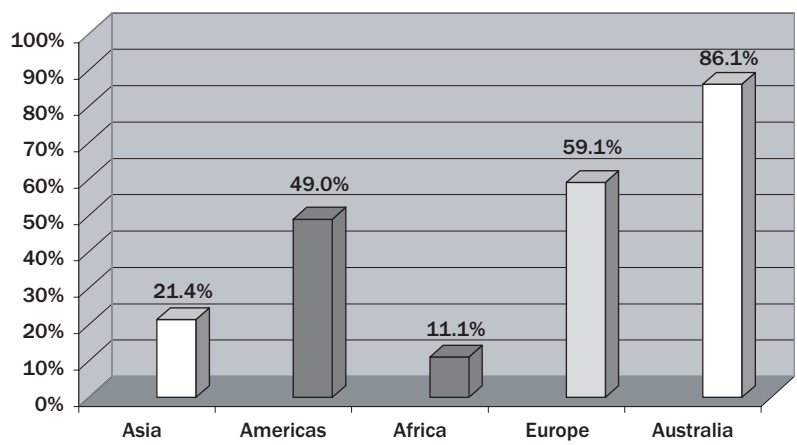



**Figure 4.2** Libraries answering the enquiries



Overall, the time from sending the enquiry until getting reply ranged from 18 minutes to over a week; the mean time for response was 32 hours and 29 minutes.

Except questions included in the final part ('concluding judgment'), all questions were used for judgment according to the objective criteria. Evaluating according to these criteria, questions were answered 740 times with 'yes' and 1,485 times with 'no'; i.e. the libraries tested received a negative evaluation of 66.7 per cent.

In the coming sections, the most important results are reported in the order of the questions appearing in the evaluation guide.

## Approachability

According to the RUSA reference guidelines, in the networked environment, the reference librarian needs to place 'contact information for chat and e-mail in prominent locations to make them obvious and welcoming to patrons'. 'Approachability behaviors, such as the initial verbal and non-verbal responses of the librarian, will set the tone for the entire communication process, and will influence the depth and level of interaction between the staff and the patrons.' To be approachable, the librarian providing the remote reference service:

> should provide prominent, jargon-free links to all forms of reference services from the *home page* of the library's website, and throughout the site wherever research assistance may be sought out. The Web should be used to make reference services easy to find and convenient.[1]

Accordingly, the project's evaluation guide starts with a question about whether the service is clearly designated on the library's homepage. Figure 4.3 shows that among the 147 libraries tested, nearly two-thirds of them provide direct reference to the e-mail reference service on the library homepage, in one way or another.

However, the results also reflect a phenomenon that is less ideal. Only 19 per cent of the libraries display icons, the most obvious notation, for the reference service on their homepage (see Figure 4.4).

As Figure 4.5 reveals, the tested libraries use different names for the online reference service they provide to the users. 'Ask a Librarian/Ask the Librarian' ranks the top of the list, which is doubtless the most common name used for this kind of service. Fifty-nine of 147 libraries (40.1

**Figure 4.3** Is there a direct designation at the homepage of the library for the service via e-mail?

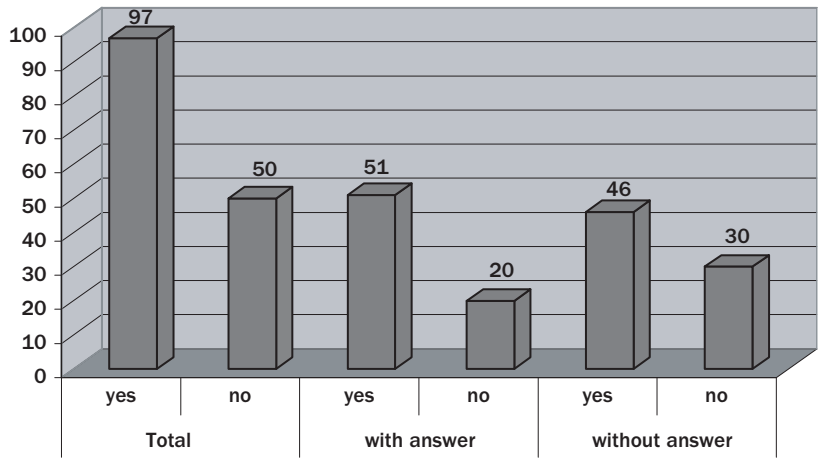
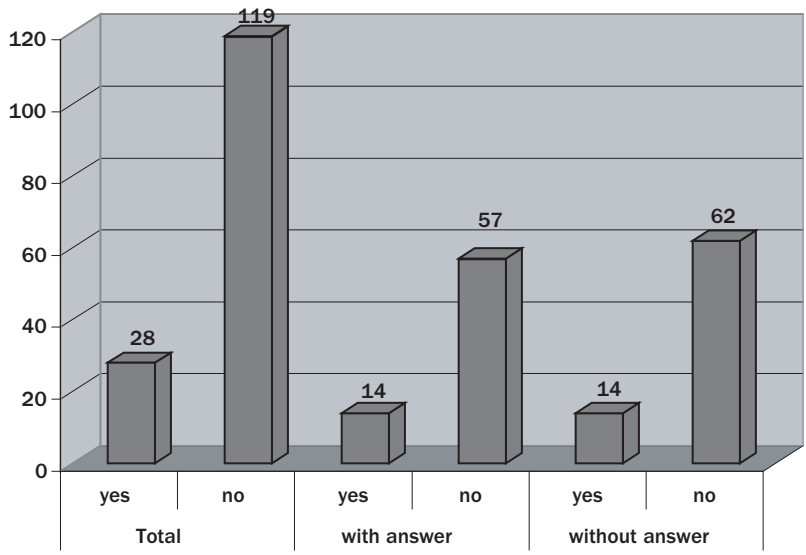


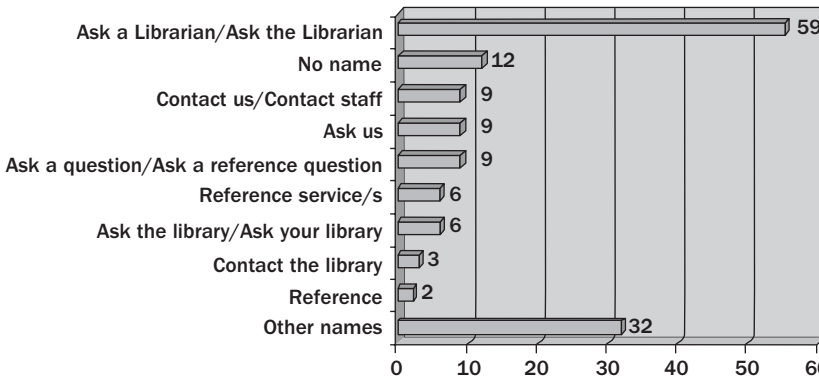

**Figure 4.4** Is there an icon for the reference service?




per cent) use this name. Thirty-two of 147 libraries (21.8 per cent) use other names such as:

- ask for help;
- information via e-mail;

**Figure 4.5** Names of the reference services




- electronic enquiry services;
- electronic reference services;
- e-mail;
- e-mail enquiries;
- e-mail the library;
- enquiries;
- enquiries by e-mail;
- e-reference-desk;
- feedback;
- help;
- helpdesk;
- information;
- information service centre;
- information services requiring profound search;
- just ask;
- lib help;
- library enquiry;
- online reference enquiry form;
- online reference service;
- questions and answers;
- reference desk;

- reference librarians;
- research and innovation;
- virtual reference desk;
- your question.

As discussed in earlier chapters, FAQ is a helpful tool for improving the approachability of reference services. Through the test, the students found that the FAQ situation is not overly good. Only 29.3 per cent of libraries present FAQs, and very few libraries (five) have an FAQ about how to use the service. Statistics about FAQs are summarised in Table 4.3.

At the end of the first part, the number of clicks the project members had to do was counted. These numbers are an indication of how long it took the students to find the service. Figure 4.6 records the results. While testing the libraries, the students mostly only needed to click once or twice.

## *Interest*

As RUSA reference guidelines request, 'a successful librarian must demonstrate a high degree of interest in the reference transaction'. To demonstrate this interest, the librarian serving the patron should:

- maintain or re-establish 'word contact' with the patron in text-based environments by sending written or prepared prompts, etc., to convey interest in the patron's question;
- acknowledge user e-mail questions in a timely manner;

**Table 4.3** **Statistics about FAQs**

| Questions | Yes | No |
|---|---|---|
| Are there any FAQs? | 43 (29.3%) | 104 (70.7%) |
| Is there an FAQ about how to use the service? | 8 (5.4%) | 139 (94.6%) |
| Is FAQ link visible on each page related to the service? | 16 (10.9%) | 131 (89.1%) |
| Is the FAQ searchable? | 5 (3.4%) | 142 (96.6%) |

- state question-answering procedures and policies clearly in an accessible place on the Web – this should indicate question scope, types of answers provided, and expected turnaround time.[2]

During the project, the students got a significantly greater negative impression of interest from the reference librarians sampled (see Table 4.4). Of the whole sample, 55 libraries (37.4 per cent) left the project members with the impression that they were welcome to ask questions, whereas 92 libraries (62.6 per cent) did not give any such impression of

**Figure 4.6** Number of 'clicks' for finding the service

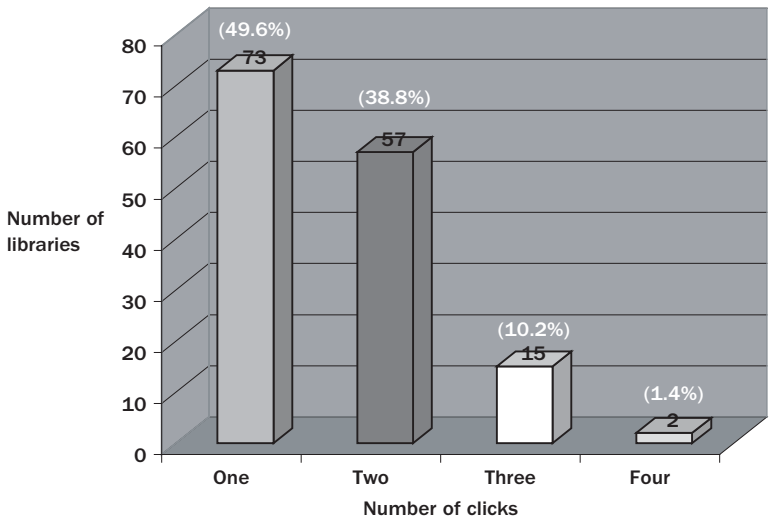



**Table 4.4** Replies to the questions dealing with interest

| Choice | Yes | No | I can choose |
|---|---|---|---|
| Do you feel encouraged to ask a question because of the welcome of the library? | 55 (37.4%) | 92 (62.6%) | – |
| Does the library tell you which kind of question they will answer? | 47 (32.0%) | 100 (68.0%) | – |
| Does the library tell you if they have an archive for the questions? | 2 (1.4%) | 144 (98.0%) | 1 (0.6%) |

encouragement. Approximately twice as many libraries did not tell the testers which questions they would answer, compared with those that did so. In addition, the majority of libraries provided no information regarding whether they kept an archive of previously-asked questions.

## *Enquiring*

Reference interview is crucial to the success of reference service. According to the RUSA reference guidelines, as a good communicator, the librarian 'uses reference interviews or Web forms to gather as much information as possible without compromising user privacy'.[3]

The web form is usually taken as a uniform tool for the library to obtain the necessary information about the user and their enquiry. The tests revealed that 88 of the tested libraries (almost 60 per cent) have web forms. Other libraries collect such information using informal or non-uniform methods. Figure 4.7 illustrates the variety of information required in web forms. Every web form queried the patron's e-mail address and name. In the figure, the term 'status' refers to university affiliation or similar. Other fields in the figure include the required data about date, department, distance, date of birth, organisation, physical access to the library, language, subject, etc.

Figure 4.8 displays the information requested in the web forms. The questions most commonly asked were to identify the theme of the query and the information sources that the user had already consulted.

Within the tested libraries, only six (4.1 per cent) assured any protection of the testers' private information, while 141 (95.9 per cent) did not.

**Figure 4.7** Information required in the web form

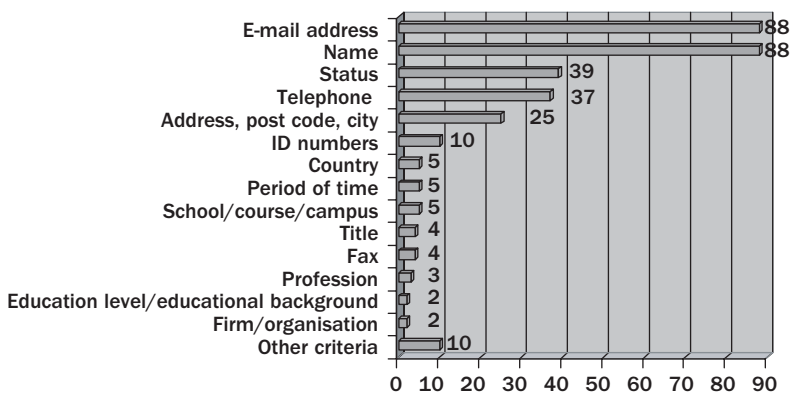
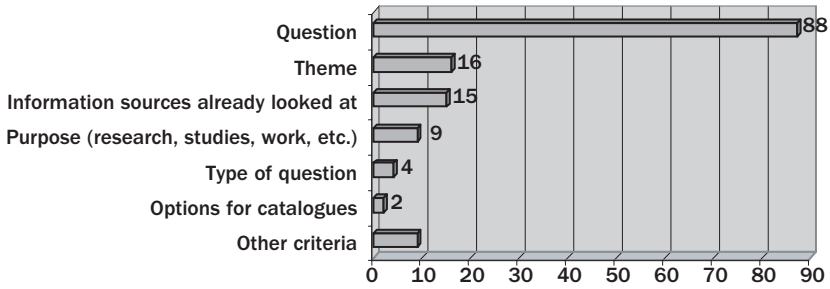


**Figure 4.8** Information related to the contents of enquiries




In addition, 68 (46.3 per cent) of the 147 libraries tested confirmed receipt of the enquiry. Forty-two (59.2 per cent) of the 71 libraries that ultimately provided assistance confirmed receipt of the initial query, while 26 (34.3 per cent) of the 66 libraries who could not respond to the initial query still confirmed receipt of the query, even though they were unable to help.

## *Friendliness*

Librarian friendliness influences not only the smooth conduct of the individual reference session but also the willingness of the user to use the reference service once again. This is a matter of the attitude rather than the ability of the librarian. An effective librarian should be kind from the outset to encourage the user to communicate and cooperate in order to conduct a successful reference session together.

Among the 71 libraries providing replies, three-quarters of them addressed the project members by their names while one-quarter did not (see Figure 4.9). By comparison, slightly more librarians (78 per cent) replied using their own name.

## *Judging the response*

Ultimately, the response is what is most important to the user. However, timeliness, pertinence and reachability are all important factors involved in this.

Figure 4.10 displays three kinds of situation the testers met with during the project. Among the 71 libraries providing responses, 37 libraries

**Figure 4.9** Results related to friendliness

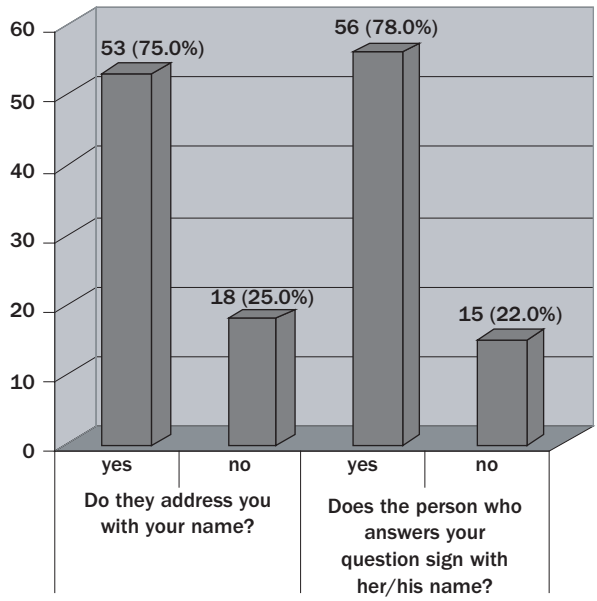
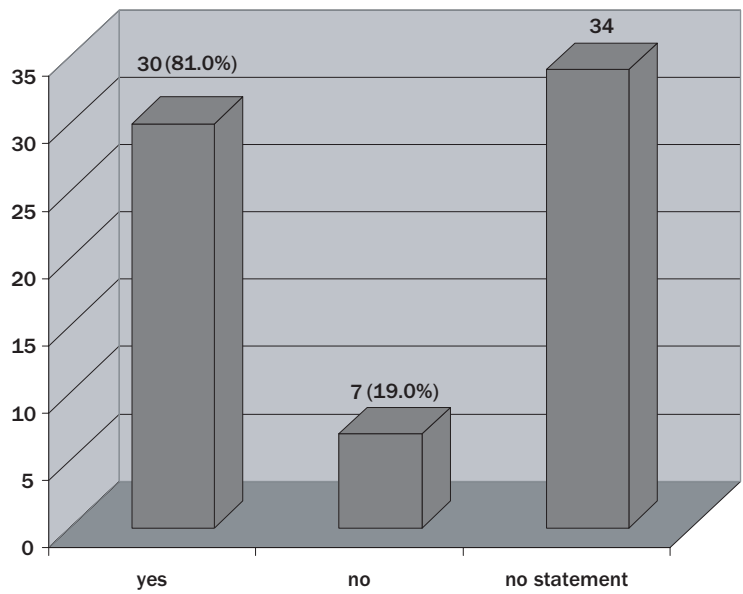



**Figure 4.10** Timeliness of the response



(52.1 per cent) stated the period during when they would reply, while 34 (47.9 per cent) did not do so. As high as 81 per cent of the libraries declaring the period replied in a timely manner, while nearly 20 per cent failed to respond in time.

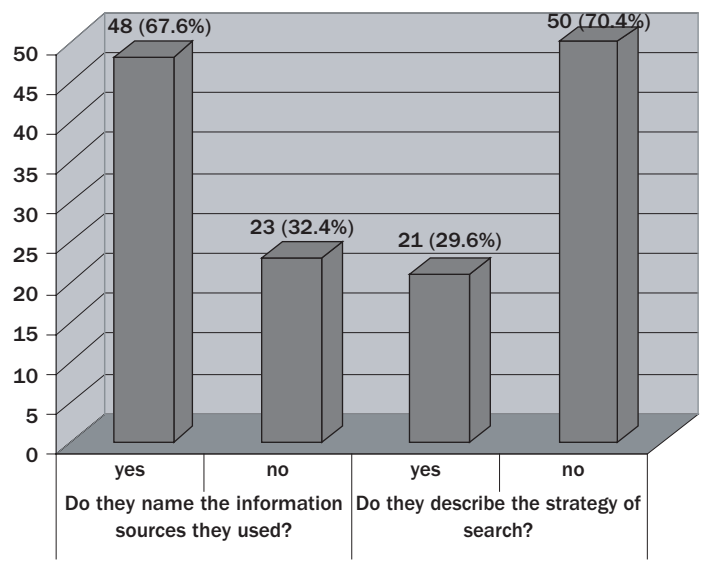
When the reference librarians replied to the e-mail enquiries, nearly two-thirds of them publicised the information resources they used, while nearly one-third did not (see Figure 4.11). Less than 30 per cent of the librarians sampled described their searching strategies, while more than twice as many librarians mentioned nothing on this point.

## *Follow-up*

The reference transaction might not end when the librarian provides the initial response to the patron:

> The librarian is responsible for determining if the patrons are satisfied with the results of the search, and is also responsible for referring the patrons to other sources, even when those sources are not available in the local library. For successful follow-up, the (remote) librarian suggests that the patrons visit or call the library when appropriate.[4]

**Figure 4.11** How did the librarians reply?



In case the patron is not satisfied with the initial response or encounters any problems in reaching the network resources the librarian suggests, the librarian should provide further help until the patron is completely content with the result.

Within this project, only 11 librarians asked the testers whether the users were satisfied with the responses while more than seven times as many (80 librarians) did not. Furthermore, many fewer librarians (only seven) invited the testers to use the reference service again. Comparatively, 64 libraries did not comment on this (see Figure 4.12).

When supplying the results to the patron, some libraries also supplied evaluation forms or requested feedback from the patron in order to improve their reference service later. This is taken as a part of follow-up procedures. Only two librarians (see Figure 4.13) asked the testers to give them feedback about their services. Only 14 libraries (nearly 20 per cent of all the replying libraries) offered links to the reference services of other institutions.

## *Concluding judgment*

The final part of the test instrument included a 'concluding judgment' table. This was deigned to collect subjective data regarding to the testers'

**Figure 4.12** Results dealing with follow-up I

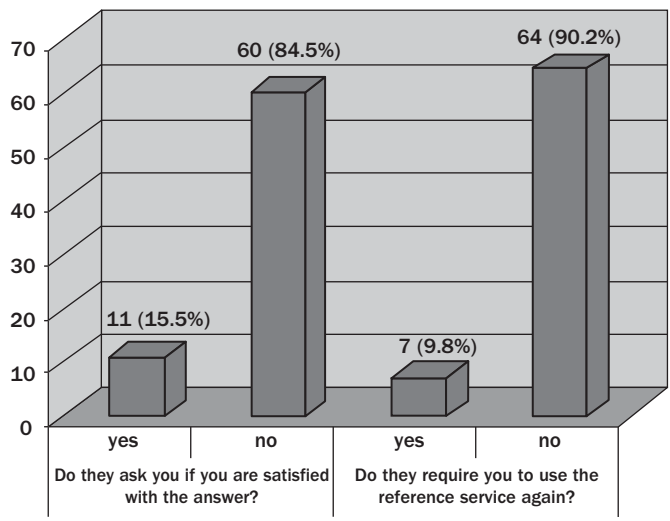


**Figure 4.13** Results dealing with follow-up II

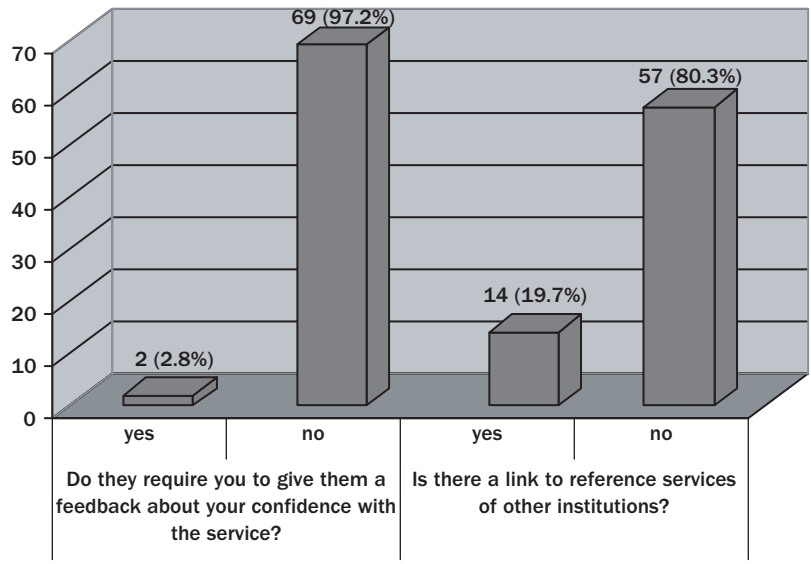



**Table 4.5** Concluding judgment

| | Positive | | | Negative | | |
|---|---|---|---|---|---|---|
| | +3 | +2 | +1 | –1 | –2 | –3 |
| How friendly answered the librarian? | 18% | 45% | 18% | 13% | 3% | 3% |
| How good did they understand my question? | 10% | 41% | 30% | 11% | 1% | 7% |
| How useful was the answer? | 11% | 30% | 37% | 7% | 8% | 7% |
| How satisfied are you with the whole service? | 14% | 35% | 32% | 11% | 7% | 1% |
| Would you use this reference service again? | 14% | 27% | 29% | 18% | 4% | 8% |

feelings during their tests. It has been stated that 'objective data result from empirical observations and measures'.[5]

Table 4.5 presents the results of the project members' subjective observations, measured on a six-point scale ranging from '–3' (most negative) to '+3' (most positive). These statistics reflect the testers' overall evaluation on the e-mail services they dealt with during this project. Most of the testers evaluated the services positively. Generally, the proportion of positive evaluation ranking either +1 or +2 is highest in each category. The mean value of the judgments ranking the top scores is 13.4 per cent [(18+10+11+14×2)/5] while that of the judgments ranking the lowest scores is 5.2 per cent. Most of the judgments are moderate.

## Notes

1. American Library Association (2005) 'Guidelines for behavioral performance of reference and information service providers', available at: *http://www.ala.org/rusa/stnd_behavior.html* (accessed 15 March 2006).
2. Ibid.
3. Ibid.
4. Ibid.
5. Creswell, J. W. (2003) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd edn), Thousand Oaks, CA: Sage Publications.

# 5

# Views from the eastern world: evaluation by the Chinese team

At the same time as the German participants undertook their research, the Chinese arm of the study was implementing the project in Asia. As expected, despite having similar subprojects, the two sides conducted many aspects of their research differently. This chapter reports the views from the eastern world on the e-mail reference services of libraries worldwide.

As described previously, the project was an official assignment for both the instructor and the students who were party to the online reference service evaluation seminar in the Faculty of Information and Communication, Stuttgart Media University. As such, the German participants had routine, scheduled meeting times. This meant that, apart from during the holiday period, the German project members all met on a weekly basis, only meeting more often if necessary. However, the situation on the Chinese side was completely different. Compared with the German students, who had fewer than ten classes per week, the Chinese students' burden was very much heavier. The Peking University is the oldest and best university in China. In the UK Times Higher World University Rankings, where higher education institutions are graded according to comprehensive competence, it was ranked 17 in 2004 and 15 in 2005.[1] In 2006, its position had increased another place to 14.[2] The students of this university study extremely diligently. All of the Chinese undergraduates involved in the project had more than 20 or even 30 classes every week. Most of them pursued a second degree in addition to their library or information science degree. With such an educational burden, it is therefore highly commendable for them to volunteer for this project as well.

To simplify comparison, this chapter will follow a similar structure to the previous chapter.

## Group division and work distribution

As the participating students came from different levels and courses, it was difficult to find much common time for all the Chinese project members to meet. As such, meetings had to be arranged flexibly. During the implementation of the project, several meetings were held among all the participants. The small groups also had further separate meetings as required.

The participants were divided into five groups to evaluate the libraries from the different continents, with each group responsible for one continent. Two of the five groups consisted of graduate students and three of undergraduate students. The general leader was Zhenjun Liu, a smart and hardworking graduate student. At the same time, she also led all the graduate students. The leader of all of the undergraduate students was Xin Wang, a quiet and thoughtful undergraduate student. Each group also had its own leader. This arrangement was made to organise and manage the project members in an easy and flexible way. Figure 5.1 displays the hierarchical structure of the Chinese participants and Table 5.1 lists the students in each group.

## Timetable

The dates for the German and Chinese participants to start and terminate the project were almost the same. However, the two groups had different arrangements as regards to allocating that time. A rough

**Figure 5.1** Structure of the Chinese arm of the study

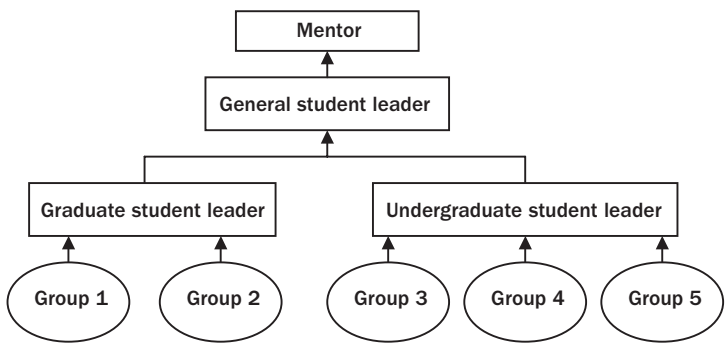


**Table 5.1** List of the Chinese participants

| | |
|---|---|
| Mentor | Dr Jia Liu, Associate Professor |
| General student leaders | Zhenjun Liu (for the graduate students and for the overall Chinese group)<br>Xin Liu (for all undergraduate students) |
| Group 1 (graduate students) | Zhenjun Liu, Ting Li,<br>Yanyan Fang, Cheng Xu |
| Group 2 (graduate students) | Qing Cai, Jie Chen<br>Yixi Huang, Xin Li, Xiaoxin Zhang |
| Group 3 (undergraduate students) | Jie Huang, Miaoru Huang, Kun Jin,<br>Xin Wang, Shengnan Yang, |
| Group 4 (undergraduate students) | Fei Liu, Mengchen Li, Dong Wang,<br>Fan Yan, Hua Xia |
| Group 5 (undergraduate students) | Nan Han, Jie Peng, Jia Yu,<br>Xin Yu, Di Sheng |

outline of the time arrangement and work conducted during the response period on the Chinese side is shown in Table 5.2.

## Workflow

The workflow of the Chinese subproject could be outlined as follows:

- draft the evaluation criteria;
- set up the evaluation targets;
- pretest and modify the evaluation criteria based on the results of the pretest;
- define the evaluating questions, scenario and analysis methods;
- evaluate the libraries;
- collect data and analyse the evaluation results;
- give a presentation about the whole project.

As the German professor had initiated the project and because the German project members had much more time and guaranteed meeting dates, most of the documents were drafted by the German participants. This meant that the two sides mostly had identical project documents,

**Table 5.2** Timetable of the Chinese arm of the project

| Week | Time | Task | Implementer |
|---|---|---|---|
| 1 | 30 March | Introduction meeting | All members |
| 2 | 4–8 April | Discuss the evaluation criteria | All members |
| 3 | 11–15 April | Discuss the evaluating target;<br>continue discussion on the evaluation criteria | All members |
| 4 | 18–22 April | Set up the evaluating targets and evaluation criteria; pretest | All members |
| 5 | 25–28 April | Comment on the former work;<br>improve the evaluation criteria | All members |
| 6 | 2–6 May | Define the evaluating questions, scenario and analysis method | All members |
| 7–9 | 9–27 May | Evaluate the libraries;<br>analyse the problems happening during the evaluation;<br>propose the solutions to the problems | All members |
| 10–11 | 30 May–10 June | Summarise the evaluating results in groups<br>summarise all the evaluating results from the group leaders | Leaders of the five groups;<br>the general student leader |
| 12 | 17 June | Give a presentation about the whole project | The general student leader |

for example evaluation criteria as reflected in the evaluation guide. Nevertheless, the Chinese participants were also very active in having discussions on a variety of matters, and sharing their own suggestions and thoughts with the German team members. For example, at the end of the pretest period, they proposed expanding the guidelines and put forward suggestions as regards the questions, FAQs and evaluation sheet.

In addition, there were some differences between the reference literature for the two groups. The Chinese groups referred to the following literature:

- Reference and User Services Association (2004) 'Guidelines for behavioral performance of reference and information service providers', available at: *www.ala.org/ala/rusa/rusaprotools/referenceguide/guidelinesbehavioral.htm*.

- IFLA (2006) 'Digital reference guidelines', available at: *http://www.ifla.org/VII/s36/pubs/drg03.htm*.
- Whitlatch, J. B. (2001) 'Evaluating reference services in the electronic age', *Library Trends* (Fall): 207–17.
- Luo, Li (2003) 'Case study and model analysis of the cooperative virtual reference service', Master's thesis, Peking University.


The Chinese students also chose to test a different question from that of the German partners. Posing as common users of the reference service, the Chinese project members sent the below question to the reference librarians via e-mail:

> Would you please provide me some clues about the materials on the subject of the 'attitude towards the entrance of China into WTO (World Trade Organization)'?

The Chinese entry into WTO has been a hot topic in China in recent years. At the same time, many of the Chinese project members had selected economics as the major of their second degree. As such, it is understandable for them to choose this question as an enquiry.

## Results

The libraries for evaluation were defined by the German project members. The Chinese groups initially planned to test the same 150 libraries as those suggested by the German partners. In practice, however, the Chinese participants only managed to test 136 libraries, of which 116 (85.3 per cent), were university libraries and 17 (12.5 per cent) were national libraries. In addition, the German project members also chose three state libraries in Australia. The Chinese groups evaluated 11 fewer university libraries than the German groups did. There was no difference between the national libraries tested by the German and Chinese groups. Table 5.3 indicates the distribution of the libraries tested by the Chinese members. The Chinese groups also separated libraries according to type of library and the continents where they were located. These lists are detailed in Appendix E.

In total, 64 of the 136 enquiries (47.1 per cent) received replies, whereas 72 (52.9 per cent) were not answered. The time from sending the enquiry until receiving the reply ranged from 26 minutes to over a

**Table 5.3** Distribution of the evaluated libraries according to the type and continent

| Type | National library | University library | Other libraries | Total |
|---|---|---|---|---|
| Africa | 1 | 6 | 0 | 7 |
| Americas | 1 | 41 | 0 | 42 |
| Asia | 3 | 21 | 0 | 23 |
| Europe | 10 | 34 | 0 | 45 |
| Oceania | 2 | 14 | 3 | 19 |
| Total | 17 (12.5%) | 116 (85.3%) | 3 (2.2%) | 136 |

week; the mean time was 40 hours and 28 minutes. The response was much lower than the group had expected. Even some libraries from Asian countries, such as the National Library of Singapore, did not reply to the enquiry. It is certain that the enquiry on the Chinese side is related to China, a special country. However, nobody can deny that China's entrance into WTO has had extensive international impact, which has not been limited to the global economy alone. Indeed, prior to the project, having stayed in Europe for a little over two years, Dr Liu had observed that topics about China were dealt with almost every day throughout the western world. Meanwhile, several of her friends with a western background had also told her how often they felt China was discussed. As such, the problem of the low feedback could not simply be ascribed to the obscurity of the topic. Indeed, to some extent, the ethics of the librarians was doubted here.

In the following sections, the Chinese project members' results will be reported in the same order as in the previous chapter. Unlike the previous chapter, there are no explanations or notes about the criteria at the beginning of each section. As in the last chapter, the results in the first six sections are associated with the objective criteria, while those in the final section relate to the subjective criteria.

## *Approachability*

- *Question 1*: Is there a direct designation at the homepage of the library for the service via e-mail?

As Figure 5.2 indicates, out of the 136 libraries evaluated, 51 (a little more than one-third) have direct designations on their homepages for the e-mail reference services, while 85 (a little more than two thirds) do not.

- *Question 2*: Is there an icon for the reference service?

Of the libraries sampled, more than twice as many do have icons for their reference services than do not (Figure 5.3).

- *Question 3*: How is the reference service named?

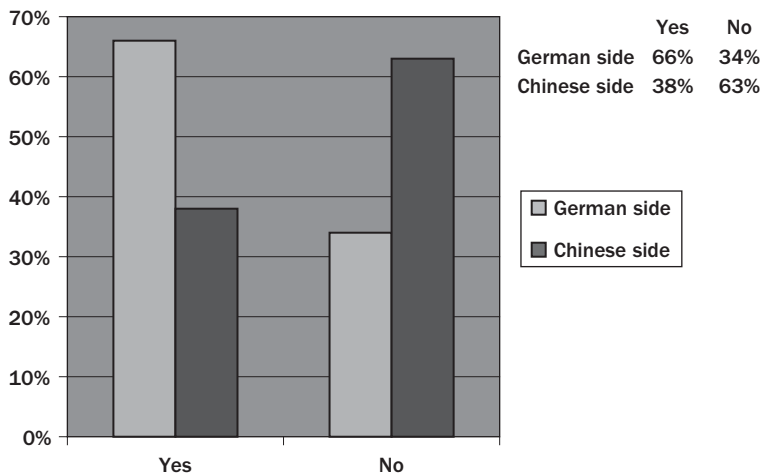
'Ask a Librarian' was found to be the most commonly used name for the libraries' online digital reference service. This was the case with 49 libraries (36.0 per cent). Many libraries used 'other' names for this purpose (see Figure 5.4).

- *Question 4*: Summary of questions of FAQ

Nearly half of the tested libraries were found to provide FAQs. Yet, few of them (as low as less than 20 per cent) offered a FAQ about how to use the e-mail reference service. In addition, most FAQs were not visible on each web page related to the service, neither were they searchable. Table 5.4 displays more details.

- *Question 5*: How long does it take to find the service? [number of 'clicks']

**Figure 5.2** **Is there a direct designation at the hompage of the library for the service via e-mail?**




| | Yes | No |
|---|---|---|
| German side | 66% | 34% |
| Chinese side | 38% | 63% |

**Figure 5.3** Is there an icon for the reference service?

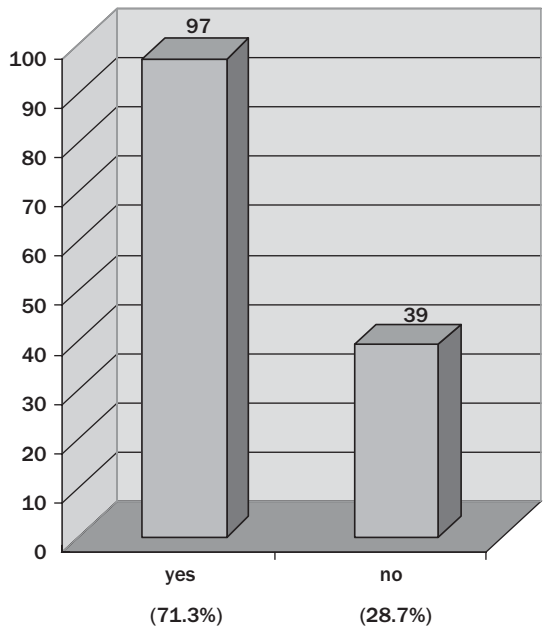
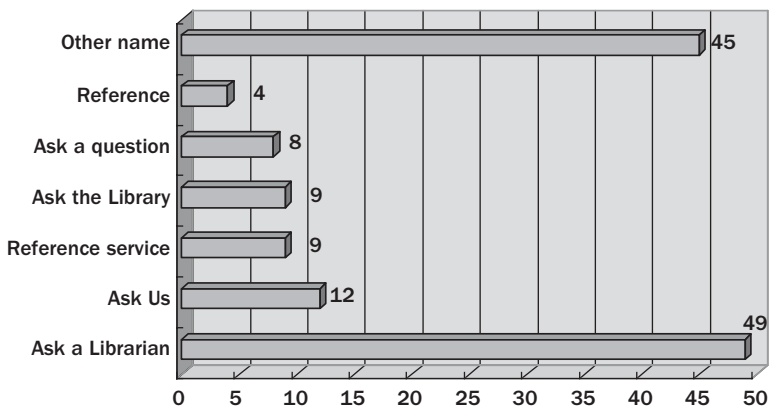



**Figure 5.4** Names of the reference services

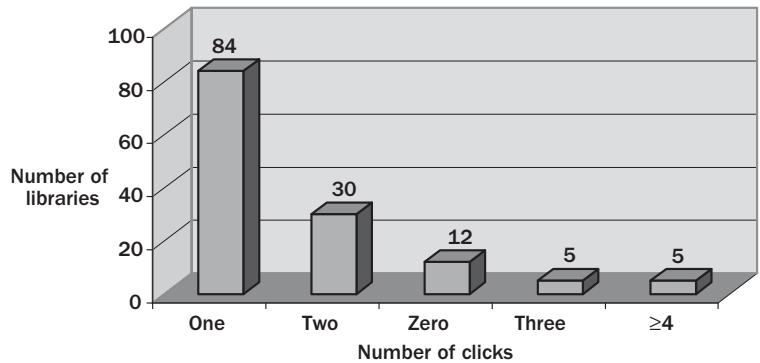



As indicated in Figure 5.5, more than half of the libraries sampled (84 libraries; 61.8 per cent) required only a single click to access the reference service.

**Table 5.4** Statistics about FAQs

| Questions | Yes | No |
|---|---|---|
| Are there any FAQs? | 63 (46.3%) | 73 (53.7%) |
| Is there an FAQ about how to use the service? | 26 (19.1%) | 110 (80.9%) |
| Is FAQ link visible on each page related to the service? | 5 (3.4%) | 131 (96.6%) |
| Is the FAQ searchable? | 21 (15.4%) | 115 (84.6%) |

**Figure 5.5** Number of 'clicks' for finding the service




## Interest

While testing the selected services, the Chinese project members did not find very clear manifestations of the librarians' interest (see Table 5.5). Just under half the Chinese students felt encouraged to ask a question, while a little more than half of them felt that the library did not make them feel welcome to do so. The number of libraries that said which kind of question they would answer is twice of that of the libraries providing no information on this point. Even more frustrating was that 94.9 per cent of the libraries sampled did not say anything about whether they had an archive for the questions.

## Enquiring

In this part, questions are divided into two categories, the first of which relates to the web form used for enquiring and the other directly to enquiring.

**Table 5.5** Replies to the questions dealing with interest

| Choice | Yes | No | I can choose |
|---|---|---|---|
| Do you feel encouraged to ask a question because of the welcome of the library? | 59 (43.4%) | 77 (56.6%) | – |
| Does the library tell you which kind of question they will answer? | 44 (32.4%) | 92 (67.6%) | – |
| Does the library tell you if they have an archive for the questions? | 2 (1.5%) | 129 (94.9%) | 5 (3.6%) |

First, there are three questions about the web form for the e-mail reference service.

- *Question 1*: Is there a web form?

Of the 136 libraries tested, the Chinese students found that 82 had web forms and 54 did not.

- *Question 2*: Does the library tell you which kind of question they will answer?

Certain information was commonly requested on the web forms, namely the user's name and e-mail address. Around 60 per cent of the libraries requested this information. Organisation/affiliation, phone number, status and address are also very often requested. Figure 5.6 reveals more details about the Chinese group's observations on this point.

- *Question 3*: Which information in the web form is related to the content of the enquiry?

Figure 5.7 illustrates the information related to the contents of the enquiries that were requested on the web forms. In addition to the questions, the sample libraries asked different questions and did not have very common options.

In addition, the Chinese project members recorded the statistics about whether they were given a definite period of time during which the libraries would answer their questions. Fifty-four libraries did so, whereas 82 did not. In the meantime, only ten of the libraries (7.4 per cent) assured some form of protection for the students' personal information, while 126 (92.6 per cent) did not make any statement about this.

**Figure 5.6** Information required in the web form

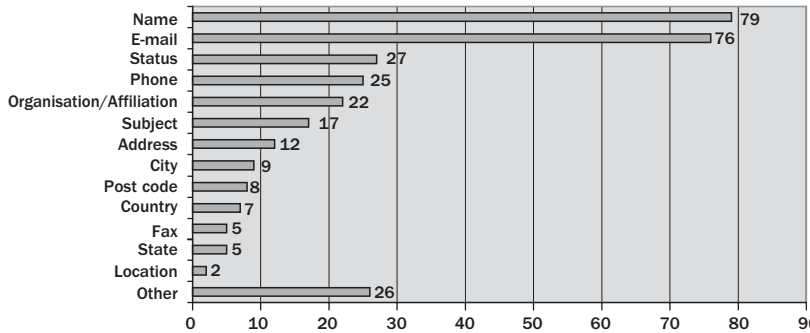
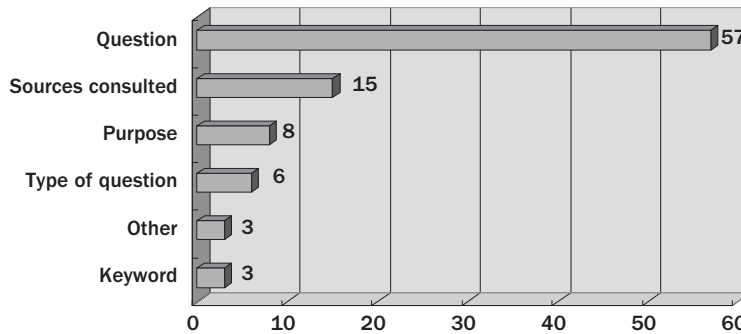



**Figure 5.7** Information related to the contents of enquiries




As regards to evaluating the enquiry process, the following two questions were used:

- *Question 1*: Do you get confirmation that your question has arrived?

Out of the 136 evaluated libraries, 56 (41.1 per cent) confirmed that they got the questions. Eighty libraries (58.9 per cent) did not do so.

- *Question 2*: Does the library ask you questions concerning your question?

Except just three libraries, the sampled libraries did not ask the students further questions concerning their queries.

## Friendliness

Two questions were asked to evaluate the friendliness of the librarians offering the e-mail reference service. Only the 64 libraries that replied to the enquiries were considered.

While replying to the questions, one-third of the librarians addressed the Chinese students by their names, while about two-thirds did not; on the other hand, 52 librarians (81.3 per cent) signed off with their own names, while fewer than 12 (less than 20 per cent) did not mention their own names (see Figure 5.8).

## Judging the response

Judgments regarding the response were made by replying to three questions as below.

- *Question 1*: Do you get the response in the given period of time?

As shown in Figure 5.9, the Chinese project members got responses from 32 libraries, i.e. half of all the libraries replied within the given period, eight answered after the given time, and 24 libraries did not state a certain period for replying.

- *Question 2*: Do they name the information sources they used?
- *Question 3*: Do they describe the strategy of search?

**Figure 5.8** Results related to the friendliness of the response

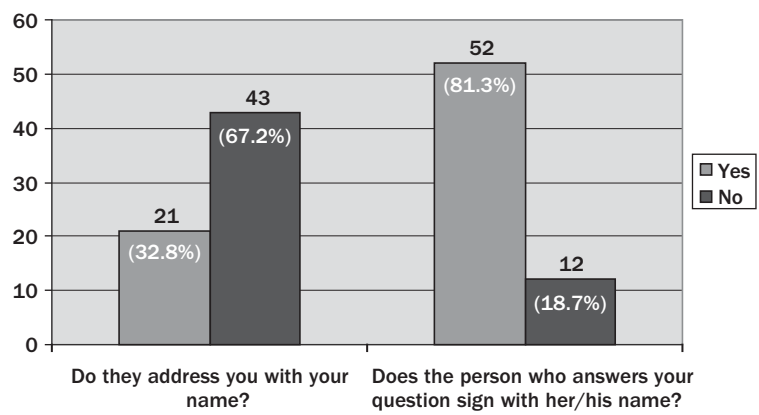


**Figure 5.9** Timeliness of the answer

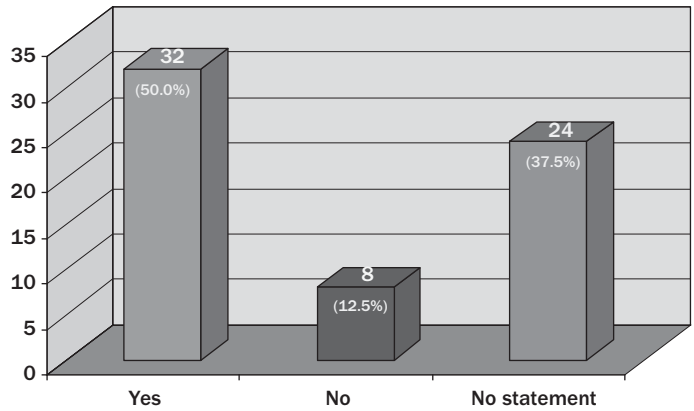
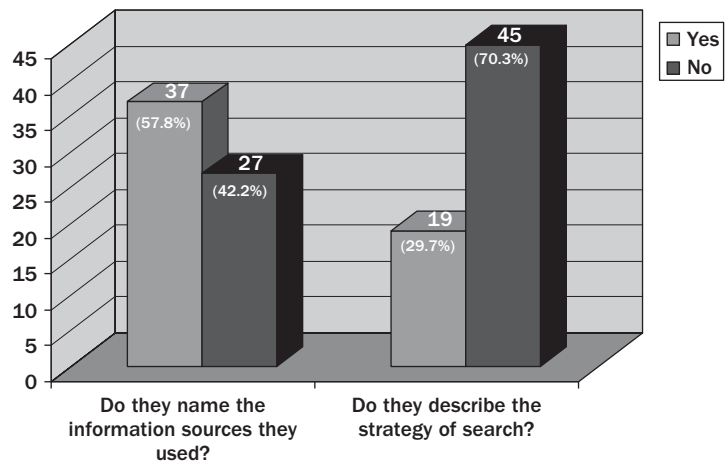



Figure 5.10 provides statistical results in terms of Questions 2 and 3. It shows that 37 reference librarians (nearly 60 per cent) declared the information sources they used, but only around 30 per cent of the 64 librarians described their search strategies. Of the 64 librarians, a little more than 40 per cent and more than 70 per cent failed in doing either thing.

**Figure 5.10** How did the librarians reply?



## *Follow-up*

The evaluation guide asked four questions relating to follow-up. Figures 5.11 and 5.12 display the details of the responses.

- *Question 1*: Do they ask you if you are satisfied with the answer?
- *Question 2*: Do they require you to use the reference service again?

**Figure 5.11** Results dealing with follow-up I

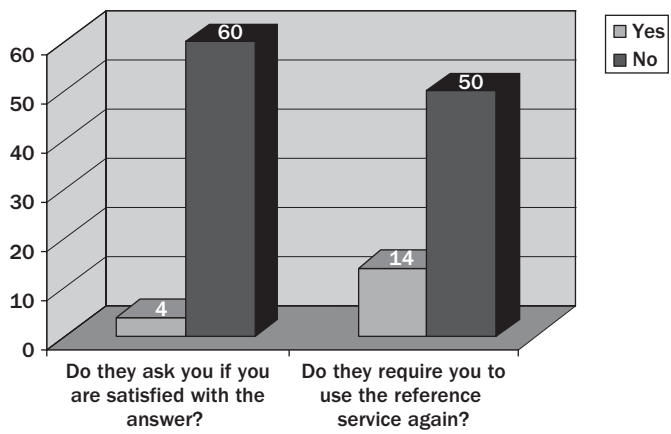
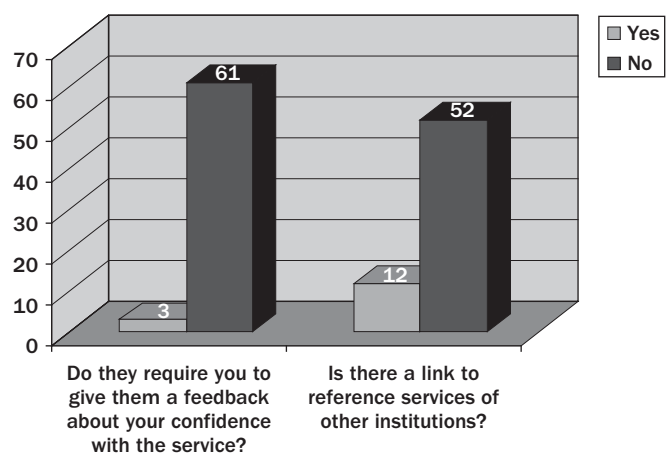



**Figure 5.12** Results dealing with follow-up II



- *Question 3:* Do they require you to give them a feedback about your confidence with the service?
- *Question 4*: Is there a link to reference services of other institutions?

Interestingly, the two figures show that the negative responses are definitely dominating. The range of positive responses was only 4.7 to 21.9 per cent.

## Concluding judgment

Table 5.6 shows the marks the Chinese members gave for the concluding judgment. From the table, it could be found that for the first three questions, the highest ratios for responses to each question concentrate on credit +1 and +2; overall the percentages for positive credits are higher than those for negative ones. However, for the last two questions, the top ratios went to the lowest credits, i.e. –3 and –2; and, on the whole, the percentages for the negative scores are higher than those for positive ones. This shows that 60–70 per cent of the Chinese evaluators have a good opinion of the services they tested in respect of the first three aspects (i.e. answering in a friendly manner, understanding questions well and usefulness of the response). At the same time, many of them have a poor opinion as regards the later aspects (being satisfied with the whole service and willing to use such service once again). This means that around 65 per cent of the Chinese evaluators were not content with

**Table 5.6** Concluding judgement

| | Positive | | | Negative | | |
|---|---|---|---|---|---|---|
| | +3 | +2 | +1 | –1 | –2 | –3 |
| How friendly answered the librarian? | 12.5% | 32.8% | 31.3% | 9.4% | 10.9% | 3.1% |
| How good did they understand my question? | 17.2% | 37.5% | 20.3% | 9.4% | 10.9% | 3.1% |
| How useful was the answer? | 18.8% | 21.9% | 23.4% | 9.4% | 15.6% | 10.9% |
| How satisfied are you with the whole service? | 4.0% | 19.4% | 16.1% | 14.5% | 24.2% | 21.8% |
| Would you use this reference service again? | 8.1% | 10.5% | 16.1% | 13.7% | 24.2% | 27.4% |

the whole service and would not wish to use the e-mail reference service again.

On assessing the statistics, this outcome appears rather odd, as the concluding judgment on the first three questions contradicts that of the later two questions. The only possible explanation for this phenomenon is that the key to a successful reference service is the pertinence of the response.

## Notes

1. World University Rankings Editorial (2005) 'Determined challengers keep heat on the elite', 28 October, available at: *http://www.alnaja7.org/success/Education/times_world_ranking_2005.pdf* (accessed 14 October 2006).
2. Wikipedia (2006) 'The Times Higher Education Supplement', available at: *http://en.wikipedia.org/wiki/The_Times_Higher_Education_Supplement* (accessed 14 October 2006).

# 6

# Comparisons and conclusions

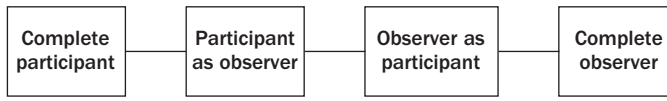
To understand one's research fully, first-hand experience is essential. However, with such close personal involvement, it can be difficult 'to see the woods for the trees'. Thus, for objective understanding, one must be able to step away from the research and observe it impartially. This can be illustrated through the observation continuum paradigm constructed by T. S. Palys (see Figure 6.1).[1] To this end, the project participants may have experienced some difficulty maintaining objectivity because of their complete immersion in the project. Similarly, as an author, it was hard to draw valid conclusions from the project until it had ended, and it was possible to become an observer rather than a participant. Maybe now, more than a year after the termination of the project, it is a good time to draw conclusions about it.

Although the content and goal of both subprojects were the same, results differed between study arms due to the different nationalities of the project members. This chapter will describe and analyse these differences, as well as the similarities, and will seek reasons to explain such phenomena. Experiences and lessons learned will be summarised, and conclusions will be drawn. Finally, current perspectives of digital reference services will be described and issues for further research will be advanced.

## Comparisons

While looking through the last two chapters, the reader might have noticed the differences and similarities between the results achieved by the German and Chinese groups. Nevertheless, it is not easy to get a comprehensive idea about them because they appear in different parts. The following section reappraises these results, presenting the data differently where necessary to aid comparison and analysis.

**Figure 6.1** Observation continuum




Source: Palys, T. S. (2003) *Research Decisions: Quantitative and Qualitative Perspectives* (3rd edn), Toronto: Thomson Nelson, p. 209

## *General comparison*

The responses obtained by the German and Chinese groups are now compared. The responses are arranged according to the sequence in which the questions appear in the evaluation guide. The analysis provided, however, will extend beyond simply reiterating what has gone before. To accompany this in-depth comparison, Table 6.1 summarises the general differences.

One prominent difference between the German and Chinese groups is the way in which they were structured. The German participants were organised vertically, according to tasks assigned within the working procedure. The Chinese participants, however, were horizontally categorised, generally according to the geographical location of their sample libraries. As described previously, the German students conducted the project during their allocated seminar time. Consequently, their organisation was compact and communication between members was ensured. The Chinese students, however, conducted the work on a volunteer basis; as such, their working arrangements were more flexible.

**Table 6.1** Overall comparison

| | German side | Chinese side |
|---|---|---|
| Number of the libraries tested | | |
| University libraries | 127 | 116 |
| National libraries | 20 | 20 |
| Total | 147 | 136 |
| Number of libraries replying | 71 | 64 |
| Number of libraries not replying | 76 | 72 |
| Average replying time | 32h 29min | 40h 28min |
| Number of libraries for replacement | 23 | 0 |

Due to timetable clashes, it was impossible for all the Chinese students to come together very often. Except at the beginning and end of the project, the Chinese students normally met as small, individual groups determined by the location of their sample. Each member followed the research procedure in its entirety so as to get a comprehensive understanding about the project.

Additionally, the German and Chinese students' subject experience were not the same. The German participants had never taken any course related to reference services prior to the project. At the Department of Information Management, Peking University, however, the reference service course is a requirement for undergraduate students; as such, the Chinese participants had completed this study ahead of the project. Nevertheless, this difference did not seem particularly relevant during the project, as it was the German group that drafted the evaluation form on the basis of existing guidelines, namely the RUSA/MOUSS Management of Reference Committee 'Guidelines for behavioral performance of reference and information service providers'. However, the Chinese participants did still advance some meaningful suggestions based on their knowledge gained from previous study.

## Comparison of the results

As discussed previously, the German students provided the list of libraries for evaluation. In practice, however, the German students were unable to test all the libraries they originally selected and had to replace some of them; similarly, the Chinese participants were also unsuccessful in contacting all of the services chosen by the German participants. Accordingly, the two arms of the study did not have identical samples, most notably in terms of size. Statistics presented as percentages rather than raw data therefore provide a more meaningful basis for comparison; these will be rounded up to whole numbers rather than to the first decimal place. In addition, comparisons are disregarded for questions where only one arm of the study collected data – only matching data sets are compared.

Results in terms of the objective criteria are described first, followed by the subjective criteria.

## Approachability

- *Question 1*: Is there a direct designation at the homepage of the library for the service via e-mail?

As shown in Figure 6.2, there is an unusual discrepancy between the two groups with respect to this question. The German students said that 66 per cent of the libraries sampled had their e-mail reference service clearly designated on the library homepage, yet the Chinese students found a similar percentage indicating the contrary. As revealed during the post-survey discussion, this discrepancy was due to a lack of common understanding about the question. The German students recorded a positive response no matter whether the designation was explicitly for the e-mail reference service or simply just a contact e-mail address for the library. However, the Chinese students recorded a positive response for the former only.

- *Question 2*: Is there an icon for the reference service?

Here, the Chinese group recorded the most positive response – 3.7 times higher than that recorded by the German students (see Figure 6.3). As with the first question, the discrepancy can again be attributed to the lack of common definition of an icon for the reference service.

- *Question 3*: How is the reference service named?

The German and Chinese group members agreed that 'Ask a Librarian' was the most name commonly used in the sample (see Figure 6.4). 'Other name' was the next most frequently selected designation. This reflects the diversity of names for digital reference services.

**Figure 6.2** **Is there a direct designation at the homepage of the library for the service via e-mail?**

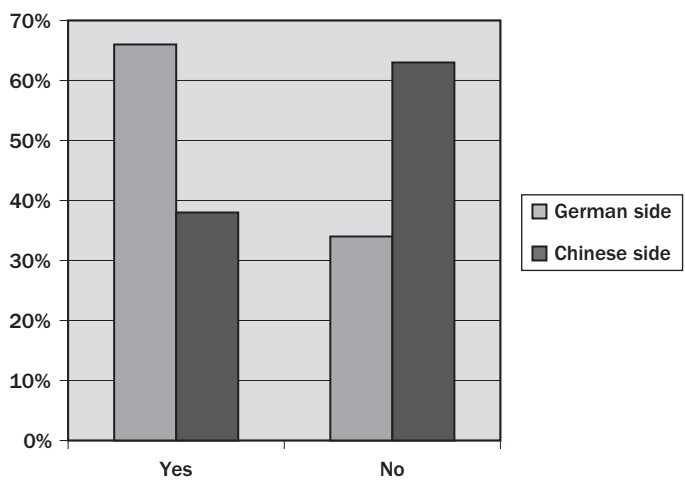


**Figure 6.3** Is there an icon for the reference service?

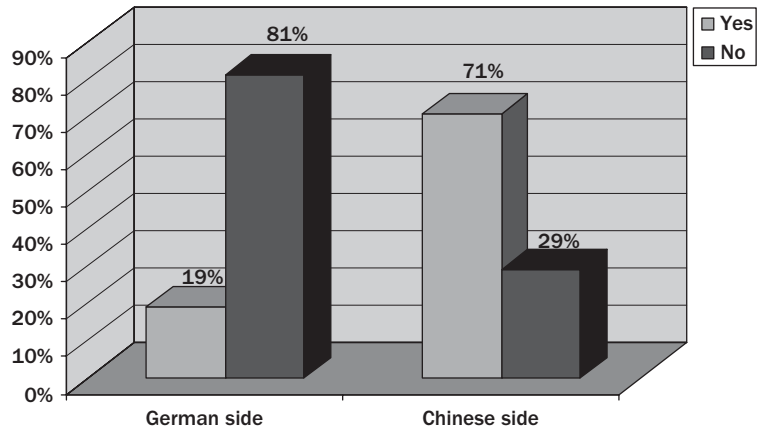
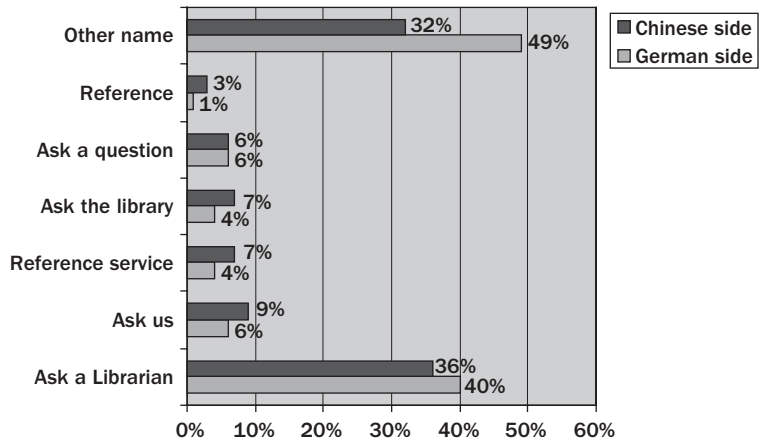



**Figure 6.4** Names of the reference services




- *Question 4*: Summary of questions of FAQ

Table 6.2 shows a significant bias in terms of negative response from both German and Chinese groups.

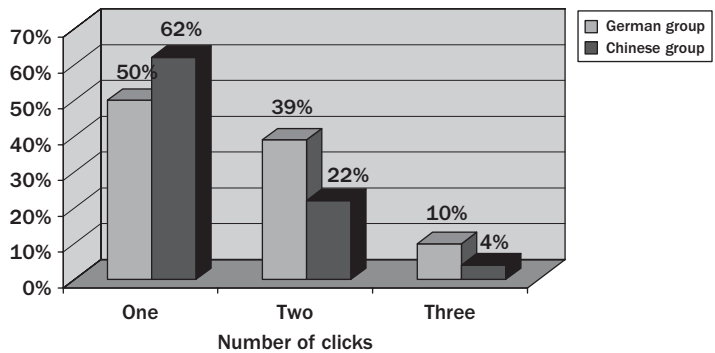
- *Question 5*: How long does it take to find the service? [number of 'clicks']

Figure 6.5 shows that both German and Chinese groups found that only a single click was required to access the services of over half the libraries in the sample. In total, 88 per cent of the libraries evaluated by the

**Table 6.2** Statistics about FAQs

| | Yes | | No | |
|---|---|---|---|---|
| Questions | German | Chinese | German | Chinese |
| Are there any FAQs? | 29.3% | 46.3% | 70.7% | 53.7% |
| Is there an FAQ about how to use the service? | 5.4% | 19.1% | 94.6% | 80.9% |
| Is FAQ visible on each page related to the service? | 10.9% | 3.4% | 89.1% | 96.6% |
| Is FAQ searchable? | 3.4% | 15.4% | 96.6% | 84.6% |

**Figure 6.5** Number of 'clicks' for finding the service




Chinese students took 1–3 clicks to find the services, while 99 per cent of the libraries evaluated by the German students took fewer than four clicks to locate the services they used.

Nevertheless, there was again a lack of consensus. The Chinese students used the classification of 'zero click' to record situations when they found the e-mail reference service directly from the library homepage. The German students, however, classified this as 'one click'.

## *Interest*

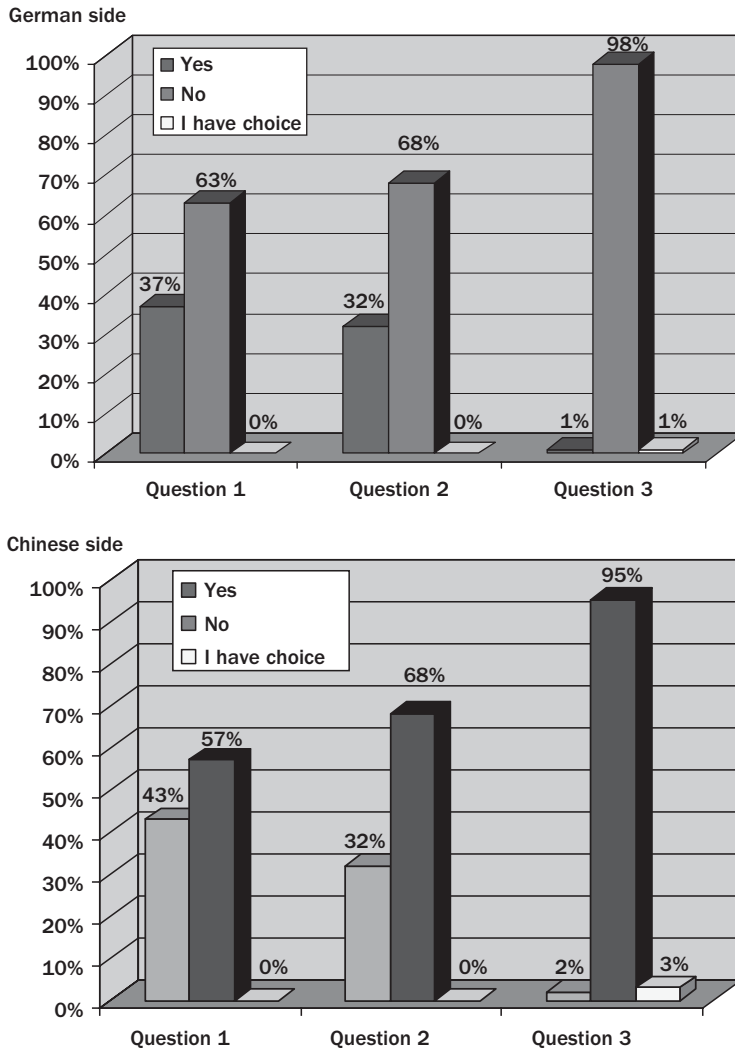
The following three questions were used to evaluate the 'interest' criterion:

- *Question 1*: Do you feel encouraged to ask a question because of the welcome of the library?
- *Question 2*: Does the library tell you which kind of question they will answer?

- *Question 3*: Does the library tell you if they have an archive for the questions?

Figure 6.6 shows similar results from both German and Chinese participants. At least 57 per cent of the libraries tested received negative responses to the three questions above and other choices were seldom found.

**Figure 6.6** Replies to the questions addressing the librarian's interest



## Formal criteria

There were also three questions about the web form for the e-mail reference service.

- *Question 1*: Is there a web form?

For the first time in the project, the German and Chinese group attained identical statistics (Figure 6.7). Among the services they tested, 60 per cent had a web form whereas 40 per cent did not. In some cases, only a simple e-mail address existed for the user to send an enquiry.

- *Question 2*: What information are you asked to provide in the web form?

Figure 6.8 lists the five most common types of information requested in the web forms, namely, (user) name, e-mail address, status, phone number, address and post code. German students found that the identification numbers were required by 7 per cent of the 147 libraries. Together with user status and organisation or affiliation, such information is used in controlling the usage of the services.

- *Question 3*: Which information in the web form is related to the content of the enquiry?

As shown in Figure 6.9, the German and Chinese groups recorded a similar response. According to the statistics, the four types of information most commonly requested are: question, sources consulted, purpose and type of question. Except the question itself, other information is certainly helpful for the reference staff to reply to the enquiry.

**Figure 6.7** Is there a web form?

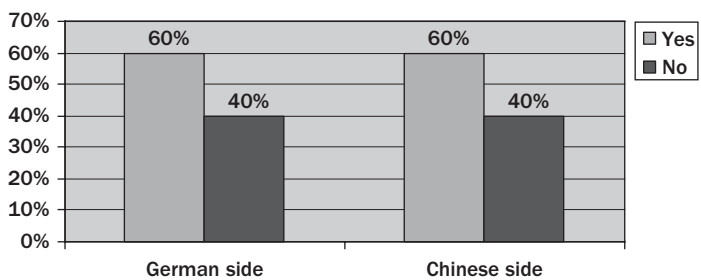


**Figure 6.8** Information required in the web form

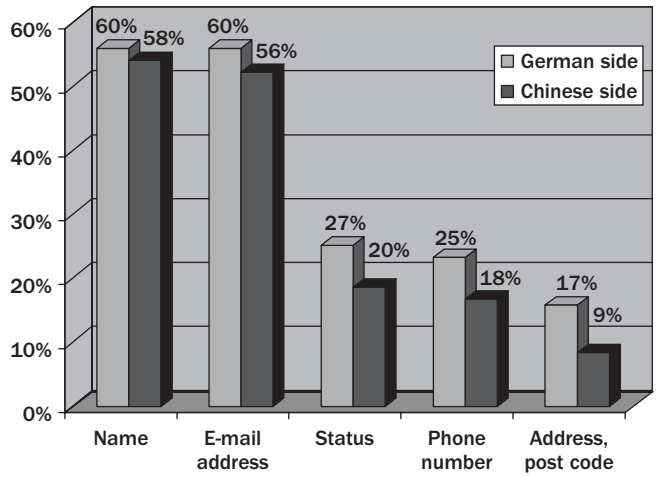
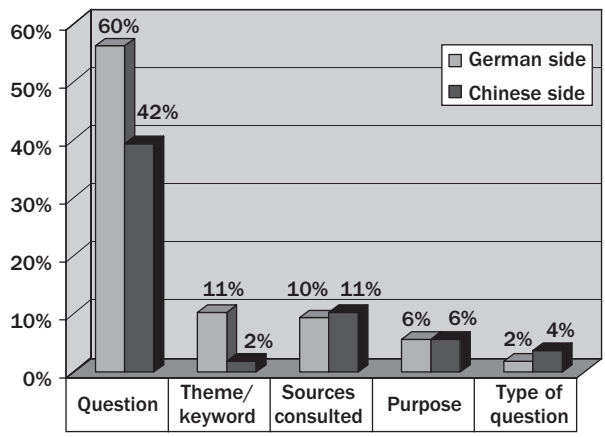



**Figure 6.9** Information related to the contents of enquiries




## *Enquiring*

Two general questions come at the beginning of this part.

- *Question 1*: Do they give you a period of time, in which they answer your question?
- *Question 2*: Do they assure protection of your private information in any way?

German and Chinese project members found around 40 per cent of the evaluated libraries stated a period within which they aimed to reply (see Figure 6.10), however, about 60 per cent did not do so. Meanwhile, few libraries (as low as 4 per cent on the German side and 7 per cent on the Chinese side) assured any protection of users' personal information.

- *Question 3*: Do you get confirmation that your question has arrived?

The corresponding ratios from the two groups are similar again. The project members got confirmation about the arrival of their questions from less than half of the libraries (see Figure 6.11).

- *Question 4*: Does the library ask you questions concerning your question?

Very few libraries asked the testers questions concerning their enquiries. On both German and Chinese sides, the ratio of such services was only 2 per cent.

## Friendliness

- *Question 1*: Do they address you with your name?

Some 75 per cent of the 71 reference librarians who replied addressed the German project members by name (see Figure 6.12). However, the

**Figure 6.10** Libraries providing a given period for response

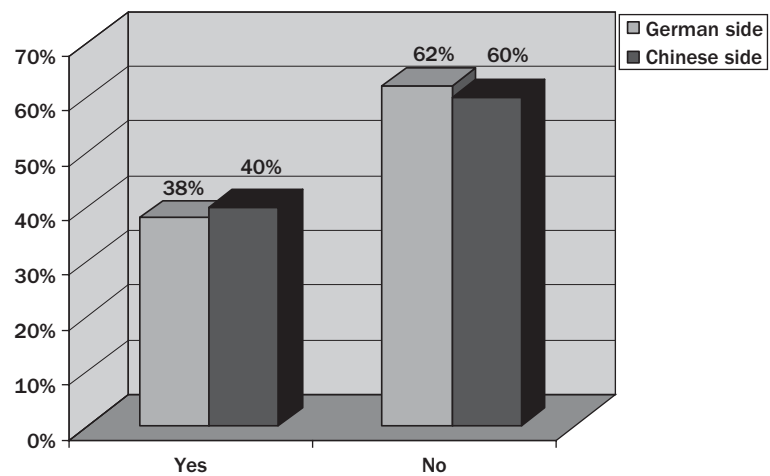


**Figure 6.11** Do you get confirmation that your question has arrived?

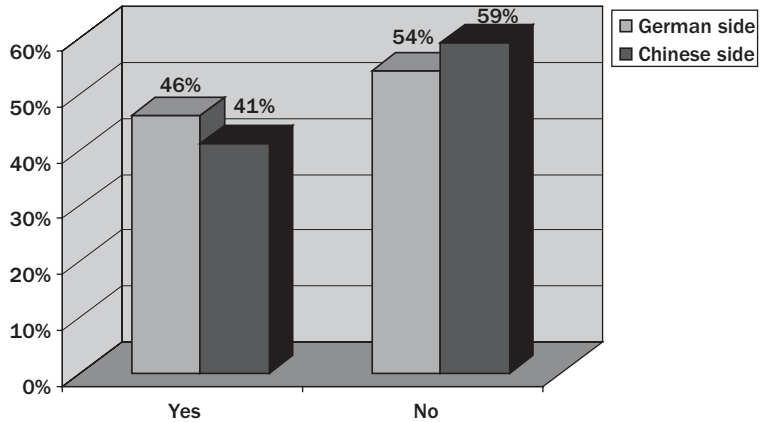
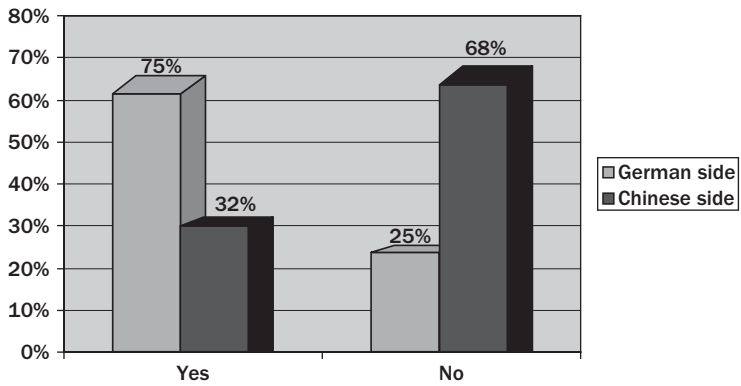



**Figure 6.12** Do they address you with your name?




corresponding figure on the Chinese side was only 32 per cent. This could be due to cultural familiarity. As many of the librarians are from the western world, so they would be more familiar with German names. Conversely, they may have no idea about how to address a Chinese student by name. Indeed, many westerners find it difficult to discern the forename and family name from a Chinese name. The different geographical locations of the testers and reference staff would support this theory.

- *Question 2*: Does the librarian who answers your question sign with his own name?

As shown in Figure 6.13, around 80 per cent of the librarians who answered the German and Chinese students' questions signed with their own names.

## *Judging the response*

- *Question 1*: Do you get the answer in the given period of time?

Among the evaluated libraries, the response rate for both groups was up to 50 per cent (see Figure 6.14). The remaining libraries either extended the response time or did not confirm a time within which they intended to reply. These statistics suggest a disappointing performance with regard to the timeliness of response.

- *Question 2*: Do they describe the strategy of search?

The participants from both German and Chinese groups found that around 60–70 per cent of the reference librarians indicated the information sources they used (Figure 6.15).

- *Question 3*: Do they ask you if you are satisfied with the answer?

The statistics here are not as encouraging as for the previous question. In both arms of the study, only 30 per cent of the reference librarians described their search strategies as part of their reply.

**Figure 6.13** **Does the librarian who responds to your question sign with his own name?**

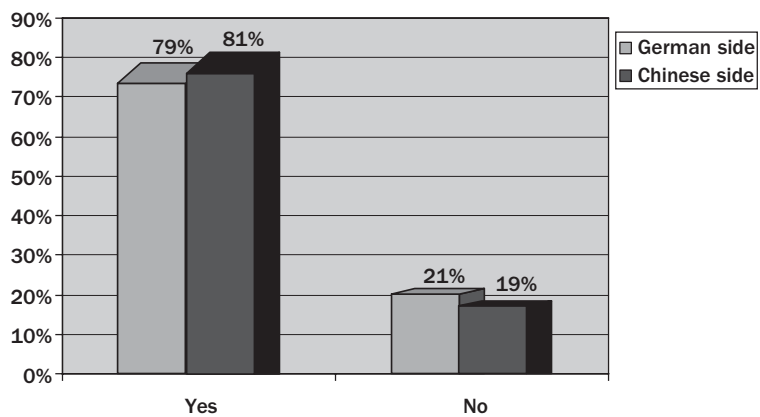


**Figure 6.14** Libraries responding within the given time

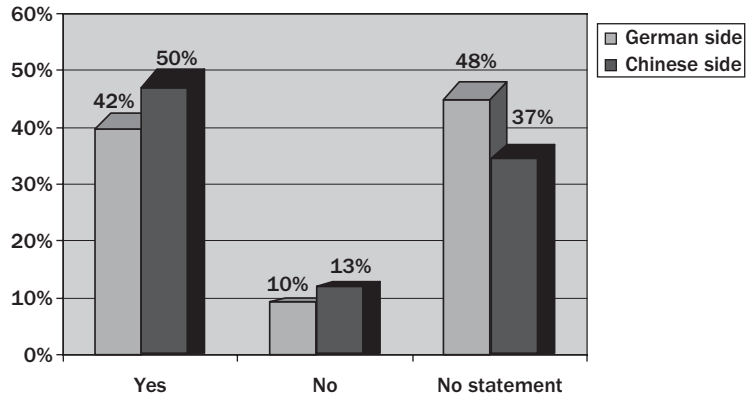
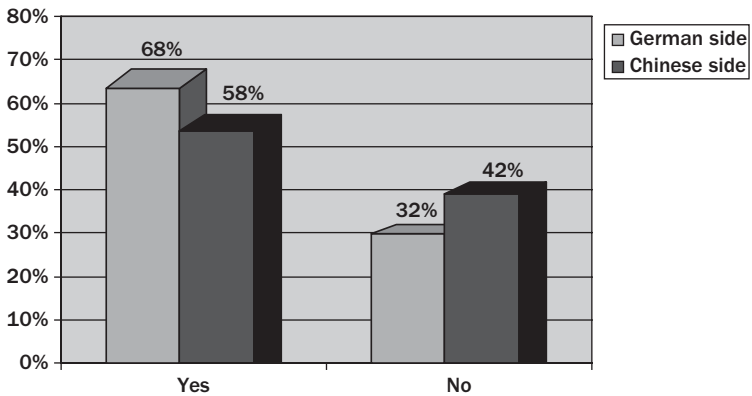



**Figure 6.15** Reference librarians indicating the information sources they used




## *Follow-up*

- *Question 1*: Do they ask you if you are satisfied with the answer?

As Figure 6.16 represents, only 16 per cent of the librarians asked the German students whether they were content with the service, while the figure for the Chinese students is lower, at only 6 per cent.

- *Question 2*: Do they require you to use the reference service again?

From Figure 6.17, it can be seen that the proportion of libraries inviting the patron to reuse their reference service is low, at 10 per cent and 17 per cent for the German and Chinese groups respectively.

**Figure 6.16** Results dealing with follow-up I

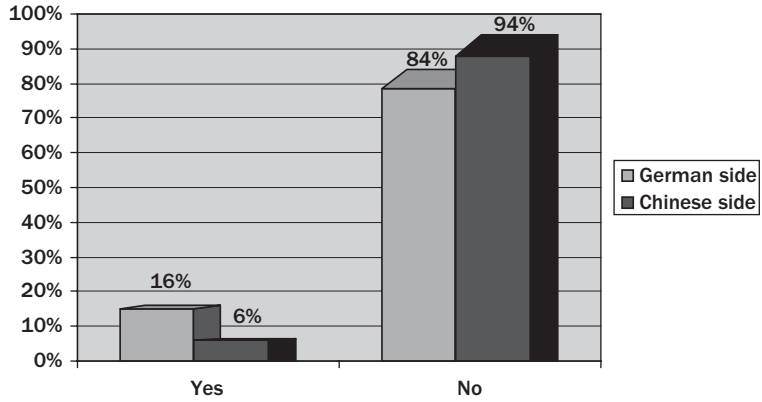
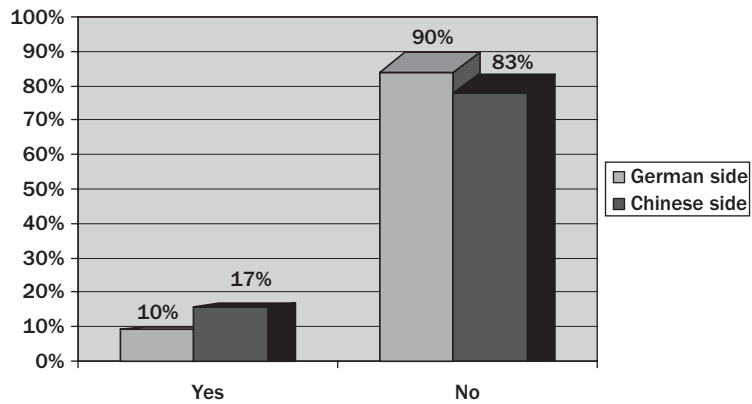



**Figure 6.17** Results dealing with follow-up II



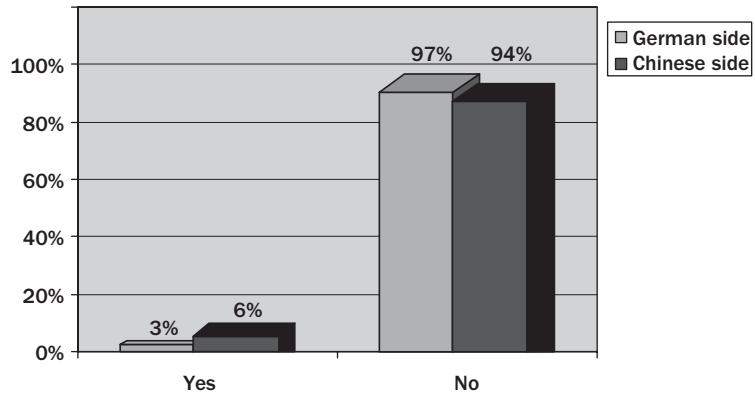

- *Question 3*: Do they require you to give them a feedback about your confidence with the service?

The response here was broadly negative. Only a minority of the librarians tested (only 3 per cent on the German side and 6 per cent on the Chinese side) requested that the project participants provide feedback about their confidence with the service (see Figure 6.18).

- *Question 4*: Is there a link to reference services of other institutions?

In both groups, 22 per cent of libraries were found to provide a link to other institutions' reference services. Although the students initially

**Figure 6.18** Results dealing with follow-up III




expected a higher ratio, they thought the practical statistics had been very good.

Results in terms of the subjective criteria are described below.

## *Concluding judgment*

- *Question 1*: How friendly answered the librarian?

The two charts in Figure 6.19 display that most of the reference librarians were friendly during the tests. Only 19 per cent on the German side and 23 per cent on the Chinese side gave the evaluators a negative impression.

- *Question 2*: How good did they understand my question?

Figure 6.20 shows that the project members thought that less than one-quarter (19 per cent on German side, 25 per cent on Chinese side) of the librarians did not understand their questions very well.

- *Question 3*: How useful was the answer?

As indicated in Figure 6.21, the Chinese students showed a greater level of satisfaction at the 'most positive' level compared with their German counterparts (19 per cent versus 11 per cent, respectively). However, at other levels of satisfaction, the German side rated the response more highly than did the Chinese. Hence, the overall percentage of positive credits on the German side is higher than on the Chinese side.

**Figure 6.19** How friendly was the librarian's response?

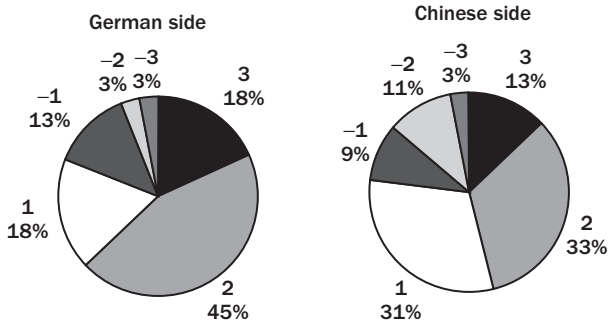



**Figure 6.20** How well did they understand the question?

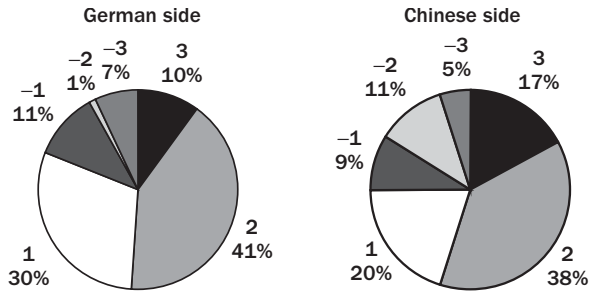
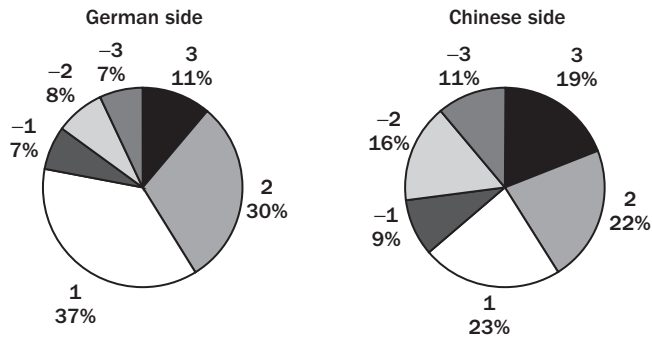


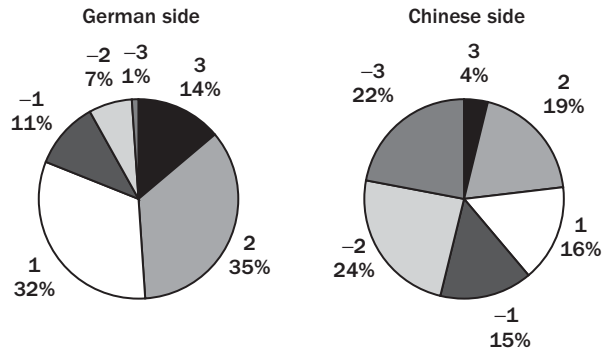

**Figure 6.21** How useful was the response?




■ *Question 4*: How satisfied are you with the whole service?

As shown in Figure 6.22, most of the German participants (as high as 81 per cent) were satisfied with the services. In sharp contrast, nearly 80 per cent of the Chinese students were not content with the services they evaluated.

**Figure 6.22** How satisfied are you with the whole service?

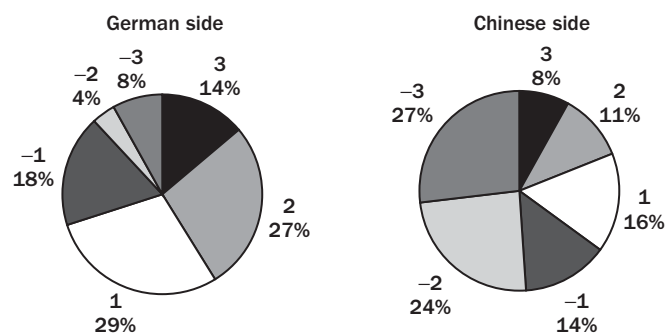



■ *Question 5*: Would you use this reference service again?

The two charts in Figure 6.23 follow a similar patter to those in Figure 6.22. It is obvious that the German project members have had a more positive experience with the reference services than have the Chinese participants. In total, 70 per cent of the German students would be prepared to use the e-mail reference service again, whereas only half as many Chinese students are willing to do so (i.e. 35 per cent).

The German students' overall judgement corresponds with the results from the first four sections. As discussed in the last chapter, however, the Chinese students' reaction to Question 5 is surprising, as it does not appear to be in keeping with their first four judgments. Although these results are summarised directly from the data, it is difficult to explain this phenomenon using a scientific approach.

**Figure 6.23** Would you use this reference service again?



## *Comparison of opinions regarding cooperation*

As hypothesised by both German and Chinese project members prior to the study, diverse cultural backgrounds result in diverse perspectives. The differences between the two groups also resulted in various opinions as regards to cooperation during the project (see Table 6.3).

Although some common feelings among the German and Chinese participants can be identified in Table 6.3, certain differences actually seem more prominent. For example, the Chinese students were surprised when they learned how the German group had prepared the documents in German before translating them into English in order to communicate with the Chinese participants – it certainly was a big job. In contrast, recognising that this was an international project, the Chinese project members prepared all their documents in English from the outset. The Peking University is famous for its openness to international educational and academic communications, and English courses have been very popular in the University. Consequently, the students there had no anxiety about studying and working in English. This is unlike the environment in the Stuttgart Media University, where the online reference service evaluation seminar in the spring semester of 2006 was the first course during which English was the primary language of communication. Only four students signed up for this seminar, while normally up to 15 students register for a course or a seminar.

**Table 6.3** **Opinions about cooperation during the project**

| German side | Chinese side |
|---|---|
| 'The translation of all documents was a big job' (students) | It is a good experience to cooperate with students from a different culture |
| 'Cooperation is difficult but important to learn understanding and accepting people from other countries' (Simon) | Communication is difficult because of of a lot reasons |
| As the Chinese and German project groups were organised differently, it unfortunately was impossible to directly communicate with each other; the communication took part exclusively via the Chinese and German project managers, which was a pity for the other project members on both sides (students) | Understanding each other between the German and Chinese is important but far from enough during the project |

Difficulty in communication was the common issue for the two groups. One reason is that the groups were structured in different ways as previously discussed. The nature of the participant (seminar participant vs. volunteer) was another dominating issue. In addition, various time arrangements also resulted in difficulties. A number of holidays for enjoying the beautiful spring are undoubtedly a good thing for the German students. At the Peking University, on the other hand, there is only a one-week holiday at the beginning of May. Communication during the holidays was blocked and, to an extent, a time lag was created.

That said, understanding and tolerance between parties proved a solid foundation for successful cooperation.

## Experiences and lessons

This research project is certainly not the first to evaluate digital reference services. However, it must be the first in the field to be cooperatively implemented by an international group. Not only were the evaluation targets universal, but also the project members came from two different worlds, one western and one eastern. In addition to the results, the experience of the project is also worth describing briefly. Each participant will have their own perspectives about the project. Experiences and lessons should be important parts of their thinking. The author portrays her own thoughts as below.

### *Experiences*

Almost all of the participants agreed that they benefited a lot from this pioneering project for variety of reasons. The following points are worth mentioning:

- *International cooperation in the higher education setting is feasible.* After drafting a good idea for a collaborative project, the most difficult thing is searching for prospective partners. Professor Simon, the mentor of the German group, is an initiative professional, who succeeded in finding a good cooperating partner. The Chinese participants were similarly open to international cooperation. Having this in place really helped the project proceed smoothly.

- *Project management guarantees half of the project's success*. Project management was key to the German arm of the project, and supported the work being conducted in a standardised way. Although the Chinese members' work proceeded in a different way, they thought this idea was good.
- *Communication among people with different cultural backgrounds is possible only if they have the intention to understand each other.* Misunderstanding is, of course, inevitable. However, ongoing communication will reduce the misunderstanding in the long term.
- *The project successfully created an international vision of e-mail reference services*. Through practical evaluation, this project provides comprehensive and detailed data about such services in libraries all over the world. Analysis of the data is helpful for professionals to gain a deep insight into the status quo of this kind of service.

## Lessons

Evaluating the lessons learned from a project is not simply an occasion to celebrate what has gone well, but is also an opportunity to identify areas that could have been done better. This should not be thought of as 'nitpicking'; rather it helps those seeking to conduct similar research not to repeat the same mistakes. Indeed, even as a teacher and one of the mentors of this project, the author did not recognise these problems until the project was underway, or until actually writing this book. It is therefore to be expected that, despite all their hard work, the students would not have had sufficient experience to be able to predict these issues.

Some issues were rooted in the study groups' imperfect knowledge of the English language, as it was a foreign language to all the project members. For instance, there are a few problems regarding the wording used in the question design. For example, the evaluation guide uses the question 'Do they require you to use the reference service again?' Obviously, the word 'invite' would be more appropriate than 'require' in this sentence.

More frequent problems leading to misunderstanding or confusion are the result of the lack of common agreements about certain definitions and regulations. More discussion and explanation for common meanings would have benefited the study. The 'lacks' are listed as follows:

- *Lack of regulation about counting the libraries*: Are the National and University Library of Iceland and the National Library and

Copenhagen University Library counted only as national libraries, university libraries or both? European, libraries, such as the Lower-Saxony State and Goettingen University Library, commonly serve two functions simultaneously. It was not possible to check how the two abovementioned libraries had been counted until the final calculation had been reached.

- *Lack of regulation about the language for registering the library*: As the sample libraries are located in a variety of continents and countries, the language for registering the library should be uniform, as its original name might appear in a language other than English. There should be common understanding on this point in terms of at least the following aspects:
  - What is the official language for registering the library? (Of course, the key to this question is English. However, this should be regulated at the very beginning.)
  - Should only the names in the official registering language appear in the register form?
  - Is it necessary to register the library's name in its original language? How should one deal address the matter of inputting words with characters not standard in English, for example, Chinese, Turkish or Thai?
- *Lack of regulation about registering library names*: The registering form, the so-called evaluation guide in the project, required only the university name. However, experience shows that both the names of the library and the university to which it belongs should be recorded. Sometimes, a library university has its own special name. It is also common to find more than one library in a university – each with a different name. For instance, the library of the Al Akhawayn University is known as the 'Mohammed VI Library'. However, only the university name appeared in the German list of the tested libraries, meaning that the information is certainly incomplete. Another extreme example comes from the University of Toronto, which has some 27 libraries within its library group. Consequently, it is unclear what the item 'the Library of University of Toronto' refers to. Additionally, the name of university library should be recorded as it appears on the library homepage. When taking down library names, the Anglo-American Cataloguing Rules, 2nd edn, revised (AACR2R) rules regarding corporate names should, in principle, be followed. For example, the library of the Auburn University displays as 'Auburn University Libraries'. Accordingly, it should have been typed in this

way in the library list. The creator of the university library list did not notice the problem dealing with the authority control of library names. In addition, the location of the library, particularly the city where it is located, is very useful for the unique identification of the university. Therefore, although it is unnecessary to record any statistics on this point, it would be better to register such information in the evaluation guide. A case in point is the National Tsinghua University in Taiwan, which was established in Beijing in the early 1920s and moved to Hsinchu, Taiwan in 1949. At present, however, there still remains a Tsinghua University in Beijing. In this case, registering location information is crucial to distinguish one from the other.

- *Lack of definitions of some concepts*: There is insufficient explanation about some concepts. For example, there is no clear definition as to how long the project member should wait until recording zero response from the library being surveyed. This led to inconsistent judgments; for example, when evaluating the National Library of Singapore, zero response was recorded after 2 hours and 45 minutes, yet while testing the National Library of the Faroe Islands, the same student did not give up waiting until 18 hours and 55 minutes later. The problem is exacerbated when one also considers the variation across tests conducted by different group members. This shortage of uniform definitions in measurements reduces the reliability of the results.
- *Lack of regulations in respect of statistics*: One issue is that on the Chinese side, the universities in Taiwan were counted as Chinese, whereas in Germany, some people consider Taiwan as an independent country. The project did not identify how to deal with such confusion. In addition, some labels used in statistical tables were not uniform between German and Chinese project members. For example, the German students used 'Australia' as both country and continent name, while the Chinese group used 'Oceania' as the name of the continent and the word 'Australia' was only used as the country name. A similar problem arose with the use of 'America'. The German participants used 'America' as both the country and continent name. On the Chinese side, 'America' was used as the continent name with 'United States' as the country name.

E-mail reference services are actually easier to assess in comparison with oral reference services (reference desk and telephone reference service) because the correspondence e-mails provide valid and useful evidence for assessment.

This project reflects the status of the e-mail reference service from the user perspective. By examining user feedback, reference librarians can identify areas in which they could improve their service. However, evaluation from the reference staff's perspective might be more focused and professional. From the reference librarian's perspective, it is important to build a good relationship between the reference librarian and the patron. During this project, some librarians might have recognised that they were being tested. For example, when the Chinese students sent enquiries to the Chinese libraries, their queries were in English, while their e-mail addresses used the suffix '*@pku.edu.cn*', revealing that they were Chinese students. Under such circumstances, it is reasonable to assume that the Chinese librarians suspected their intentions. When designing the evaluation strategy, respect for the librarian should be a consideration when planning how to achieve the project goal. A further issue is the pertinence of the questions designed for the evaluation. For example, with respect to the question, 'Do you get confirmation that your question has arrived?', some libraries confirmed receipt of the enquiry because they thought it was necessary to do so, while some libraries did not, as they felt that their response to the question itself implicitly confirmed its receipt. Indeed, some librarians might also argue that not sending confirmation mails frees more time to dedicate to serving more clients. In short, the understanding and respect between the reference librarian and user should be considered, as such a project deals with human beings who have emotions and feelings.

# Conclusions

The test tool, i.e. the evaluation guide, in the project was designed on the basis of the RUSA guidelines. As such, conclusions will mainly be drawn in terms of the criteria portrayed in the guidelines. Two specific conclusions out of other considerations follow.

## *General conclusions*

Overall, as regards to the objective criteria, 740 questions received positive responses from the German project members while 1,485 questions got negative responses. The number of the negative results is a little more than twice of that of the positive results. Furthermore, among the 71 libraries replying to the enquiries, the German participants would be prepared to

use the services of 49 (69 per cent), even though the objective criteria were evaluated negatively 852 times and evaluated positively 535 times. The German group concluded that 'the reference service is not user-friendly and professional all over the world at present'.

Generally speaking, the services tested could partially fulfil the requirements put forward in the RUSA guidelines. The following are in-depth conclusions. In cases where the criterion is adapted from the RUSA guidelines, there will be comments outlining whether the services follow the RUSA guidelines.

## Approachability

- Most of the libraries tested during the project had either a designation or an icon for the reference service.
- The reference services were given different names, although 'Ask a/the Librarian' was the most common.
- It appears that FAQ provision has not been sufficiently considered among the evaluated libraries.

Simply put, compared with the relating rule in the RUSA guidelines, most of the tested libraries provided jargon-free links to the reference service from their web pages. Nevertheless, not all of the assistance (such as FAQ) could be found throughout the sites.

## Interest

More than half the libraries made the evaluators feel welcome to ask a question. However, most of them neither told the user which kind of question they would answer nor whether they had an archive for the questions.

Briefly, the services under evaluation failed to show such interest in patrons' questions as the RUSA guidelines recommend. More positively, however, most of them made their question-answering procedures and policies clearly accessible on the Web.

## Formal criteria

The majority of the libraries surveyed provided a web form for their e-mail reference service. Some common information was found in these

web forms, such as (user's) name, e-mail address, status and phone number. Among the information related to the content of the enquiry, question, sources consulted, purpose and type of question were most frequently requested. Most of the libraries used web forms to gather as much information as possible, as requested in the RUSA guidelines.

## Enquiring

- Less than half of the libraries declared a given period within which the question would be answered.
- Few libraries assured any protection of users' personal information.
- Less than half of the libraries confirmed receipt of the initial enquiry.
- Very few libraries asked questions concerning the project participant's enquiry.

## Friendliness

Most libraries addressed the evaluators with their names and also signed with their own names. In other words, the reference librarians were friendly to the users.

## Judging the response

- Up to half of the reference librarians responded within the given time.
- The majority of the librarians in the sample indicated the information resources they used, but only few of them described their searching strategy.

Most of the libraries performed reasonably with respect to the latter point; however, they could have done much more to help guide the patron through library resources, as recommended by the RUSA guidelines.

## Follow-up

- A minority of the reference librarians asked their clients whether they were satisfied with the responses.
- Even fewer requested feedback on whether the users trusted their responses.

- Few libraries provided links to reference services of other institutions.

The majority of the reference services did not perform well in the follow-up category. As recommended in the RUSA guidelines, reference librarians should provide alternatives to e-mail contact. However, this project did not test this rule.

## Concluding judgment

The majority of the libraries left their evaluators with a positive impression of their services. In other words, the testers thought the reference staff answered in a friendly manner, understood questions well and provided useful responses. Most of the German students were content with the overall services and would be happy to use such services again, although only a minority of the Chinese students came to the same overall positive judgments.

## Specific conclusions

Moving away from the criteria drafted in the project, two other conclusions can be drawn on the basis of further research into the statistics.

Firstly, a library is more accessible if it has a web page in English than if it does not. In this respect, the libraries located in the countries where English is the official language or one of their languages have an advantage over the libraries in countries where the official language is not English. Among the 136 libraries evaluated by the Chinese students, 81 libraries (59.6 per cent) were in countries where English was an official language (see Table 6.4). These countries included Australia, Canada, India, Ireland, Kenya, Namibia, New Zealand, Pakistan, Singapore, Trinidad and Tobago, Uganda, USA, UK, Zambia and Zimbabwe. The project indicates that the library has to provide web pages in English in order to achieve higher worldwide accessibility. It also argues that libraries in the English world are dominating in the international librarianship.

Secondly, the quality of e-mail reference services across the world is not balanced. For example, the proportion of libraries replying to the enquiries differs significantly by continent. Figure 6.24 displays these numbers according to the German group's statistics. The lowest reply rate (11 per cent) happened in Africa and highest in Australia (86 per cent). Further statistics in Table 6.5 again show Australia's top position. This table was created according to the objective criteria and willingness to use the service

**Table 6.4** Libraries in English-speaking countries

| Type | National library | University library | Other libraries | Total |
|---|---|---|---|---|
| Africas | 1 | 5 | 0 | 7 |
| Americas | 1 | 41 | 0 | 42 |
| Asia | 2 | 1 | 0 | 23 |
| Europe | 0 | 12 | 0 | 46 |
| Oceania | 2 | 14 | 3 | 19 |
| Total | 6 (11.7%) | 73 (86.1%) | 3 (2%) | 82 (100%) |

**Figure 6.24** Libraries replying to the enquiries

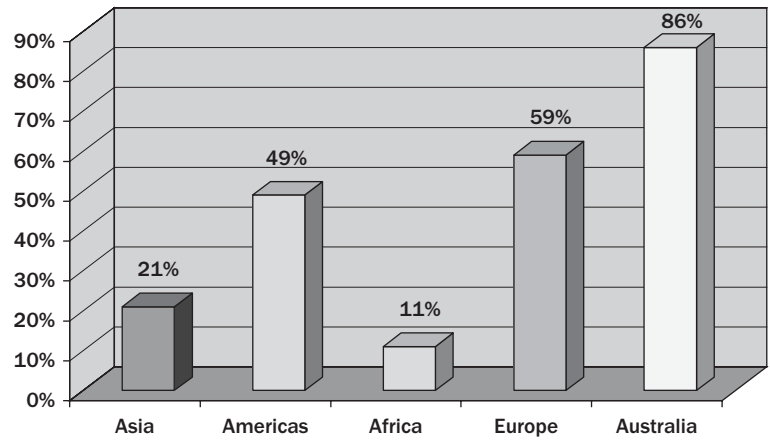



**Table 6.5** Ranking results by continents

| Rank | According to the objective criteria | According to the willingness to use the service once again |
|---|---|---|
| 1 | Australia | Australia |
| 2 | Americas | Asia |
| 3 | Europe | America |
| 4 | Asia | Europe |
| 5 | Africa | Africa |

again. Unfortunately, Africa again ranks last. However, it is normal to find that libraries with a more longstanding reference service offer a more professional service. The German groups had expected to see American libraries at the top level, and so were surprised to see these results. After

further consultation, however, they found that as the population in Australia is comparatively scattered, so the libraries on that continent have made great efforts to provide long-distance reference services.

## Perspectives

Digital reference services are important for supporting learning, promoting intellectual enquiry and reducing the digital divide. Such services help users to raise their information competence.

> If the library is to succeed in delivering digital reference service and in defining the roles of reference librarians, it must enhance the quality of service to users in order to have a sustainable, competitive advantage in the provision of information in the digital realm.[2]

This research project provides an insight into the worldwide e-mail reference service. One and a half years have passed since the end of the project. Hopefully the evaluated services have already improved a little during this period. During the next online reference service evaluation seminar at Stuttgart Media University, an unobstructive project to evaluate the chat reference service in the USA was conducted. Besides the chat reference service, the following topics might be also good for future research:

- Is it legal for the library to publish the session transcripts between the user and reference librarian?
- Has the library invited or forced the enquirer to sign up to an agreement on privacy? Does the agreement take into account the benefits for both parties?
- How should the librarian reply if asked a question such as how to make poison or how to create a bomb?
- Is there any difference while using the digital reference service between users from different nations?
- Is the e-mail reference service transcription of good quality?

Imagination leads the direction of development. As regards to the perspective of the reference service, fantasies as below might be considered:

- the user and digital reference librarian conduct a remote reference service through video on the computer network (changing the text-based service manner);

- the digital reference librarian plays an active role in supporting teaching[3] and learning;[4]
- the library, archive, museum and other intellectual institutions provide cooperative reference service;[5]
- the 24/7 reference service becomes a reality and is open to all users through cooperation at different levels.
- There are a variety of ongoing approaches in digital reference service provision. No matter what the approach may be, it is developing towards serving users more efficiently. The patron is the god in the field of reference service. Serving the patron in the most effective way is always the goal of the library.

## Notes

1. Palys, T. S. (2003) *Research Decisions: Quantitative and Qualitative Perspectives* (3rd edn), Toronto: Thomson Nelson.
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3. Ellis, L. A. (2004) 'Approaches to teaching through digital reference', *Reference Services Review* 32(2): 103–119.
4. Lipow, A. G. (2003) 'The future of reference: point-of-need reference service: no longer an afterthought', *Reference Services Review* 31(1): 31–5.
5. Salzmann, K. A. (2004) '"Contact us": archivists and remote users in the digital age', *The Reference Librarian* 85: 43–50.

# Appendix A
# Guidelines for Behavioral Performance of Reference and Information Service Providers

Revised by MOUSS Management of Reference Committee and approved by the RUSA Board of Directors, June 2004.

American Library Association (2005) 'Guidelines for behavioral performance of reference and information service providers', available at: *http://www.ala.org/rusa/stnd_behavior.html* (accessed 15 March 2006).

## Introduction

The face of reference services has changed significantly since the original RUSA Guidelines for Behavioral Performance were first published in 1996.[1] Intended to be used in the training, development, and/or evaluation of library professionals and staff, the Guidelines have subsequently been favorably evaluated by the profession, and currently enjoy widespread acceptance as standards for the measurement of effective reference transactions.[2]

The original Guidelines dealt primarily with face-to-face interactions between reference staff and library users. Even at the time, however, the world of reference was moving beyond the traditional reference desk. E-mail and online chat services have since become popular with both patrons and library staff, and are expanding in all types of libraries, from public to academic to school libraries and beyond. Although some of the statements in the original Guidelines can be applied to remote forms of reference, the lack of traditional visual and non-verbal cues produces a different type of library-patron interaction.

One constant that the shift away from in-person encounters has not lessened is the need for good communication skills. The Virtual Reference Desk recognized this and incorporated an 'interactive' component into their 'Facets of Quality for Digital Reference Services,' stating that '[d]igital reference services should provide opportunities for an effective reference interview, so that users can communicate necessary information to experts and to clarify vague user questions.'[3]

In all forms of reference services, the success of the transaction is measured not only by the information conveyed, but also by the positive or negative impact of the patron/staff interaction. The positive or negative behavior of the reference staff member (as observed by the patron) becomes a significant factor in perceived success or failure. This connection has been born out in the work of researchers like Gers and Seward (1985), who found that 'behaviors have a strong influence on performance',[4] and Whitlatch (1990), who stated 'Librarian courtesy, interest, and helpfulness are crucial in providing successful reference service. Libraries must select and retain staff who have these service orientations toward users.'[5] Matthew Saxton (2002) put the Guidelines to a statistical test, and found that they did indeed correlate highly to a successful reference transaction.[6]

The original RUSA Ad Hoc Committee that designed the Guidelines recognized the need for future adaptation to deal with issues related to remote users, and in late 2001 the RUSA Standards and Guidelines Committee requested that the RSS Management of Reference Committee undertake this revision. The revised Guidelines reflect the understanding that while in-person and remote reference interviews share some points in common, each also has its own peculiar characteristics that need to be addressed separately in the formation of standard guidelines.

With this in mind, the original format has been rearranged to reflect the changes in our profession. The five main areas (approachability, interest, listening/inquiring, searching, and follow up) remain the same, but three distinct categories have been added (where appropriate) under each. They are:

- *General*: Guidelines that can be applied in any type of reference interaction, including both in person and remote transactions.
- *In Person*: Additional guidelines that are specific to face-to-face encounters, and make the most sense in this context.
- *Remote*: Additional guidelines that are specific to reference encounters by telephone, e-mail, chat, etc., where traditional visual and non-verbal cues do not exist.

Some of the original Guidelines have also been rewritten to make the service ideal they convey apply more generally. The goal of this document's revision has been to create a conceptual framework and service ethic with which reference professionals can consider all patron reference interactions, and help establish a service standard for their institution.

*Note*: The term *librarian* in this document applies to all who provide reference and informational services directly to library users.

# 1.0 Approachability

In order to have a successful reference transaction, patrons must be able to identify that a reference librarian is available to provide assistance and also must feel comfortable in going to that person for help. In remote environments, this also means placing contact information for chat, e-mail, telephone, and other services in prominent locations, to make them obvious and welcoming to patrons. Approachability behaviors, such as the initial verbal and non-verbal responses of the librarian, will set the tone for the entire communication process, and will influence the depth and level of interaction between the staff and the patrons. At this stage in the process, the behaviors exhibited by the staff member should serve to welcome the patrons and to place them at ease. The librarian's role in the communications process is to make the patrons feel comfortable in a situation that may be perceived as intimidating, risky, confusing, and overwhelming.

To be approachable, the librarian:

## *General*

1.1 Establishes a 'reference presence' wherever patrons look for it. This includes having reference services in a highly visible location and using proper signage (both in the library and on the library's website) to indicate the location, hours, and availability of in-person and remote help or assistance.

1.2 Is poised and ready to engage approaching patrons. The librarian is aware of the need to stop all other activities when patrons approach and focus attention on the patrons' needs.

1.3 Acknowledges others waiting for service.

1.3.1 Employs a system of question triage to identify what types of questions the patrons have when more than two patrons

are waiting. Frequently asked questions, brief informational questions, directional questions, and referrals can be answered quickly, allowing more time to devote to in-depth reference questions.

## *In person*

1.4 Establishes initial eye contact with patrons, and acknowledges the presence of patrons through smiling and attentive and welcoming body language.

1.5 Acknowledges patrons through the use of a friendly greeting to initiate conversation, and by standing up, moving forward, or moving closer to them.

1.6 Remains visible to patrons as much as possible.

1.7 Roves through the reference area offering assistance whenever possible. Librarians should make themselves available to patrons by offering assistance at their point-of-need rather than waiting for patrons to come to the reference desk. To rove successfully, the librarian should:

- 1.7.1 Be mobile. Get the patrons started on the initial steps of their search, then move on to other patrons.
- 1.7.2 Address the patrons before addressing their computer screen. Patrons are more likely to confide in librarians and discuss their needs if they do not perceive the librarians as 'policing' the area.
- 1.7.3 Approach patrons and offer assistance with lines such as, 'Are you finding what you need?' 'Can I help you with anything?' or 'How is your search going?'
- 1.7.4 Check back on the patron's progress after helping them start a search.
- 1.7.5 If the reference desk has been left unattended, check back periodically to see if there are patrons waiting for assistance there.

## *Remote*

1.8 Should provide prominent, jargon-free links to all forms of reference services from the *home page* of the library's website, and throughout the site wherever research assistance may be sought out. The Web should be used to make reference services easy to find and convenient.

# 2.0 Interest

A successful librarian must demonstrate a high degree of interest in the reference transaction. While not every query will contain stimulating intellectual challenges, the librarian should be interested in each patron's informational need and should be committed to providing the most effective assistance. Librarians who demonstrate a high level of interest in the inquiries of their patrons will generate a higher level of satisfaction among users. To demonstrate interest, the librarian:

## *General*

2.1 Faces the patron when speaking and listening.
2.2 Focuses attention on the patrons.

## *In person*

2.3 Faces patrons when speaking and listening.
2.4 Maintains or re-establishes eye contact with patrons throughout the transaction.
2.5 Signals an understanding of patrons' needs through verbal or non-verbal confirmation, such as nodding of the head or brief comments or questions.

## *Remote*

2.6 Maintains or re-establishes 'word contact' with the patron in text-based environments by sending written or prepared prompts, etc., to convey interest in the patron's question.
2.7 Acknowledges user e-mail questions in a timely manner.
2.8 States question-answering procedures and policies clearly in an accessible place on the Web. This should indicate question scope, types of answers provided, and expected turnaround time.

## *3.0 Listening/Inquiring*

The reference interview is the heart of the reference transaction and is crucial to the success of the process. The librarian must be effective in identifying the patron's information needs and must do so in a manner that

keeps patrons at ease. Strong listening and questioning skills are necessary for a positive interaction. As a good communicator, the librarian:

### *General*

3.1 Communicates in a receptive, cordial, and encouraging manner.
3.2 Uses a tone of voice and/or written language appropriate to the nature of the transaction.
3.3 Allows the patrons to state fully their information need in their own words before responding.
3.4 Identifies the goals or objectives of the user's research, when appropriate.
3.5 Rephrases the question or request and asks for confirmation to ensure that it is understood.
3.6 Seeks to clarify confusing terminology and avoids excessive jargon.
3.7 Uses open-ended questioning techniques to encourage patrons to expand on the request or present additional information. Some examples of such questions include:
- Please tell me more about your topic.
- What additional information can you give me?
- How much information do you need?

3.8 Uses closed and/or clarifying questions to refine the search query. Some examples of clarifying questions are:
- What have you already found?
- What type of information do you need (books, articles, etc.)?
- Do you need current or historical information?

3.9 Maintains objectivity and does not interject value judgments about subject matter or the nature of the question into the transaction.

### *Remote*

3.10 Uses reference interviews or Web forms to gather as much information as possible without compromising user privacy.

## 4.0 Searching

The search process is the portion of the transaction in which behavior and accuracy intersect. Without an effective search, not only is the desired information unlikely to be found, but patrons may become

discouraged as well. Yet many of the aspects of searching that lead to accurate results are still dependent on the behavior of the librarian. As an effective searcher, the librarian:

## General

4.1 Finds out what patrons have already tried, and encourages patrons to contribute ideas.

4.2 Constructs a competent and complete search strategy. This involves:

- Selecting search terms that are most related to the information desired.
- Verifying spelling and other possible factual errors in the original query.
- Identifying sources appropriate to the patron's need that have the highest probability of containing information relevant to the patron's query.

4.3 Explains the search strategy and sequence to the patrons, as well as the sources to be used.

4.4 Attempts to conduct the search within the patrons' allotted time frame.

4.5 Explains how to use sources when appropriate.

4.6 Works with the patrons to narrow or broaden the topic when too little or too much information is identified.

4.7 Asks the patrons if additional information is needed after an initial result is found.

4.8 Recognizes when to refer patrons to a more appropriate guide, database, library, librarian, or other resource.

4.9 Offers pointers, detailed search paths (including complete URLs), and names of resources used to find the answer, so that patrons can learn to answer similar questions on their own.

## In person

4.10 Accompanies the patrons in the search (at least in the initial stages of the search process).

## Remote

4.11 Uses appropriate technology (such as co-browsing, scanning, faxing, etc.) to help guide patrons through library resources, when possible.

# 5.0 Follow-up

The reference transaction does not end when the librarian leaves the patrons. The librarian is responsible for determining if the patrons are satisfied with the results of the search, and is also responsible for referring the patrons to other sources, even when those sources are not available in the local library. For successful follow-up, the librarian:

## *General*

5.1 Asks patrons if their questions have been completely answered.
5.2 Encourages the patrons to return if they have further questions by making a statement such as 'If you don't find what you are looking for, please come back and we'll try something else.'
5.3 Roving (see 1.7) is an excellent technique for follow-up.
5.4 Consults other librarians or experts in the field when additional subject expertise is needed.
5.5 Makes patrons aware of other appropriate reference services (e-mail, etc.).
5.6 Makes arrangements, when appropriate, with the patrons to research a question even after the reference transaction has been completed.
5.7 Refers the patrons to other sources or institutions when the query cannot be answered to the satisfaction of the patron.
5.8 Facilitates the process of referring patrons to another library or information agency through activities such as calling ahead, providing direction and instructions, and providing the library and the patrons with as much information as possible about the amount of information required, and sources already consulted.
5.9 Takes care not to end the reference interview prematurely.[7]

## *Remote*

5.9 Suggests that the patrons visit or call the library when appropriate.

# Endnotes

1. RUSA (1996) 'Guidelines for behavioral performance of reference and information services professionals', *RQ* 36 (Winter): 200–3.

2. For example, see: Gatten, Jeffrey N., and Carolyn J. Radcliff (2001) 'Assessing reference behaviors with unobtrusive testing', in Wallace, Danny P. and Connie Van Fleet (eds) *Library Evaluation: A Casebook and Can-Do Guide*, Englewood, CO: Libraries Unlimited, Inc; pp. 105–15.
3. Virtual Reference Desk (2003) 'Facets of quality for digital reference services, Version 5', June. Available at: *http://www.vrd.org/facets-06-03.shtml*.
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6. Saxton, Matthew L. (2000) 'Evaluation of reference service in public libraries using a hierarchical linear model: applying multiple regression analysis to a multi-level research', PhD Dissertation, UCLA.
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# Appendix B
# Project instruction

**Coordinator:**

**Members:**

**Mentor:** Prof. Simon

**Objective:** Evaluation of the results

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**Tasks:**

---

**Results that have to be worked out:**

---

**Conditions:**

- What do we need from the other teams?
- Which resources / materials do we need?
- Who do we have to inform?

---

**Deadlines, milestones:**

# Appendix C

# Questionnaire/evaluation guide

Name of student:

Name of the library:

Homepage:

Continent, country:

Date + time of question:

Date + time of answer:

Period in hours:

I received **no answer**: ☐

## Before using the reference service

### *Approachibility*

Is there a direct reference at the homepage of the library for the service via e-mail?

☐ yes ☐ no

Is there an icon for the reference service?

☐ yes ☐ no

What is the name of the reference service (e.g. Ask a Librarian, digital reference service etc.)?

_____

Are there any FAQs?

☐ yes ☐ no

Is there a FAQ about how to use the service?

☐ yes ☐ no

Is FAQ visible on each page related to the service?

☐ yes ☐ no

Is FAQ searchable?

☐ yes ☐ no

How long does it take to find the service?

number of 'clicks':

## *Interest*

Do you feel encouraged to ask a question because of the welcome of the library?

☐ yes ☐ no

Does the library tell you which kind of question they will answer?

☐ yes ☐ no

Does the library tell you if they have an archive for the questions?

☐ yes ☐ no ☐ I can choose if the question will be archived

## *Formal criteria*

Is there a web form?

☐ yes ☐ no

Which criteria do you have to fill in?

| Formal criteria | Criteria as regard content |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

Do they give you a period of time, in which they answer your question?

☐ yes ☐ no

Do they assure protection of your private information in any way?

☐ yes ☐ no

# During the reference service

## *Inquiring*

Do you get confirmation that your question has arrived?

☐ yes ☐ no

Does the library ask you questions concerning your question?

☐ yes ☐ no

## *Friendliness*

Do they address you with your name?

☐ yes ☐ no

Does the person who answers your question sign with her/his name?

☐ yes ☐ no

# After the reference service

## *Judgment of the answer*

Do you get the answer in the given period of time?

☐ yes ☐ no ☐ no statement

Do they name the information sources they used?

☐ yes ☐ no

Do they describe the strategy of search?

☐ yes ☐ no

## *Follow-up*

Do they ask you if you are satisfied with the answer?

☐ yes ☐ no

Do they require you to use the reference service again?

☐ yes ☐ no

Do they require you to give them a feedback about your confidence with the service?

☐ yes ☐ no

Is there a link to reference services of other institutions?

☐ yes ☐ no

## Concluding judgment

| | positive | | | negative | | |
|---|---|---|---|---|---|---|
| | +3 | +2 | +1 | –1 | –2 | –3 |
| How friendly answered the librarian (welcome, follow-up)? | | | | | | |
| How good did they understand my question (detailed web form, question)? | | | | | | |
| How useful was the answer? | | | | | | |
| How satisfied are you with the whole service (good inquiring, friendliness, reference interview)? | | | | | | |
| Would you use this reference service again? | | | | | | |

**Comments:** (just when not mentioned in the evaluation guide)

What was particularly helpful?

What was particularly embarrassing?

# Appendix D
# Libraries evaluated by the German team

| Person | Facility | URL |
|---|---|---|
| 1 | North South University Library, Dhaka | *http://www.northsouth.edu/library/library.htm* |
| 2 | National Library of China, Beijing | *http://www.nlc.gov.cn/english.htm* |
| 3 | Peking University, Beijing | *http://www.lib.pku.edu.cn/enhtml/index.htm* |
| 4 | Jiaotong University Libraries, Shanghai | *http://www.lib.sjtu.edu.cn/english/index.htm* |
| 5 | University Libraries, Shanghai | *http://www.lib.shu.edu.cn/englishver/index.htm* |
| 6 | Jiaotong University Library, Xian | *http://202.117.24.24/webe/Frntpagee.htm* |
| 7 | University of Science & Technology Library, Hong Kong | *http://library.ust.hk/* |
| 8 | Lingnan University, Hong Kong | *http://www.library.ln.edu.hk/* |
| 9 | Panjab University, Chandigarh | *http://library.puchd.ac.in/* |
| 10 | Ferdowsi University, Mashad | *http://c-library.um.ac.ir/* |
| 11 | Bunkyo Womens' University, Oimachi | *http://library1.ba.u-bunkyo.ac.jp/engmain.htm* |
| 12 | Chiba University of Commerce, Ichikawa | *http://www.lib.cuc.ac.jp/Library/eng/information.html* |
| 13 | Kyoto Gakuen University Library, Kameoka | *http://www.kyotogakuen.ac.jp/~o_lib/top/index-e.html* |

| Person | Facility | URL |
|---|---|---|
| 14 | Nagoya University, Nagoya | *http://www.nul.nagoya-u.ac.jp/index_e.html* |
| 15 | Shizuoka University, Shizuoka | *http://www.lib.shizuoka.ac.jp/homew.html* |
| 1 | Waseda University, Tokio | http://www.wul.waseda.ac.jp/ |
| 2 | Yokohama National University Library, Yokohama-City | *http://www.lib.ynu.ac.jp/index_e.html* |
| 3 | Lebanese American University, Beirut | *http://www.lau.edu.lb/libraries/* |
| 4 | Baakleen National Library, Baakleen | *http://www.baakleennationallibrary.com/index.htm* |
| 5 | University of Macau | *http://library.umac.mo/lib.html* |
| 6 | Universiti Teknologi, Johor Bahru | *http://web.utm.my/psz/* |
| 7 | Sultan Qaboos , University Oman | *http://www.squ.edu.om/lib/index.html* |
| 8 | National Library of Pakistan, Islamabad | *http://www.nlp.gov.pk/* |
| 9 | National Library of Singapore, Singapore | *http://www.nlb.gov.sg/* |
| 10 | National Cheng Chi University, Taipei | *http://www.lib.nccu.edu.tw/engindex.htm* |
| 11 | National Taiwan University, Taipei | *http://www.lib.ntu.edu.tw/ENGLISH/index_e.htm* |
| 12 | National Tsing Hua University, Hsinchu | *http://www.lib.nthu.edu.tw/en/index.htm* |
| 13 | Kasetsart University, Bangkok | *http://www.lib.ku.ac.th/main_eng.HTM* |
| 14 | Shinawatra University, Pathumthani | *http://library.shinawatra.ac.th/* |
| 15 | University of the Thai Chamber of Commerce, Bangkok | *http://library.utcc.ac.th/wc_utcc/default/default_eng.html* |
| 1 | Chiang Mai University Library, Chiang Mai | *http://www.lib.cmu.ac.th/indexe.html* |
| 2 | National Library of Turkey, Ankara | *http://www.mkutup.gov.tr/index-eng.html* |
| 3 | National Library of Lithuania, Vilnius | *http://www.lnb.lt/lnb/selectPage.do?docLocator=8&inlanguage=en&pathId=6* |
| 4 | Vilnius University Library, Vilnius | *http://www.mb.vu.lt/index_en.html* |

| Person | Facility | URL |
|---|---|---|
| 5 | Tartu University Library, Tartu | *http://www.utlib.ee/en/* |
| 6 | National Library of the Faroe Islands | *http://www.flb.fo* |
| 7 | Danish National Library of Science and Medicine | *http://www.dnlb.dk* |
| 8 | University Library of Southern Denmark | *http://www.bib.sdu.dk* |
| 9 | The Royal Library | *http://www.kb.dk/index-en.htm* |
| 10 | Oulu University Library | *http://www.kirjasto.oulu.fi* |
| 11 | Viikki Sciene Library (University of Helsinki) | *http://www.tiedekirjasto.helsinki.fi/english/* |
| 12 | Abo Akademi University Library | *http://www.abo.fi/library/welcomee.sht* |
| 13 | National Library of Island | *http://www.bok.hi.is/* |
| 14 | The University Library of Tromsø | *http://www.ub.uit.no/* |
| 15 | National Library of Sweden | *http://www.kb.se/* |
| 1 | Göteborg University Library | *http://www.ub.gu.se* |
| 2 | Stockholm University Library | *http://www.sub.su.se/english/welcome.htm* |
| 3 | Durham University Library | *http://www.dur.ac.uk/library* |
| 4 | University of the West of England | *http://www.uwe.ac.uk/library/* |
| 5 | University of York | *http://www.york.ac.uk/services/library/* |
| 6 | University of Kentucky Libraries | *http://www.uky.edu/Libraries/* |
| 7 | University of Teesside, Library & Information Services | *http://www.tees.ac.uk/depts/lis* |
| 8 | Roehampton University | *http://www.roehampton.ac.uk/customer/lrchome.asp* |
| 9 | University of Surrey | *http://portal.surrey.ac.uk/portal/page?_pageid=734,1&_dad=portal&_schema=PORTAL* |
| 10 | University of Southampton Libraries | *http://www.library.soton.ac.uk/* |
| 11 | University of Sheffield | *http://www.shef.ac.uk/library/* |
| 12 | University of Salford | *http://www.isd.salford.ac.uk/library/* |
| 13 | University of Hull | *http://www.hull.ac.uk/lib/* |

| Person | Facility | URL |
|---|---|---|
| 14 | University College – Cork | *http://booleweb.ucc.ie/* |
| 15 | The Library at Queen's University of Belfast | *http://www.qub.ac.uk/lib/* |
| 1 | University of Abertay Dundee, Virtual Library | *http://vlib.abertay.ac.uk/* |
| 2 | University of Amsterdam | *http://www.uba.uva.nl/* |
| 3 | National Library of the Netherlands | *http://www.kb.nl/* |
| 4 | University of Groningen | *http://www.rug.nl/bibliotheek/* |
| 5 | University of Twente | *http://www.utwente.nl/ub/* |
| 6 | National Library of Spain | *http://www.bne.es/* |
| 7 | Freie Universität Berlin | *http://www.ub.fu-berlin.de/* |
| 8 | University of Bochum | *http://www.ub.ruhr-uni-bochum.de/* |
| 9 | Graz University Library | *http://www.uni-graz.at/ub/* |
| 10 | Palacky University Library | *http://knihovna.upol.cz/* |
| 11 | University Library of Bratislava | *http://www.ulib.sk/* |
| 12 | Central European University Budapest | *http://www.library.ceu.hu/* |
| 13 | University of Crete | *http://www.lib.uoc.gr/* |
| 14 | The Central University Library 'Mihai Eminescu' | *http://www.bcu-iasi.ro/* |
| 15 | Wroclaw University Library | *http://www.bu.uni.wroc.pl/* |
| 1 | University Library in Torun | *http://www.bu.uni.torun.pl/* |
| 2 | National Library of Latvia | *http://www.lnb.lv/* |
| 3 | Kharkiv National University | *http://www.univer.kharkov.ua/main/library/* |
| 4 | Heriot-Watt University | *http://www.hw.ac.uk/library/index.html* |
| 5 | Australien National University | *http://anulib.anu.edu.au/lib_home.html* |
| 6 | La Trobe University Bundoora, Australia | *http://www.lib.latrobe.edu.au/* |
| 7 | Macquarie University Sydney, Australia | *http://www.lib.mq.edu.au/* |
| 8 | National Library of Australia | *http://www.nla.gov.au/*, |
| 9 | State Library of Queensland South Brisbane, Australia | *http://www.slq.qld.gov.au/* |

| Person | Facility | URL |
|---|---|---|
| 10 | State Library of Tasmania Hobart, Australia | *http://www.statelibrary.tas.gov.au/* |
| 11 | State Library of South Australia Adelaide, Australia | *http://www.slsa.sa.gov.au/* |
| 12 | University of Adelaide Adelaide, Australia | *http://www.library.adelaide.edu.au/* |
| 13 | University of Canberra Canberra, Australia | *http://www.canberra.edu.au/library/* |
| 14 | University of Melbourne Melbourne, Australia | *http://www.lib.unimelb.edu.au/* |
| 15 | University of South Australia Adelaide, Australia | *http://www.library.unisa.edu.au/* |
| 1 | University of Tasmania Hobart, Australia | *http://www.utas.edu.au/library/* |
| 2 | University of the Sunshine Coast Maroochydore, Australia | *http://www.usc.edu.au/library/library1.html* |
| 3 | Massey University Library Palmerston North, New Zealand | *http://library.massey.ac.nz/* |
| 4 | National Library of New Zealand Wellington, New Zealand | *http://www.natlib.govt.nz/* |
| 5 | University of Otago Dunedin, New Zealand | *http://www.library.otago.ac.nz/* |
| 6 | University of Waikato Hamilton, New Zealand | *http://www2.waikato.ac.nz/library/* |
| 7 | Louisiana State University | *http://www.lib.lsu.edu* |
| 8 | Deakin University | *http://www.deakin.edu.au/library/* |
| 9 | RMIT University | *http://www.rmit.edu.au/library* |
| 10 | American University in Cairo | *http://library.aucegypt.edu/* |
| 11 | Mansoura University Medical Library | *http://www.mans.edu.eg/facmed/library/index.htm* |
| 12 | Addis Ababa University | *http://www.aau.edu.et/libraries/* |
| 13 | Afrika Nazarene University, Nairobi, Kenia | *http://www.anu.ac.ke/library.htm* |
| 14 | Al Akhawayn University, Ifran, Marokko | *http://www.aui.ma/library/* |

| Person | Facility | URL |
|---|---|---|
| 15 | University of Namibia, Windhoek | *http://library.unam.na* |
| 1 | Nationalbibliothek Südafrika | *http://www.nlsa.ac.za/* |
| 2 | Makerere University, Kampala, Uganda | *http://www.makerere.ac.ug/mulib/* |
| 3 | University of Zambia, Lusaka | *http://www.unza.zm/* |
| 4 | Africa University, Old Mutare, Zimbabwe | *http://www.africau.edu/* |
| 5 | Universidad de Monterrey | *http://www.udem.edu.mx* |
| 6 | Nationalbibliothek Jamaika | *http://www.nlj.org.jm/index.htm* |
| 7 | Nationalbibliothek Trinidad und Tobago | *http://www.nalis.gov.tt/* |
| 8 | University of the West Indies, Trinidad und Tobago | *http://www.mainlib.uwi.tt/* |
| 9 | Central Connecticut State University | *http://library.ctstateu.edu/lib/* |
| 10 | Boston University | *http://www.bu.edu/library/* |
| 11 | Clark University | *http://www2.clarku.edu/offices/library/* |
| 12 | Suffolk University | *http://www.suffolk.edu/sawlib/sawyer.htm* |
| 13 | University of New Hampshire | *http://www.library.unh.edu/* |
| 14 | Alfred University, Alfred | *http://www.herr.alfred.edu/* |
| 15 | Cornell University, Ithaka | *http://www.library.cornell.edu/* |
| 1 | St. Bonaventure University, St. Bonaventure | *http://www.sbu.edu/index.cfm?objectid=88AC60BC-C09F-25C6-25CDD517287A449A* |
| 2 | University of Pittsburgh | *http://www.library.pitt.edu/* |
| 3 | Iowa State University, Ames | *http://www.lib.iastate.edu/* |
| 4 | Aurora University, Aurora | *http://www.aurora.edu/library/* |
| 5 | University of Chicago | *http://www.lib.uchicago.edu/e/index.html* |
| 6 | University of Indianapolis | *http://kml.uindy.edu/* |
| 7 | Eastern Michigan University, Ypsilanti | *http://www.emich.edu/halle/* |
| 8 | Mount Saint Vincent University, Halifax | *http://www.msvu.ca/library/* |
| 9 | Trent University | *http://www.trentu.ca/library/* |

| Person | Facility | URL |
|---|---|---|
| 10 | University of Saskatchewan | *http://library.usask.ca/* |
| 11 | University of Alaska, Anchorage | *http://www.lib.uaa.alaska.edu/* |
| 12 | Baylor University, Waco, Texas | *http://www3.baylor.edu/Library/* |
| 13 | Florida International University, Miami | *http://weblib.fiu.edu/index.cfm* |
| 14 | Frostburg State University, Frostburg | *http://www.frostburg.edu/dept/library/* |
| 15 | Northwest University, Kirkland, Washington | *http://library.northwestu.edu/* |
| 1 | Arizona State University | *http://www.asu.edu/lib/* |
| 2 | Auburn University, Auburn | *http://www.lib.auburn.edu/* |
| 3 | Samford University, Birmingham, Alabama | *http://library.samford.edu/* |
| 4 | Harding University, Searcy, Arkansas | *http://quest.harding.edu/* |
| 5 | Florida Atlantic University, Boca Raton | *http://www.fau.edu/library/* |
| 6 | Palm Beach Atlantic University | *http://library.pba.edu/* |
| 7 | Armstrong Atlantic State University, Savannah, Georgia | *http://www.library.armstrong.edu/* |
| 8 | Augusta State University, Augusta, Georgia | *http://www.aug.edu/~library/* |
| 9 | Columbus State University, Columbus. Georgia | *http://lib.colstate.edu/* |
| 10 | Georgia Southern University, Statesboro | *http://library.georgiasouthern.edu/* |
| 11 | Morehead State University, Morehead, Kentucky | *http://www.morehead-st.edu/units/library/* |
| 12 | National Library of Canada, Ottawa | *http://www.collectionscanada.ca/* |
| 13 | University of Toronto | *http://www.library.utoronto.ca/* |
| 14 | Saint Mary's University, Halifax | *http://www.stmarys.ca/administration/library/* |
| 15 | University of Wyoming, Laramie | *http://www-lib.uwyo.edu/* |

| Facility for replacement | URL | Facility that didn't work | URL | Reason for replacement |
|---|---|---|---|---|
| University of North Dakota, Grand Forks | *http://www.library.und.edu/* | Biblithek Universidad de Monterrey | *http://www.udem.edu.mx* | Technical problems |
| Clemson University, South Carolina | *http://www.lib.clemson.edu/* | Jiaotong University Library, Xian | *http://202.117.24.24/webe/Frntpagee.htm* | Technical problems (mail returned) |
| University of Texas – El Paso | *http://libraryweb.utep.edu/* | Baakleen National Library, Baakleen | *http://www.baakleennationallibrary.com/index.htm* | Technical problems (mail returned) |
| University of Iowa, Iowa City | *http://www.lib.uiowa.edu/index.html* | Nationalbibliothek Jamaika | *http://www.nlj.org.jm/index.htm* | Technical problems (mail returned) |
| University of Illinois, Springfield | *http://library.uis.edu/* | ./. | ./. | ./. |
| Lambuth University, Jackson, Tennessee | *http://www.lambuth.edu/academics/Library/Library.html* | Florida Atlantic University, Boca Raton | *http://www.fau.edu/library/* | 'Member only' |
| Emporia State University, Kansas | *http://www.emporia.edu/libsv/* | University of Otago Dunedin, New Zealand | *http://www.library.otago.ac.nz/* | 'Member only' |
| Portland State University, Oregon | *http://www.lib.pdx.edu/* | University of Chicago | *http://www.lib.uchicago.edu/ e/index.html* | 'Member only' |
| University of Oregon, Eugene | *http://libweb.uoregon.edu/* | Clark University | *http://www2.clarku.edu/offices/library/* | 'Member only' |

| Facility for replacement | URL | Facility that didn't work | URL | Reason for replacement |
|---|---|---|---|---|
| University of Alaska, Fairbanks | *http://www.uaf.edu/library/* | Massey University Library Palmerston North, New Zealand | *http://library.massey.ac.nz/* | 'Member only' |
| D-Q University, Davis, California | *http://www.dqu.cc.ca.us/library/* | Iowa State University, Ames | *http://www.lib.iastate.edu/* | 'Member only' |
| Humboldt State University, Arcata, California | *http://library.humboldt.edu/* | Roehampton University | *http://www.roehampton.ac.uk/customer/lrchome.asp* | Technical problems |
| Seattle University | *http://www.seattleu.edu/lemlib/* | Deakin University | *http://www.deakin.edu.au/library/* | 'Member only' |
| University of Washington | *http://www.lib.washington.edu/* | Nationalbibliothek Trinidad und Tobago | *http://www.nalis.gov.tt/* | Technical problems |
| Southern Utah University | *http://www.li.suu.edu/* | Panjab University, Chandigarh | *http://library.puchd.ac.in/* | Technical problems |
| Wichita State University | *http://library.wichita.edu/* | Louisiana State University | *http://www.lib.lsu.edu* | No research-questions allowed |
| University of Nevada, Las Vegas | *http://library.nevada.edu/* | ? | *?* | Library closed during test |
| West Virginia University, Morgantown, West Virginia | *http://www.libraries.wvu.edu/* | Kasetsart University, Bangkok | *http://www.lib.ku.ac.th/main_eng.HTM* | Technical problems |

| Facility for replacement | URL | Facility that didn't work | URL | Reason for replacement |
|---|---|---|---|---|
| Boise State University, Boise, Idaho | *http://library.boisestate.edu/* | Shinawatra University, Pathumthani | *http://library.shinawatra.ac.th/* | Technical problems |
| University of New Orleans | *http://library.uno.edu/* | University of Melbourne Melbourne, Australia | *http://www.lib.unimelb.edu.au/* | Technical problems |
| Grand Canyon University, Phenix | *http://library.gcu.edu/* | Addis Ababa University | *http://www.aau.edu.et/libraries/* | Technical problems |
| National Hispanic University, San Jose, California | *http://www.nhu.edu/library/* | Suffolk University | *http://www.suffolk.edu/sawlib/sawyer.htm* | 'Member only' |
| Montana State University, Bozeman | *http://www.lib.montana.edu/* | Boston University | *http://www.bu.edu/library/* | 'Member only' |
| Mississippi State University, Starkville | *http://nt.library.msstate.edu/* | Humboldt State University, Arcata, California (see #13) | *http://library.humboldt.edu/* | Technical problems |

Latest check of links: 20th April, 2005.

# Appendix E
# Libraries evaluated by the Chinese team

## National libraries

| | | |
|---|---|---|
| Danish National Library of Science and Medicine | Denmark, Europe | *http://www.dnlb.dk* |
| Library and Archives Canada | Canada, America | *http://www.collectionscanada.ca/* |
| Martynas Mazvydas National Library of Lithuania | Lithuania, Europe | *http://www.lnb.lt/lnb/selectLanguage.do?language=en* |
| National and University Library of Iceland | Iceland, Europe | *http://www.bok.hi.is/id/1011633* |
| National Library of Australia | Australia, Oceania | *http://www.nla.gov.au/* |
| National Library of China | China, Asia | *http://www.nlc.gov.cn/old/english.htm* |
| National Library of Latvia | Latvia, Europe | *http://www.lnb.lv/* |
| National Library of the Netherlands | The Netherlands, Europe | *http://www.kb.nl/index-en.html* |
| National Library of New Zealand | New Zealand, Oceania | *http://www.natlib.govt.nz/* |
| National Library of Pakistan | Pakistan, Asia | *http://www.nlp.gov.pk/* |
| National Library of Singapore | Singapore, Asia | *http://www.nlb.gov.sg/* |

## National libraries (*Cont'd*)

| | | |
|---|---|---|
| National library of South Africa | South Africa, Africa | *http://www.nlsa.ac.za/NLSA* |
| National Library of Spain | Spain, Europe | *http://www.bne.es* |
| National Library of Sweden | Sweden, Europe | *http://www.kb.se/* |
| National Library of the Faroe Islands | Faroe Islands, Europe | *http://www.flb.fo/* |
| National Library of Turkey | Turkey, Europe | *http://www.mkutup.gov.tr/index-eng.html/* |
| Royal Library: the National Library and Copenhagen University Library | Denmark, Europe | *http://www.kb.dk/index-en.htm* |
| State Library of Tasmania Hobart | Australia, Oceania | *http://www.slq.qld.gov.au/* |
| State Library of South Australia Adelaide | Australia, Oceania | *http://www.slsa.sa.gov.au/* |
| State Library of Queensland South Brisbane | Australia, Oceania | *http://www.statelibrary.tas.gov.au/* |

Note: The German project members also selected the three state libraries in Australia for evaluation.

## University libraries in Africa

| | | |
|---|---|---|
| Grace Roles Library of the Afrika Nazarene University | Kenya | *http://www.anu.ac.ke/library/default.htm* |
| Jokomo/Yamada Library of the Africa University | Zimbabwe | *htt://www.africau.edu/Library/index.htm* |
| Main Library of the University of Zambia | Zambia | *http://www.unza.zm/resource/library/library.htm* |
| Makerere University Library | Uganda | *http://www.makerere.ac.ug/mulib/* |

## University libraries in Africa *(Cont'd)*

| | | |
|---|---|---|
| Mohammed VI Library of the Al Akhawayn University | Morocco | *http://www.aui.ma/library/* |
| University of Namibia Library | Namibia | *http://library.unam.na/* |

## University libraries in North America

| | | |
|---|---|---|
| A. A. Lemieux Library of the Seattle University | USA (WA) | *http://www.seattleu.edu/lemlib/* |
| Albertsons Library of the Boise State University | USA | *http://library.boisestate.edu/* |
| Auburn University Libraries | USA (AL) | *http://www.lib.auburn.edu/* |
| Baylor University Libraries | USA (TX) | *http://www.baylor.edu/library* |
| Boston University Libraries | USA | *http://www.bu.edu/library/* |
| Charles B.Philips Library of the Aurora University | USA (IL) | *http://www.aurora.edu/library/* |
| Consortium Library of the University of Alaska Anchorage | USA (AK) | *http://www.lib.uaa.alaska.edu/* |
| Cornell University Library | USA (NY) | *http://www.library.comell.edu/* |
| Elihu Burritt Library of the Central Connecticut State University | USA (CT) | *http://library.ctstateu.edu/lib/* |
| Florida Atlantic University Libraries | USA | *http://www.fau.edu/library/* |
| Florida International University Libraries | USA | *http://weblib.fiu.edu/index.cfm* |

## University libraries in North America (*Cont'd*)

| | | |
|---|---|---|
| Friedsam Memorial Library of the St. Bonaventure University | USA (NY) | *http://www.sbu.edu/index.cfm?objectid=88AC60BC-C09F-25C6-25CDD517287A449A* |
| Grand Canyon University Library | USA | *http://library.gcu.edu/* |
| Harding University Library | USA | *http://quest.harding.edu/* |
| Herrick Memorial Library of the Alfred University | USA (NY) | *http://www.herr.alfred.edu/* |
| Hurst Library of the Northwest University | USA | *http://library.northwestu.edu/* |
| Iowa State University Library | USA | *http://www.lib.iastate.edu/* |
| Krannert Memorial Library of the University of Indianrapolis | USA (IN) | *http://kml.uindy.edu/* |
| Lane Library of the Armstrong Atlantic State University | USA (GA) | *http://www.library.armstrong.edu/* |
| Lewis J. Ort Library of the Frostburg State University | USA | *http://www.frostburg.edu/dept/library/* |
| Louisiana State University Libraries | USA | *http://www.lib.lsu.edu/* |
| Main Library of the University of the West Indies | Trinidad and Tobago | *http://www.mainlib.uwi.tt/* |
| Mildred F. Sawyer Library of the Suffolk University | USA (MA) | *http://www.suffolk.edu/sawlib/sawyer.htm* |
| Morehead State University Library | USA | *http://www.morehead-st.edu/units/library/* |
| Mount Saint Vincent University Library | Canada | *http://www.msvu.ca/library/* |

## University libraries in North America *(Cont'd)*

| | | |
|---|---|---|
| Palm Beach Atlantic University Library | USA | *http://library.pba.edu/* |
| Pitt Digital Library of the University of Pittsburgh | USA | *http://www.library.pitt.edu/* |
| Portland State University Library | USA | *http://www.lib.pdx.edu/* |
| Robert Hutchings Goddard Library of the Clark University | USA | *http://www2.clarku.edu/offices/library/* |
| Saint Mary's University Library | Canada | *http://www.stmarys.ca/administration/library/* |
| Samford University Library | USA | *http://library.samford.edu/* |
| Simon Schwob Memorial Library of the Columbus State University | USA | *http://lib.colstate.edu/* |
| Thomas J. Bata Library of the Trent University | Canada (ON) | *http://www.trentu.ca/admin/library/* |
| University of Iowa Libraries | USA (IA) | *http://www.lib.uiowa.edu/index.html* |
| University of Kentucky Libraries | USA (KY) | *http://www.uky.edu/Libraries/* |
| University of New Hampshire Library | USA (NH) | *http://www.library.unh.edu/* |
| University of Saskatchewan Library | Canada | *http://library.usask.ca/* |
| University of Toronto Libraries | Canada (ON) | *http://main.library.utoronto.ca/* |
| University of Washington Libraries | USA | *http://www.lib.washington.edu/* |
| University of Wyoming Libraries | USA (WY) | *http://www-lib.uwyo.edu/* |

## University libraries in North America *(Cont'd)*

| | | |
|---|---|---|
| Zach S. Henderson Library of the Georgia Southern University | USA (GA) | *http://library.georgiasouthern.edu/* |

## University libraries in Asia

| | | |
|---|---|---|
| AUC (American University in Cairo) Libraries | Egypt | *http://library.aucegypt.edu/index.htm* |
| Central Library of the University of the Thai | Thailand | *http://library.utcc.ac.th/wc_utcc/Web%20Library/Web/index_Eg.htm* |
| Chamber of Commerce Chiang Mai University Library | Thailand | *http://www.lib.cmu.ac.th/indexe.html* |
| Chiba University of Commerce Library | Japan | *http://www.lib.cuc.ac.jp/* |
| Fujimino Library of the Bunkyo Gakuin University | Japan | *http://www.lib.u-bunkyo.ac.jp/* |
| Hong Kong University of Science & Technology Library | China | *http://library.ust.hk/* |
| Kasetsart University Library | Thailand | *http://www.lib.ku.ac.th/main_eng.HTM* |
| Kyoto Gakuen University Library | Japan | *http://www.kyotogakuen.ac.jp/~o_lib/top/index-e.html* |
| Lebanese American University Libraries | Lebanon | *http://www.lau.edu.lb/libraries/* |
| Lingnan University Library | China | *http://www.library.ln.edu.hk/* |
| Main Library of the Sultan Qaboos University | Sultanate of Oman | *http://www.squ.edu.om/lib/index.html* |
| Nagoya University Library | Japan | *http://www.nul.nagoya-u.ac.jp/index_e.html* |

## University libraries in Asia *(Cont'd)*

| | | |
|---|---|---|
| National Cheng Chi University Libraries | China | *http://www.lib.nccu.edu.tw/engindex.htm* |
| National Tsing Hua University Library | China | *http://www.lib.nthu.edu.tw/en/index.htm* |
| National Taiwan University Library | China | *http://www.lib.ntu.edu.tw/ENGLISH/index_e.htm* |
| Panjab University Library | India | *http://library.puchd.ac.in/* |
| Shanghai Jiaotong University Libraries | China | *http://www.lib.sjtu.edu.cn/english/index.htm* |
| Shizuoka University Library | Japan | *http://www.lib.shizuoka.ac.jp/homew.html* |
| University of Macau Library | China | *http://library.umac.mo/lib.html* |
| University Teknologi Malaysia Library | Malaysia | *http://web.utm.my/psz/* |
| Xi'an Jiaotong University Library | China | *http://202.117.24.24/webe/Fmtpagee.htm* |

## University libraries in Europe

| | | |
|---|---|---|
| Abo Akademi University Library | Finland | *http://www.abo.fi/library/welcomee.sht* |
| Central European University Library | Hungry | *http://www.library.ceu.hu/* |
| Central Scientific Library of the Kharkiv National University | Ukraine | *http://www.univer.kharkov.ua/main/library/* |
| Central University Library | Romania | *http://www.bcu-iasi.ro/* |
| Durham University Library | UK | *http://www.dur.ac.uk/library/* |
| Goeteborg University Library | Sweden | *http://www.ub.gu.se* |
| Graz University Library | Austria | *http://www.uni-graz.at/ub/* |

## University libraries in Europe (*Cont'd*)

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|---|---|---|
| Heriot-Watt University Library | UK | *http://www.hw.ac.uk/library/index.html* |
| Library and Archives of the University of York | UK | *http://www.york.ac.uk/services/library/* |
| Library and Information Services of the University of Teesside | UK | *http://www.tees.ac.uk/depts/lis/* |
| Library of the Queen's University of Belfast | UK | *http://www.qub.ac.uk/lib/* |
| Library Services at the University of Hull | UK | *http://www.hull.ac.uk/lib/* |
| Library University College Cork | Ireland | *http://booleweb.ucc.ie/* |
| Oulu University Library | Finland | *http://www.kirjasto.oulu.fi/english/* |
| Palacky University Library | Czech | *http://knihovna.upol.cz/* |
| Stockholm University Library | Sweden | *http://www.sub.su.se/english/welcome.htm* |
| Tartu University Library | Estonia | *http://www.utlib.ee/en/* |
| University Library in Bratislava | Slovak | *http://www.ulib.sk/index/index.php?lang=en* |
| University Library of Bochum | Germany | *http://www.ub.ruhr-uni-bochum.de/* |
| University Library of Groningen | The Netherlands | *http://www.rug.nl/bibliotheek/* |
| University Library of Southern Denmark | Denmark | *http://www.bib.sdu.dk* |
| University Library of Surrey | UK | *http://www.soton.ac.uk/library/* |
| University Library of Toruniu | Poland | *http://www.bu.uni.torun.pl/en/* |

## University libraries in Europe *(Cont'd)*

| | | |
|---|---|---|
| University Library of Tromsø | Norway | *http://www.ub.uit.no/* |
| University of Crete Library | Greece | *http://www.lib.uoc.gr/* |
| University of Salford Library | UK | *http://www.isd.salford.ac.uk/library/* |
| University of Sheffield Library | UK | *http://www.shef.ac.uk/library/* |
| University of Southampton Libraries | UK | *http://www.library.soton.ac.uk/* |
| University of the West of England Libraries | UK | *http://www.uwe.ac.uk/library/* |
| University of Twente Library | The Netherlands | *http://www.utwente.nl/ub/* |
| Viikki Sciene Library of the University of Helsinki | Finland | *http://www.tiedekirjasto.helsinki.fi/english/index.htm* |
| Vilnius University Library | Lithuania | *http://www.mb.vu.lt/index_en.html* |
| Virtual Library at the University of Abertay Dundee | UK | *http://vlib.abertay.ac.uk/* |
| Wroclaw University Library | Poland | *http://www.bu.uni.wroc.pl/en/* |

## University libraries in Australasia

| | | |
|---|---|---|
| Australian National University Library | Australia | *http://anulib.anu.edu.au/lib_home.html* |
| La Trobe University Library | Australia | *http://www.lib.latrobe.edu.au/* |
| Library of the University of Canberra | Australia | *http://www.canberra.edu.au/library* |
| Library of the University of the Sunshine Coast | Australia | *http://www2.usc.edu.au/library/kb/* |

University libraries in Australasia (*Cont'd*)

| | | |
|---|---|---|
| Macquarie University Library | Australia | *http://www.lib.mq.edu.au/* |
| Massey University Library | New Zealand | *http://library.massey.ac.nz/* |
| RMIT University Library | Australia | *http://www.rmit.edu.au/library* |
| University Library of Tasmania | Australia | *http://www.utas.edu.au/library/* |
| University of Adelaide Library | Australia | *http://www.adelaide.edu .au/library/* |
| University of Melbourne Library | Australia | *http://www.lib.unimelb.edu.au/* |
| University of Otago Library | New Zealand | *http://www.library.otago.ac.nz/* |
| University of South Australia Library | Australia | *http://www.library.unisa.edu.au/* |
| University of Waikato Library | New Zealand | *http://www2.waikato.ac.nz/library/* |

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