

es jedenfalls für nicht ausgeschlossen, dass man letztlich doch nur der alten Katalogisierungspraxis ein neues ‚FRBR-Mäntelchen‘ umhängen wird.

Auf alle Fälle ist es nun – zehn Jahre nach der FRBR-Studie – auch für deutschsprachige Bibliothekare an der Zeit, sich verstärkt mit den FRBR auseinanderzusetzen. Die Erfahrungen aus der eigenen Katalogtradition, die in mancherlei Hinsicht schon FRBR-Qualität besitzt, sollte man dabei selbstbewusst in die internationale Diskussion einbringen. Besonders wichtig ist es, möglichst bald den Schritt von der Theorie in die Praxis zu gehen und unsere Kataloge mit erweiterten FRBR-Funktionalitäten anzureichern. Auch wenn man bei der Umsetzung Augenmaß walten lässt, so bedeutet dies natürlich trotzdem zusätzlichen Aufwand, der sich schlecht in die vorhandenen Rahmenbedingungen zu fügen scheint. Aber es würde sich – wie Maxwell richtig bemerkt – dabei um

„effort well spent“ handeln, „particularly in a period when the search capabilities of our catalogs are increasingly under fire“⁴³.

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⁴³ Maxwell (Anm. 3) S. 137.

Jia Liu

An Overview of the Digital Reference Services in German Libraries



The paper reports a research project which intends to provide an overview of the digital reference services in German libraries. Within the project, web sites of 286 German libraries were visited, among which totally 62 libraries (21.7 %) provide at least one kind of digital reference service and 47 libraries replied to the researcher's inquiries via either chat or email. The project focuses on outlining the online reference service provided in these 47 libraries from various aspects. It is concluded that mostly the digital reference service in German libraries is at the primary phase for the time being. Though there are some problems resulting from the traditional service idea in German libraries, the good thing is that the situation is changing to the better direction. More and more German libraries start to recognize the necessity and importance of the online reference service and are taking actions.

Ein Überblick über die digitalen Auskunftsdienste in deutschen Bibliotheken

Der Beitrag berichtet über ein Forschungsprojekt, das einen Überblick über die digitalen Auskunftsdienste in deutschen Bibliotheken gibt. Während des Projektes wurden 286 Webseiten deutscher Bibliotheken aufgesucht, von denen insgesamt 62 Bibliotheken (21,7 %) zumindest eine Art von digitalem Auskunftsdienst anbieten; 47 Bibliotheken antworteten der Rechercheurin via Chat oder E-Mail. Das Projekt will einen Überblick über die Online Auskunftsdienste in diesen 47 Bibliotheken unter verschiedenen Gesichtspunkten geben. Es zeigte sich, dass sich der digitale Auskunftsdienst in deutschen Bibliotheken noch in einer Anfangsphase befindet. Obgleich es einige Probleme gibt, die von dem traditionellen Servicebegriff in deutschen Bibliotheken herrühren, bessert sich jetzt die Lage. Immer mehr deutsche Bibliotheken erkennen die Notwendigkeit und die Bedeutung des Online Auskunftsdienstes und beginnen zu handeln.

Un survol sur les services de renseignements numérisés dans les bibliothèques allemandes

Cette communication informe d'un projet de recherche qui présente un survol sur les services de renseignements numérisés dans les bibliothèques allemandes. Au cours du projet 286 pages web furent visités dont 62 bibliothèques (21,7 %) offrent au moins une sorte de service de renseignements numérisés; 47 bibliothèques répondaient par chat ou courrier électronique. Le projet entend donner un survol sur les services de renseignement en ligne dans ces 47 bibliothèques sous de différents aspects. Il fut évident que le service de renseignement numérisé se trouve dans les bibliothèques allemandes dans une phase de départ. Bien qu'il y ait encore quelques problèmes venant de la notion traditionnelle de service aux bibliothèques allemandes, la situation s'améliore. Toujours plus de bibliothèques allemandes reconnaissent la nécessité et l'importance des services de renseignements en ligne et commencent à agir.

0 Introduction

In the summer of 2007, the researcher, Dr. Jia Liu, conducted a research project entitled as "Digital Reference Services in German Libraries" with the 2nd resumed fellowship from the Alexander von Humboldt Foundation. Based on the Würzburg University Library (Universitätsbibliothek Würzburg, UB Würzburg), the project started on June 1 and lasted for totally three months. This paper provides a description of the project in depth. Nevertheless, considering the size limitation, the author has to leave the analysis and discussion on the project results as the topic of another title.

0.1 State of the art

The digital reference service is one of the fields that develop tremendously rapidly since the middle of the last decade. One definition given by an authority in the field of reference service is that "Digital Reference Service (DRS) can be thought of as an online reference interview which can run less than a minute to 'as long as it takes' to reach a satisfactory response."¹ It was also defined as "Internet-based question-and-answer services that connect users with experts in a variety of subject areas"². The digital reference service could be roughly divided into two opposite categories, i.e., asynchronous and synchronous digital reference service. During the asynchronous digital reference service, the patron submits a question and the librarian responds at a later time whereas in the synchronous digital reference (or, live digital reference service), patron and librarian communicate in real time³. The asynchronous DRS covers email reference, current awareness and so on; and the synchronous DRS, are implemented with chat, voice over IP, Video Conferencing, SMS and IM (Instant Messaging) and so forth.

The digital reference service is also known as "digital reference", "virtual reference", "online reference service", "AskA service" and so on and so forth. It is actually the evolutionary result of the reference service with the development of the computer network. The Internet enables the reference service to be delivered across the temporal and geographical boundary. It provides the possibility of the cooperative digital reference service which could serve the remote patron with a particular information inquiry in a more efficient and economic way. According to the survey conducted among 70 American librarians, "the tendency is that the digital reference service will become one of the important types of reference services in the library without any doubt"⁴. In the United States, the online reference service has been a standard part of reference work in medium to large sized libraries as well as numerous small sized libraries. In other countries, such as Australia, New Zealand, Canada, the United Kingdom, Sweden, Norway, and China, the virtual reference service has become more and more popular. As mentioned on the web site of the Virtual Reference Canada, "whether it is email 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"⁵. Besides, in addition to the library, more and more institutions (for instance, museum, archive, art gallery, government agency, information consultant, operator of the search engine,

and learning center) have been involved in providing such kind of service.

Since the beginning of this century, a lot of German libraries have been developing their online reference services actively. Some of them (for instance, UB Würzburg) use local systems in supplying the digital reference while some of them started with the home-grown systems and then changed to adopt one commonly used in the international library world, such as QuestionPoint. The Lower Saxony State and Göttingen University Library (or, Niedersächsische Staats- und Universitätsbibliothek Göttingen, SUB Göttingen) began the online reference service in October 2002 with a self-developed system and turned to QuestionPoint in June 2004. One outstanding example goes to the Berlin Central and Regional Library (Die Zentral- und Landesbibliothek Berlin, ZLB). As of August 2007, ZLB "extends the possibilities QuestionPoint provides and offers reference services in 18 languages on its web site"⁶, which are Chinese, Czech, English, Estonian, Finnish, French, German, Greek, Hungarian, Italian, Korean, Latvian, Magyar, Polish, Romanian, Russian, Swedish, and Turkish. Prominently, it well serves the information need of the patrons with a wide variety of cultural background. Paul S. Ulrich, the reference librarian of ZLB, declared that "what is unique in our multilingual reference service is that we are able to answer the questions by having partner libraries in other countries answer the questions in languages which we cannot handle. This is unique not only in Germany, but in fact in the whole world"⁷. Meanwhile, more and more libraries have recognized that emergent effort should be devoted into developing the online reference service and are conceiving to provide various kinds of digital reference to their customers in the near future. For example, the German National Library of Science and Technology and University Library Hannover (Technische Informationsbibliothek und Universitätsbibliothek Hannover, TIB und UB Hannover) will start to provide the virtual reference soon. Additionally, the German Internet Library (Deutsche Internetbibliothek, DIB) and the discussion list RABE (Recherche und Auskunft in Bibliothekarischen Einrichtungen, or, Inquiry and Information Service in Libraries) both play important roles in

¹ Katz, Bill: 'Digital reference: an overview'. In: Katz, Bill, ed. Digital reference services. Binghamton, USA 2002/2003.

² Virtual Reference Canada (n.d.) Internet WWW page, available at: <<http://www.collectionscanada.ca/vrc-rvc/s34-150-e.html>> (accessed 14 March 2006).

³ Chan, Diana, 'Virtual reference service: an overview' 2005. Internet WWW page, available at: <www.igroupnet.com/online2005/powerpoint/Diana_Chan_17.ppt> (accessed 4 April 2006).

⁴ Ibid.

⁵ Virtual Reference Canada (n.d.l.)

⁶ McGlamery, Susan; Paul S. Ulrich: 'Serving patrons in their languages, not just ours' Presentations during the World Library and Information Congress: 73rd IFLA General Conference and Council, 19-23 August, Durban, South Africa 2007. Internet WWW page, available at <http://www.ifla.org/IV/ifla73/papers/128-McGlamery_Ulrich-en.pdf> (accessed 18 September 2007).

⁷ Ulrich, Paul S. (2007a): 'Re: Working report from Jia Liu'. Email to Jia Liu. 11 September.

promoting the collaboration among libraries in the field of offering the online reference service. DIB will be discussed later. As regards to RABE, it was created on the basis of a paper Mr. Ulrich “published in 1997 about the English-language mailing list Stumpers (now Project Wombat). It is a service used by librarians who receive questions they cannot answer.”⁸

0.2 Research objectives

Overall, the research project planned to conduct a thorough investigation on the development history and current status of the digital reference service in Germany. On the basis of former research in the field, the researcher intended to draw an outline of such service supplied in German libraries.

Its objectives could be divided into the following three points:

- to review the development history of the digital reference service in German libraries;
- to describe the current status of the digital reference service in German libraries;
- to provide reference to the information policy maker while sketching out the prospect of the information society.

0.3 Research questions and hypotheses

The general research question of the project is how the status quo of the digital reference service in German libraries is. The sub-questions of the research are given below:

- How many German libraries have started providing the digital reference service?
- What kind of digital reference service is being offered in German libraries?
- In what language the digital reference service is provided in German libraries?
- Which systems are employed for providing the digital reference in German libraries?
- Is there any cooperation in the field of digital reference service among German libraries no matter the cooperative scope?

The hypotheses are that in Germany the situation of the academic and the public libraries are not the same in providing the digital reference service; most German academic libraries have started providing the digital reference service while few public libraries have done so, and, most German libraries offer only the email reference service. By the way, the researcher initially intended also to do some investigations on all kinds of institutions providing the digital reference service in Germany so as to figure out more context information and explore the chances and challenges the German libraries face while providing such service. Subsequently, this idea had to be given up since the implementation time for the project is too limited.

0.4 Research methods

The project was hosted in UB Würzburg which has had a lot of experiences in providing the digital reference service with a local system. At the same time of doing research on the online service supplied in this library, the

research was expanded to the other German libraries offering such service.

Both qualitative and quantitative research methods were used in the course of the project. A questionnaire possibly with more or less modification was used frequently during the investigation. In addition, the following methods have been used in the research:

- *Web search* – The researcher spent a lot of time in searching for libraries offering the digital reference service in Germany on the Internet. Nevertheless, in most cases, only simplest and facial information (the name of the library, the types of its digital reference, working hours, audience, inquiry web forms, etc.) could be found through this methods.
- *Literature review* – During the investigation, literature review is greatly helpful to find more in-depth clues on the research topic. The literature could be both printed and electronic documents in either German or English. It's really nice that the professionals of ZLB offer a collection on the web page at URL <http://www.zlb.de/fragen_sie_uns/ask_a_librarian> about their online information service project with QuestionPoint so that a number of resources related to the subject could be found at one point.
- *Interview* – In order to get some important and first-hand materials, the researcher visited two professionals in the field of the digital reference service and one library offering the digital reference service. One of the professionals the researcher visited is Prof. Dr. Hermann Rösch, the director of the Institute of Information Science, Cologne University of Applied Sciences (Institut für Informationswissenschaft, Fachhochschule Köln), who is a pioneer in exploring theoretically the online reference service in Germany and has written a few of papers and taught courses in the field; and the other one is Prof. Ingeborg Simon, teaching in the Faculty of Information and Communication, Stuttgart Medium University (Fakultät Information und Kommunikation, Hochschule der Medien, Stuttgart), who teaches courses and organized several student research projects in evaluating the online reference service. The library the investigator visited is the Stuttgart Public Library (Stadtbücherei Stuttgart, SB Stuttgart). The researcher once also contacted for the interview issues with the Cologne University and State Library (Universitäts- und Stadtbibliothek Köln, UB Köln), the Cologne Public Library (Stadtbücherei Köln, SB Köln) and the Wuertemberg State Library in Stuttgart (Württembergische Landesbibliothek Stuttgart, WLB Stuttgart). The plans failed in coming into truth completely because of various reasons but fortunately, some information was achieved later through communications via emails. Besides, originally, the researcher also schemed a business trip to Berlin to have an interview with Paul S. Ulrich, both practitioner and theorist in the field of online reference service and working in ZLB. Because of the unhappy lessons got from the former contacts and limited time as well as the consideration that the summer is a holiday season, this interview was given up eventually.
- *Statistics* – Data achieved during the investigation was collected and analyzed later on and vast amount

⁸ Ibid.

Table 1: Latest statistics of the database MySQL

Date	All questions	All replies	All questions replied	Questions within the last 30 days
30 July 2007	2504	4330	3729	129
25 August 2007	2592	4477	4356	110

of statistics was created on the basis of these data so that the status quo and development of the digital reference service in German libraries could be unveiled from varying angles.

1 Digital reference service in the host institute

The host institute of the project reported is UB Würzburg which has accumulated some valuable experiences in providing the digital reference service independently.

As it is stated on its web page, UB Würzburg, the library of the University of Würzburg, "is financed by the State of Bavaria and as such, has the designation as a regional library of Lower Franconia"⁹. In 2004, UB Würzburg ranked at the 3rd place in the Library Index (Bibliotheksindex, BIX¹⁰) database in respect of the comprehensive competence.

So far, UB Würzburg provides one kind of digital reference service, the email reference service. It started serving the user on February 21, 2005¹¹ and the system "Frag' die UB" was developed by students studying in the University of Würzburg at that moment. Under many cases investigated during the project, the online reference service stands along while some libraries combine the inquiry, online acquisition request, criticism and suggestions to the library together. The system of UB Würzburg falls into the second category.

In general, the workflow of the email reference service in UB Würzburg is given below and in the parentheses is who is/are involved in the procedure:

- Inquiry submission (user),
- inquiry distribution / communication (librarian),
- replying the inquiry (librarian and user),
- creating statistics (librarian).

The reference librarian could enter into the system after clicking the "Login" button on the web page of the service (<<http://wubi001.bibliothek.uni-wuerzburg.de/t3/AM/anfrage.php?art=1>>) and inputting the username and password. In the light of the reference librarian, the general procedure of the system "Frag' die UB" could be divided into three steps as following:

- The system receives a question. If it's an inquiry related to the acquisition issue, an email with thanks will be replied at once automatically. Otherwise, there will be no confirmation for receiving the inquiry. It means that normally the patron gets one email replying to his inquiry and in case the inquiry deals with an acquisition issue, two emails will be replied. Certainly, more transactions might happen if necessary.
- One librarian related distributes the inquiries which are divided into the following five categories:
 - Anfrage (inquiry being not able to be included under other categories),
 - Anregung (proposal, suggestion),
 - Kritik (criticism),
 - Mitteilung (notification),
 - Anschaffungsvorschlag (acquisition request).

- The reference librarian replies to the inquiry. Ten librarians in the Department of Information take care of this matter while eleven librarians in other departments also participate in the work if necessary.

All the inquiries the system receives are saved in the database called as MySQL and the database also archives the replies and the library's reaction.

In terms of the disadvantage of the system, as Dr. Viola Hämmer, the administrator of the Information Department of UB Würzburg, commented, in addition to the problem dealing with Spam, the system could only create accumulated statistics, though there are a variety of statistics categories helpful to analyses for different purposes. The statistics has to be printed out routinely. Otherwise, it's no way to detect the statistics in a special period (for instance, a certain month or a year).

Overall, the system "Frag' die UB" works smoothly until now. Table 1 displays some general figures picked up twice from the latest statistics of the database MySQL. That's why it's a little difficult for UB Würzburg to decide on whether continuing employing the system or turning to a new one. Since the beginning of this year (2007), InfoDesk and DigiAuskunft have been tested in UB Würzburg and QuestionPoint is being tested since the last week of August. A final decision will be concluded in the near future. The researcher believes that a solution suitable for the sustainable development of the digital reference service of this library will be reached at the end.

2 Digital reference services in German libraries

The main purpose of the research project is to draw a landscape of the digital reference services offered in the libraries through the whole country of Germany. Therefore, in the same time of understanding the system employed in the host institute, the researcher spent more effort in conducting the investigations on the services in as many as possible German libraries.

⁹ Würzburg University Library (2007): 'About us'. Last updated: 27.07. Internet WWW page, available at <http://www.bibliothek.uni-wuerzburg.de/en/ub-infos/about_the_library/about_us/> (accessed 21 August 2007).

¹⁰ Der Bibliotheksindex (n.d.) Internet WWW page, available at URL <<http://www.bix-bibliotheksindex.de/index.php>> (accessed 14 June 2007).

¹¹ Franke, Fabian: Frag' die UB: das lokale Auskunftsmagementsystem der UB Würzburg. 22 March 2006. Internet WWW page, available at <<http://www.opus-bayern.de/uni-wuerzburg/volltexte/2006/1742/pdf/bibliothekartag2006.pdf>> (accessed 21 August 2007).

2.1 Brief overview

2.1.1 Definitions

The digital reference service the project attempts to investigate was defined at the very beginning. It is the reference service conducted via the computer network by the library.

The email reference service during the survey is the reference service employing a web form. It does not matter whether the library hosts the web form or just provides a linkage to the web form. The library that only provides an email address was not considered as one providing the email reference service. All the libraries investigated provide email address on their web sites. Although some libraries do supply the online reference service through this way, the project reported deals with merely the email reference service based on the web form.

The chat reference service investigated in this research project means the text-based reference service conducted in real time via chat software. The reference service provided with chatterbot is included in this category.

2.1.2 Sample selection

One ancient Chinese idiom says that every thing has a difficult start. At the beginning of the project reported, what troubled the researcher was where to find a list of all German libraries. Originally, the investigator thought that she could find it from the German Library Statistics (Deutsche Bibliotheksstatistik, DBS). However, when she looked into DBS's web site deeper, the researcher found that her initial impression was not true. Thus, she had to search for other solutions.

Out of various considerations, later the researcher conducted the investigation mainly according to the lists provided in BIX which divides the libraries into two categories, i.e., public libraries (Öffentliche Bibliotheken) and academic libraries (Wissenschaftliche Bibliotheken). Nevertheless, the researcher was told that not all German libraries have been involved in BIX. Therefore, the investigation conducted on the basis of the BIX's database could not be an exhaustive one. Fortunately, most of important German libraries have been included in the BIX's list. As Dr. Hämmer commented, some libraries are not comparable with others. It's neither necessary nor impossible to cover all libraries in the survey.

Eventually, libraries checked are those registered in BIX's database of 2006 and 2007 which falls into the following categories:

- Stadtbibliothek / Stadtbücherei (municipal library),
- Universitätsbibliothek (university library),
- Universitäts- und Landesbibliothek (university and state library [simultaneously]),
- Staats- und Universitätsbibliothek (state and university library [simultaneously]).

Some other libraries not included in the categories above are defined as "other institutions", which are taken as complements because of their importance in the librarianship of Germany. The so-called "other institutions" include the following categories of library:

- Nationalbibliothek (national library),
- Staatsbibliothek (state library),
- Landesbibliothek (state library).

One more thing was decided while selecting the samples is that although it's possible that there are branch libraries (Stadtteilbüchereien or Stadtteilbibliotheken) in a city or town, normally the city library (Stadtbibliothek or Stadtbücherei) dominates all the branch libraries in the region and the web page of the central library provides information about all the branch libraries convergently. So, it's only necessary to check the web site of the central library rather than that of each branch library to know its service. That's the same situation to the main library and departmental libraries in the university. Only the web page of the main library of the university was investigated during the project concerned.

2.1.3 Investigation form design

The investigation form was designed before the official start of the survey. It was used as a tool for collecting the data achieved during the investigation for each library. The fields were conceived according to their necessity to the investigation.

2.1.4 Encoding

Two series of codes were used during the implementation of the project.

The first series of codes was used for recording the name of the states and the free cities in Germany. It completely adopts the style appearing in the BIX's database. This series of codes was used very often during the investigation and statistics forms. An alphabetical list of these codes is given as below:

- BAW – Baden-Württemberg
- BAY – Bayern
- BER – Berlin
- BRA – Brandenburg
- BRE – Bremen
- HAM – Hamburg
- HES – Hessen
- MVP – Mecklenburg-Vorpommern
- NIE – Niedersachsen
- NRW – Nordrhein-Westfalen
- RLP – Rheinland-Pfalz
- SAA – Saarland
- SAC – Sachsen
- SAN – Sachsen-Anhalt
- SLH – Schleswig-Holstein
- THU – Thüringen.

The other series of codes is used merely in the backstage to record the libraries investigated in each state or free city in the forms. Within this series, there are only three numbers indicating the characteristic of the service.

- 0 – no DRS
- 1 – individual DRS
- 2 – collaborative DRS.

2.2 Workflow

The implementation of the project reported could be roughly divided into the following four periods:

- Preparation,
- Investigation and interview,
- Data gathering and analysis,
- Report writing.

2.2.1 Preparation

Before the official start of the investigation, a lot of preparation work had to be done in advance.

- Designing the investigation form and modifying it through tests – After the investigation form was drafted, several selective services, including both individual service (for instance, *Frag' die UB* of UB Würzburg) and cooperative service (for example, *InfoPoint / Online-Auskunft* of ZLB), were investigated for testing it. Basic literature review has been done before the researcher arrived in Würzburg.
- Searching for a German library list and make sure which libraries to be investigated.

2.2.2 Investigation and interviews

Interviews happened after the preparation work and in the course of the investigation. The project is conducted mainly through investigation. So, this phase is in fact the fundamental and crucial one during the implementation of the whole project.

There are three alternatives for the researcher to achieve the data during the survey. In order to avoid troubling the reference librarian too much, the investigation always started from thorough web search by the researcher herself. The home page of the library and the web page of its digital reference service as well as other web pages related were checked carefully at first. Some fundamental data desired for the investigation were extracted from these web pages and recorded in the appropriate investigation form. If she could not find data for some fields, the researcher sent an inquiry email to the service under the case that the library does not provide the chat reference service. As soon as she got reply from the librarian, she transferred the data from the replying email to the appropriate fields in the form. Under the case the library offers the chat reference service, the researcher preferred to communicate with the reference librarian via chat. Basically, this is the best way to get the complemental information. Additionally, if necessary, the investigator also looked for information from the related documents.

With the recognition of the different situations of the academic and the public libraries, the researcher employed different policies while investigating these two kinds of libraries. The so-called "other institutions" defined above were treated the same as the academic libraries.

- Questions in English to the academic libraries and "other institutions" – It was supposed that most reference librarians in German academic libraries have no problem in communicating with their patrons in English. Based on this assumption, all inquiry emails to the academic libraries and "other institutions" were written in English. Normally, the inquiry email includes four to nine questions so as to get a clear picture of the online reference service investigated.
- Simplest questions in at first English and then German to the public libraries – In the procedure of web search, the researcher found that minority of the German public libraries had provided the digital reference service as defined in the project. Nevertheless, a couple of public libraries participate in DIB's email reference service. Just one simple question was sent to these libraries to ask when they started to be involved in this service. The Public Library of Frankfurt am Main (*Stadtbüche-*

rei Frankfurt am Main, SB Frankfurt), the Public Library of Koblenz (*Stadtbibliothek Koblenz, SB Koblenz*), SB Köln, SB Stuttgart and the Public Library of Wolfsburg (*Stadtbibliothek Wolfsburg, SB Wolfsburg*), are exceptions, which have provided mature email reference services. To these libraries, the inquiry emails at the same level as those to the academic libraries were sent. As regards to the language, the researcher had to change her mind in the middle. Initially, the inquiry emails sent to the public libraries was also drafted in English. Unfortunately, few of them were replied after two-week waiting. After analyzing the reasons for the failure, the researcher thought that it might deal with the language. So, she translated the original inquiry into German with the help of a colleague of UB Würzburg and then sent the translation to the public libraries having not replied. It worked at once. In a short time, she got answers from several libraries.

The investigation lasted the longest time during the project. Waiting for replies stopped until August 22, 2007, three days after the researcher began to write the working report.

2.2.3 Data gathering and analysis

In fact, the procedure of data gathering and analysis was interwoven with the last one, investigation. Every time when the information the investigation form requires was achieved, it was at first recorded in proper fields of the investigation form and then copied in an appropriate Excel form for checking and statistics purpose.

In the course of data collection, analysis on the reply would be necessary, for example, checking whether the information provided was clear enough as the researcher expected. It happened that more emails had to be sent for asking for clearer and more information for the survey. Some other analyses were also indispensable during the investigation. For instance, when the first set of inquiry emails in English was sent to public libraries and few of them were replied, the researcher had to think over the reasons leading to such dilemma. Language and protection from the junk email seem to be most important reasons among all. Then, as mentioned above, the inquiry email was translated into German and re-sent to the libraries without replies.

2.2.4 Report writing

The project enters into the period of harvest during this procedure. Various kinds of statistics were created on the basis of the investigations; research questions and hypothesis were examined; and, conclusions were drawn at the end. All the work having been done was described with full details in the final working report.

2.3 Results

During the project, web sites of 286 libraries were visited. Among these libraries, there are totally 188 public libraries (65.7 % of the whole), 83 academic libraries (29.0 % of the whole) and 15 so-called "other institutions" (5.3 % of the whole).

Among the 286 libraries investigated, totally 62 libraries (21.7 %) provide at least one kind of digital reference service (DRS) and 224 (78.3 %) haven't yet done so. In respect of the geographical location, BAW ranks the top where 16 public and academic libraries offer DRS; and, NRW is the next where twelve libraries do so. The percentages of the libraries with DRS among those investigated in each state and free city are indicated in Table 2. In a sense, these figures reflect the popularizing degree of such service in different areas in Germany. This time, BER locates at the first place, where 66.7 % of the libraries investigated offer digital reference services.

Table 2: Percentages of the libraries with DRS

State / Free city	Libraries with DRS	Libraries investigated	Percentage
BAW	16	70	22.9
BAY	4	41	9.8
BER	6	9	66.7
BRA	2	10	20.0
BRE	1	2	50.0
HAM	1	3	33.3
HES	4	22	18.2
MVP	2	7	28.6
NIE	3	32	9.4
NRW	12	59	20.3
RLP	1	5	20.0
SAA	1	2	50.0
SAC	4	8	50.0
SAN	1	6	16.7
SLH	2	8	25.0
THU	1	2	50.0
SUM	62	286	21.7

On the other hand, in a sum, 47 libraries and "other institutions", or 75.8 %, among the 62 libraries with DRS replying to the researcher's inquires whereas in addition to one librarian from UB Münster replying with a declaration that he refused to answer the questions, 14 libraries, or 22.6 %, did not answer except the automatic confirmation from some libraries. Appendix 1 and 2 list the public and the academic libraries as well as "other institutions" with DRS and replying to the inquiries respectively. The proportions of the libraries replying to the inquiries of those with DRS could be found in Table 3. The researcher was very glad to find that finally all the libraries investigated in nine states and free cities answered the questions via chat or email. Additionally, the researcher got the impression that generally the librarians in former Western Germany reacted more quickly than those in former Eastern Germany. The researcher got fewer replies from the libraries located in former Eastern Germany. In fact, in order to get as many as possible replies, the investigator sent the inquiry at most three times under the case her first or second inquiry received no response. It's possible that the reply to the first inquiry email was lost. But it's unbelievable that replies to all the three inquiries could lose.

For instance, the researcher's first inquiry to ZLB was reacted on the next day. Unfortunately, this reply was lost and the problem was found until the researcher got the same timely reply to her second inquiry, in which Paul Ulrich provided not only all data in detail the researcher desired but also some words outlining and analyzing the digital reference service in Germany. The deadline had to be set for the investigation so that waiting could not continue without an end. The investigation stopped until the last second week of August.

Table 3: Proportions of the libraries replying

State / Free city	Libraries replying	Libraries with DRS	Proportions (%)
BAW	12	16	75.0
BAY	4	4	100.0
BER	6	6	100.0
BRA	0	2	0
BRE	0	1	0
HAM	1	1	100.0
HES	4	4	100.0
MVP	1	2	50.0
NIE	3	3	100.0
NRW	9	12	75.0
RLP	1	1	100.0
SAA	1	1	100.0
SAC	2	4	50.0
SAN	0	1	0
SLH	2	2	100.0
THU	1	1	100.0
SUM	47	62	75.9

The following parts will report the results of the survey from various aspects. The statistics are mainly taken according to the fields included in the investigation form. In the next sections, only the services replying the inquiries were considered while creating the statistics for some fundamental data were unavailable from other channels except getting them directly from the library related. Once again, the deadline of data collection was **August 22, 2007**.

2.3.1 Names

Normally, the name and the logo of the digital reference service appear on the home page of the library it belongs to. This is especially typical to academic libraries and "other institutions" in Germany. On the other hand, in most cases, the public libraries participating in the service of DIB display the logo of DIB at prominent positions on their homepages.

As regards to the category where the digital reference service is included, the situations of individual libraries may vary a little. It's commonly included in the category of "Service", "Angebot", "Benutzung", "Auskunft", and "Auskunft und Beratung". It's also possible to find the service categorized under "Kontakt" and so on. Therefore, sometimes, the investigator had to be very careful while searching for the service in a library.

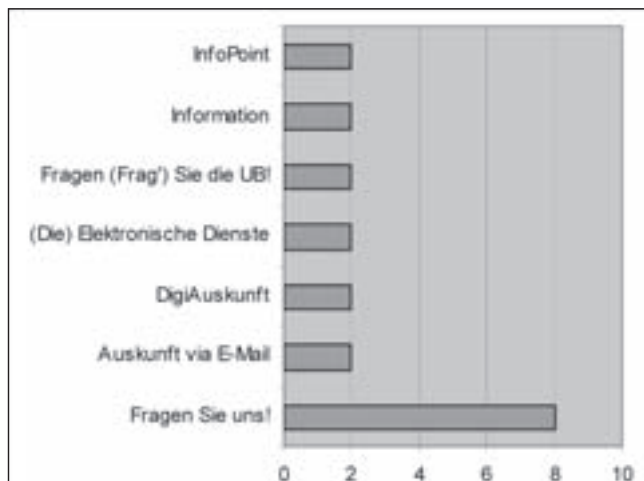


Figure 1: Names of the services

All 29 academic libraries and two “other institutions” have been taken into account while only seven public libraries are covered in the statistics in Figure 1 for other nine public libraries do not use special names except that of DIB. Among these 38 libraries, it’s easy to find that “Fragen Sie uns!” is most often used. The following are the names used once:

- Anfrage an Infozentrum,
- Bibliothekarische Auskunft per Mail,
- Chat; elektronischer Briefkasten,
- DigiAuskunft – Ihre Frage,
- E-Mail-Auskunft,
- E-Mail-Auskunft des Infodienstes der Stadtbücherei Heidelberg,
- eAuskunft,
- Fragen an die Bibliothek,
- Frag’ die SUB,
- Fragen an die Auskunft,
- Fragen Sie Hamburger Bibliotheken,
- Ihre Fragen und Anregungen,
- Information – Fragen Sie uns!
- InfoPoint / Online-Auskunft,
- Mail an die Auskunft / Information der Universität,
- Online-Auskunft InfoPoint,
- Online-Auskunft per chat,
- Virtuelle Auskunft der UB der TU-Berlin,

It could be found that some service names reveal the systems they employ for providing the services while most service names don’t have such intention.

2.3.2 Starting time

Among the 47 libraries with digital reference services and replying to inquiries, 38 have their own individual service systems and nine have been only involved in DIB’s email reference service network. The earliest service began in 1992 and twelve of the 38 libraries (almost one third) started their services in 2006. Figure 2 shows clearly the tendency of the service in respect of the number of services starting in a certain year. As the curve shows in Figure 2, the general tendency of the service number is rising since the end of 1998 and reaches the summit in 2006. The number seems to drop in 2007. However, it is due to that the calculation in that year ends in August. The im-

pression colleagues of UB Würzburg got during their contact with other libraries is that many of them are thinking of initiating digital reference services soon. There are still four months left in the year of 2007. It’s very much likely that there are lots of new services appearing in the left four months.

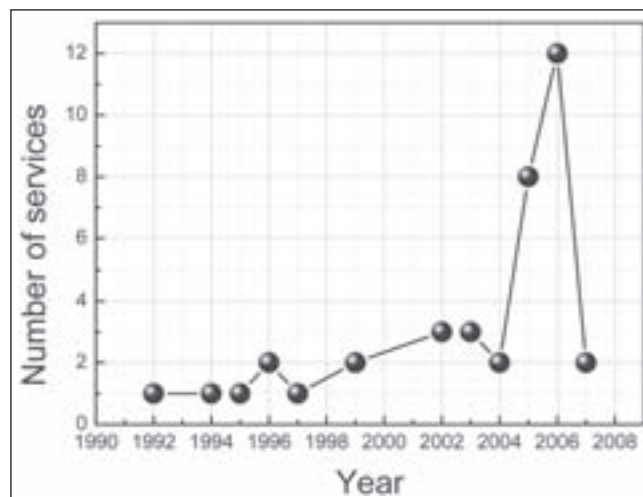


Figure 2: Tendency of service numbers

As regards to the nine public libraries that just take part in DIB’s email reference service, seven (77.8 %) of them started to be involved in the network since the beginning of the service, i.e. 2002; two in 2003 and one in 2004. According to these calculation, the number of libraries joining the DIB’s network declines. However, in a whole, such number actually increases during these years. This point will be discussed from another perspective in the next section.

2.3.3 Characteristics

The digital reference services in some German libraries run individually while some German libraries provide the digital reference service cooperatively. It also happens that some libraries provide online reference services independently but in the same time, it cooperates with other libraries in a loose way. The characteristic of the service (individual or cooperative service) is greatly related to the system the library adopts.

Figure 3 shows the numbers and percentages of the services in the light of characteristics of the services in the academic and public libraries. In the figure, “I” stands for completely individual service, “C” for cooperative service and “I+C” individual and cooperative service simultaneously. From Figure 4, it could be found that services provided both independently and cooperatively occupies very similar percentages in the academic and public libraries whereas the situations in respect of completely individual and cooperative service are opposite in the two kinds of libraries. Among the 29 academic libraries, nearly 60 % provide the digital reference service purely independently; on the contrary, a little more than 60 % of public libraries are only involved in cooperative services. In addition, both of the two so-called “other institutions” both provided the digital reference service cooperatively.

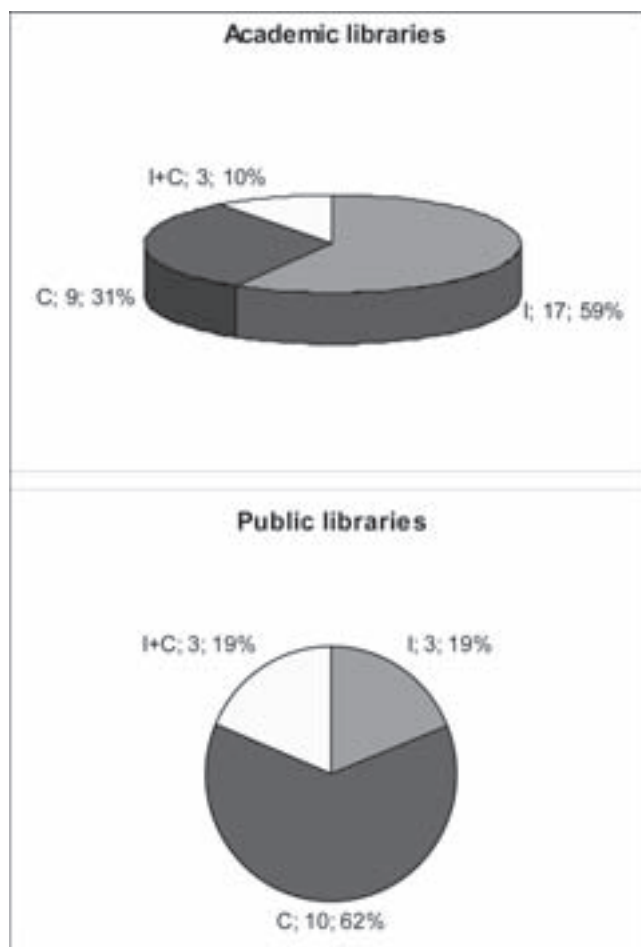


Figure 3: Characteristics of services

Indeed, cooperation in providing the digital reference service happens at various levels in German libraries. It's needless to say that the central library of a city or a university cooperates with its branch libraries. Nevertheless, the project reported focuses on the cooperation among libraries beyond the intranet. Among the German libraries, there are networks in providing collaborative online reference service within different scopes.

The regional networks are often established on the basis of the same digital reference service system. In the State of Northrhine-Westfalia (Land Nordrhein-Westfalen), the libraries participating in DigiAuskunft have closed collaborative relationship. The librarian of the University Library of Dortmund (Universitätsbibliothek Dortmund, UB Dortmund) introduced: There is "cooperation in Northrhine Westfalia provided by several university and public libraries. Our partners are the other libraries in Dortmund (public library and the library of the University of Applied Sciences) and others (University Library of Cologne, University Library Wuppertal, Public Library in Cologne). This cooperative reference service started in February 2006 because we wanted to increase the possibilities for small libraries by cooperation and also ease the passing on of special questions for all."¹²

The network of DIB might be the biggest one among German libraries in respects of the provision of the online reference service. As the reference librarian wrote, DIB started up with the support from DBV (Deutscher Bibliotheksverband, German Library Network) and Bertelsmann on 1 January 2002. At the beginning, the software

was developed by SISIS Informationssysteme GmbH. But now there is no more support from the side of this firm because of missing delegations. Since April 2005 BSZ (Bibliotheksservice-Zentrum Baden-Württemberg, Baden-Wuerttemberg Library Service Center) hosts its server. "Since the beginning of 2007 all questions are distributed at the coordinating library in Dresden, by hand to the different locations"¹³. It means that "the coordinating library distributes the incoming mail-questions among the participating libraries, is in a close contact with the librarians and coordinates the team-work. ... The cooperation of DIB consists of 73 public and [academic as well as] 20 private Libraries that focus on specific subjects. These are in Germany, Switzerland and Austria. About 200 lectors and librarians work in the reference service as well as in the field of link search and use for the DIB."¹⁴ Nevertheless, it was pointed out by Mr. Ulrich that "one of the major drawbacks it has is the questions must be asked on the web site of the DIB – which most patrons don't know about. The participating libraries (most of whom do not have a link to the DIB on their own web sites) try to answer the questions assigned to them; if they can't they have been instructed to pass the question on to RABE."¹⁵

Meanwhile, there is a network participating in the international cooperation in providing the digital reference service in Germany. All the German libraries adopting QuestionPoint (in Germany it's called as InfoPoint) cooperates while offering such service. In addition to the InfoPoint Consortium mentioned above, several other large-scale German libraries have been members of the international network of QuestionPoint. The cooperative mode was described by one librarian of DNB as that "all inquiries are transferred to the central server of OCLC. Here in the Deutsche Nationalbibliothek there is an administrator who assigns the requests to different librarians and we answer the inquiries directly, using the Question Point site in English or in a German translation."¹⁶

2.3.4 Systems

There are a variety of systems employed in German libraries for providing the online reference service. The situation is especially complicated dealing with the email reference service. Several libraries still use common email communicating systems while some develop systems on their own.

Figure 4 displays the systems used for providing the email reference service. In addition to nine libraries purely participating DIB's email reference service, as Figure 4 shows, half of the 38 libraries employ the common email or self-grown system for providing the email reference services; among the left half of the 38 libraries, almost half adopt

¹² Universitätsbibliothek Dortmund (2007): "Re: [Anfrage#2007071210000291] Your digital reference service". Email to Jia Liu. 13 July.

¹³ Deutsche Internetbibliothek. 2007: "Re: Ihre Anfrage an die Deutsche Internetbibliothek". Email to Jia Liu. 21 June.

¹⁴ Deutsche Internetbibliothek (2007).

¹⁵ Ulrich, Paul S. (2007a),

¹⁶ Deutsche Nationalbibliothek (2007) 'Question Point – InfoPoint'. Email to Jia Liu. 5 June.

the system of InfoDesk which is maintained by BSZ. It means that within the statistics of the project reported, InfoDesk occupies the biggest market. Furthermore, the libraries adopting InfoDesk's system are located in different parts of Germany as following:

- BAW – UB Heidelberg, UB Stuttgart, WLB Stuttgart
- BAY – UB Bamberg
- BER – UB TU Berlin
- NRW – SLB Dortmund
- SAA – Saarländische ULB
- SAC – UB Chemnitz, SLUB Dresden

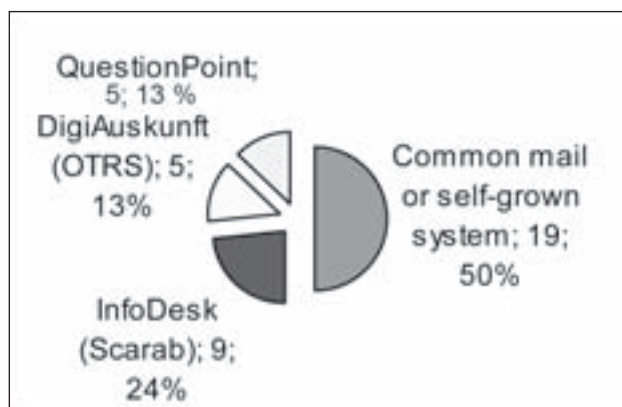


Figure 4: Systems of the email reference services

One more thing drawing attention related to InfoDesk is that its system provides the user a possibility of uploading attachment while drafting the web inquiry form. Out of question, such mode might cause security problems inevitably. However, it's very convenient to the user who really needs attachment to make his inquiry clearer.

As regards to the system employed for providing the chat reference, five of the libraries provide such service until now, and four (80 %) of them use RAKIM¹⁷, a knowledge instant messenger, while one uses Alysha. For supplying the reference service via chatterbot or chatbot, one library employs Stella while one uses ASKademicus.

2.3.5 Types

Most of the German libraries provide online reference services only via emails while some of them also via chat. Chatterbot has been served for the purpose of digital reference service in several German libraries, too. In the investigation reported here, all the 47 libraries provide the email reference service based on web forms. In the same time, just five of the 47 libraries (10.6 %) also offer the chat reference services and two libraries employ automatic chat service with chatterbot.

The reference librarian of UB Dortmund declared that "we were one of the first libraries in Germany with chat because our director heard about the good experiences in the USA with that medium. In March 2004 our chatterbot ASKademicus started his work. He is working in the evening and night when no librarian is available¹⁸." "ZLB began offering chat for children and young adults in May." They hope that they would "be able to expand this service in the near future by getting more public libraries to work together in a consortium¹⁹." Nowadays, when a library thinks of adopting an online reference service sys-

tem, whether the system could enable the chat reference service has been taken into consideration.

2.3.6 Services providing FAQ

In respect of FAQ (Frequently Asked Question, or Häufig gestellte Fragen in German) of the digital reference services in German libraries, the results reveal that it has not been very common in this country. Among the 47 libraries, except five academic libraries and one public library, all the others haven't set up a collection of FAQ for their digital reference services.

2.3.7 Services having established the knowledge base

The situation dealing with the knowledge base is much better than FAQ. Eleven academic libraries, two "other institutions" and two public libraries either have built up their own knowledge base or share the knowledge base with partners of the network they're involved in. Therefore, totally 15 libraries, or almost one third, among the 47 libraries have knowledge base so far. Within the other 32 libraries, some state that their knowledge bases are under development.

2.3.8 Languages

All the 29 academic libraries and two "other institutions" provide the digital reference service in both German and English. In addition, the following libraries announced that they could supply the digital reference service also in French:

- WLB Stuttgart
- SUB Göttingen
- UB der FU (Freie Universität) Berlin
- Saarländische LB.

The seven public libraries with individual email reference services could also reply inquiries in both English and German. It's difficult to say that the other nine public libraries could do the same or not because most of them replied until they got the inquiry in German.

On the other hand, some libraries are very considerate to the English speaker for at the same time, they offer web forms completely in English or provide an equivalent in English to each field of the web form in German.

¹⁷ "RAKIM is an attempt at providing a web-based reference service. It is very similar to standard chat room scripts, but with some added features that might be useful when trying to help patrons find answers to their questions." [RAKIM: a knowledge instant messenger. 2007. Internet WWW page, available at <<http://sourceforge.net/projects/rakim/>> (accessed 23 September 2007).]

¹⁸ Universitätsbibliothek Dortmund (2007): 'Re: [Anfrage#2007071210000291] Your digital reference service'. Email to Jia Liu. 13 July.

¹⁹ Ulrich, Paul S. (2007a).

2.3.9 Question archiving

All the 47 libraries archive the questions and answers they replied. The librarian of UB Düsseldorf raised a very good answer – our service archives the questions as well as answers “especially for reasons of quality management”²⁰.

2.3.10 Scope of the user

There is no any limitation to the affiliation of the patron of the digital reference service. On this point, the German libraries are very much user-friendly. Although sometimes the number of the library card is asked on the web form while filling out the inquiry web form, the field of this number is usually optional. A patron without a library card could also ask a question. The purpose of setting such a field is that the library card number might be helpful for the librarian to get to know the situation of the user so as to reply some inquiries related in a quicker and more convenient way.

2.3.11 Payment

As regards to the payment, with only one exception, all other 46 libraries don't mention it so that it could be supposed that they offer digital reference services free of charge. The assumption was proved to be sure during the investigation.

The exception happens in the Library of the Humboldt University (Universitätsbibliothek der Humboldt-Universität, UB Humboldt). On the web site of email reference service of UB Humboldt, under the web inquiry form, there is a note as following:

Achtung: Aufwendige Auskünfte sind kostenpflichtig!

(Auskünfte, die mehr als 10 Minuten benötigen, kosten EUR 15,00 für jeweils 20 Minuten Bearbeitungszeit, vgl. Gebührenordnung Teil B Nr. 7.)²¹.

According to this note, only the service taking longer than 10-minute working time costs money in this library.

2.3.12 Librarians involved

While sending an inquiry to a library about its digital reference service, the investigator always asked how many librarians are involved in the service in the library. Nevertheless, gradually, she found that it was difficult to make comparisons among libraries on this point. The main reason for the difficulty is that not only the librarians in the department taking care of the service are naturally involved in the service but also librarians in other departments might also participate in the service if necessary. The other issue is that library scales might differ quite so that the numbers of the reference librarians between different libraries are not comparable. Based on these considerations, the researcher gave up the idea of comparing the numbers of librarians taking part in the online service among libraries.

2.3.13 Statistics from some libraries

During the investigation, the researcher invited the libraries inquired to send her some statistics about their digital reference services if possible. Some librarians were very generous and provided her statistics in depth. Since the researcher got statistics from minority of the libraries, it's hard for her to make comparisons among the inquiries numbers. On the other hand, later it's doubted whether it makes sense to do so because individual libraries' situations may vary.

2.4. Conclusions

According to the investigation results, it's easy to reply to the research questions put forward at the beginning of the project. The answer to the research questions could be outlined as following:

So far, only a few of German libraries provide the digital reference service. The reference service is mostly provided in these libraries via email but also via chat in several libraries. The academic libraries could provide the digital reference service both in German and English while the majority of the public libraries provide the service only in German. Half libraries are employing common email management system or self-grown system for providing the service. Nonetheless, several marketing systems are more and more popular. There has been collaboration in the field of online reference at different levels.

On the other hand, the investigation proves that most of the hypotheses set up before are right. In Germany, the situation of the academic and the public libraries are not the same in respect of supplying the digital reference service. The second part of the next assumption which is most German academic libraries have started to provide the digital reference service while few public libraries have done so is true but the first part of it is too optimistic. There is no problem with the last hypothesis that most German libraries offer only the email reference service by now.

As a conclusion, broadly the digital reference service in German libraries is at the primary phase. Paul Ulrich pointed out some words to the general state of digital reference services in Germany: “The library culture in Germany is quite different than that in the Anglo-Saxon world, where libraries for almost a century have established themselves as a location where questions will be answered. In Germany this culture has not developed. Particularly public libraries are places where one borrows books, they are not necessarily seen – both by the public and politicians – as a place for information. Consequently libraries are often approached for help finding information only as a place of last resort and not as a starting place for finding informa-

²⁰ Hesse-Dornscheidt, Marianne (2007): ‘Re: Inquiry about your digital reference service’. Email to Jia Liu. 31 July.

²¹ The translation of the note is: Overpackaging services are subject to cost. (According to Tariff Part B, No. 7, the service taking longer than 10 minutes costs EURO15,00 for every 20-minute working time.)

tion²².” Hermann Rösch also reported that the reference service started in late 1960s in German libraries and “the development of digital reference in this country is still in its early stages²³”. The good thing is that the situation is changing to the better direction. More and more German libraries start to recognize the necessity and importance of the digital reference service and are taking actions. It’s sure that the digital reference service is not the only one but an indispensable way for the library to serve the user in the network age. More effort is expected in boosting the service in German libraries.

Acknowledgment

First of all, the researcher would like to say great thanks to the Alexander von Humboldt Foundation for its powerful support which enables her to conduct a research project in Germany for the third time. The researcher does appreciate the Foundation’s continuous effort in promoting the international research cooperation.

Meanwhile, the researcher was very grateful to Dr. Karl Südekum, the director of the Würzburg University Library, the host institute of this research project and Dr. Viola Hämmer, the administrator of the Department of Information of the Würzburg University Library. Without their kind acceptance and aid, the project reported could not go on so smoothly. Besides, the researcher also would like to take this opportunity to express her thanks to the colleagues in UB Würzburg for their so much kindness and help to her.

Finally, the researcher was also very thankful to the reference librarians who took time in replying her inquiries and providing her valuable information.

3. Appendices

Appendix 1: Public libraries with DRS[#]

State/Free city	Library
BAW	Stadtbücherei Heidelberg (<www.stadtbuecherei-heidelberg.bib-bw.de>)
	Stadtbibliothek Herrenberg (<www.stadtbibliothek.herrenberg.de>)
	Stadtbibliothek Lörrach (<www2.loerrach.de>)
	Stadtbibliothek Radolfzell (<www.radolfzell.de>)
BAY	Stadtbibliothek Reutlingen (<www.stadtbibliothek-reutlingen.de>)
	Stadtbücherei Stuttgart (<www.stuttgart.de>)
BER	Stadtbibliothek am Salzstadel Rosenheim (<www.stadtbibliothek.rosenheim.de>)
	Stadtbücherei Würzburg (<www.stadtbuecherei-wuerzburg.de>)
	Stadtbibliothek Berlin-Lichtenberg (<www.stadtbibliothek-berlin-lichtenberg.de>)
HES	Stadtbücherei Frankfurt am Main (<www.frankfurt.de>)
NIE	Stadtbibliothek Hannover (<https://bibliothek.hannover-stadt.de>)

	Stadtbibliothek Wolfsburg (<www.stadtbibliothek.wolfsburg.de>)
NRW	Stadt- und Landesbibliothek Dortmund (<www.bibliothek.dortmund.de>)
	Stadtbibliothek Köln (<www.stbib-koeln.de>)
RLP	Stadtbibliothek Koblenz (<www.stb.koblenz.de>)
SLH	Stadtbücherei Kiel (<https://katalog.stadtbuecherei-kiel.de>)

Appendix 2: Academic libraries and “other institutions” with DRS^{*}

State / Free city	Library
BAW	Universitätsbibliothek Freiburg (<http://www3.ub.uni-freiburg.de/>)
	Universitätsbibliothek Heidelberg (<http://www.ub.uni-heidelberg.de/>)
	Bibliothek der Universität Konstanz (<http://www.ub.uni-konstanz.de/>)
	Universitätsbibliothek Stuttgart (<http://www.ub.uni-stuttgart.de/>)
BAY	Universitätsbibliothek Tübingen (<http://www.ub.uni-tuebingen.de/>)
	Württembergische Landesbibliothek Stuttgart (<http://www.wlb-stuttgart.de/index.html>)
	Universitätsbibliothek Bamberg (<http://www.uni-bamberg.de/service_einrichtungen/unibib/>)
BER	Universitätsbibliothek Würzburg (<http://www.bibliothek.uni-wuerzburg.de/>)
	Universitätsbibliothek der FU (Freie Universität) Berlin (<http://www.ub.fu-berlin.de/>)
	Universitätsbibliothek der Humboldt-Universität (<http://www.ub.hu-berlin.de/>)
	Universitätsbibliothek der Technischen Universität Berlin (<http://www.ub.tu-berlin.de/>)
	Deutsche Nationalbibliothek (<http://www.dnb.de/index.htm>)
HAM	Zentral- und Landesbibliothek Berlin (<http://www.zlb.de/index.html>)
	Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky (<http://www.sub.uni-hamburg.de/>)
HES	Bibliothek der Fachhochschule Wiesbaden (<http://fh-web1.informatik.fh-wiesbaden.de/go.cfm/fb/0/sprachid/1/sid/16.html>)

²² Ulrich, Paul (2007b): ‘Re: [Fwd: Re: Library Question – Answer [Question #2678633]]’. Email to Jia Liu. 16 August.

²³ Rösch, Hermann: ‘Digital reference in Germany: an overview and experiences on the need for qualifications’ Presentations during the World Library and Information Congress: 65th IFLA General Conference and Council. 1-9 August 2003, Berlin. Internet WWW page, available at <http://www.ifla.org/IV/ifla69/papers/107e_trans-Roesch.pdf> (accessed 16 May 2006).

	Universitätsbibliothek Frankfurt am Main (< http://www.ub.uni-frankfurt.de/ >)
	Universitätsbibliothek Kassel – Landesbibliothek und Murhardsche Bibliothek der Stadt Kassel (< http://www.uni-kassel.de/bib/ >)
MVP	Universitätsbibliothek Rostock (< http://www.uni-rostock.de/ub/ >)
NIE	Niedersächsische Staats- und Universitätsbibliothek Göttingen (< http://www.sub.uni-goettingen.de/ >)
NRW	Universitätsbibliothek Bielefeld (< http://www.ub.uni-bielefeld.de/ >)
	Universitätsbibliothek Dortmund (< http://www.ub.uni-dortmund.de/literatursuche/auskunfonline.html >)
	Universitätsbibliothek Duisburg-Essen (< http://www.ub.uni-duisburg-essen.de/feedback.shtml >)
	Universitäts- und Landesbibliothek Düsseldorf (< http://www.ub.uni-duesseldorf.de/home/ >)
	Universitätsbibliothek Siegen (< http://www.ub.uni-siegen.de/ >)
	Universitäts- und Landesbibliothek Bonn (< http://www.ulb.uni-bonn.de/ >)
	Universitäts- und Stadtbibliothek Köln (< http://www.ub.uni-koeln.de/ >)
SAA	Saarländische Universitäts- und Landesbibliothek (< http://www.sulb.uni-saarland.de/ >)

SAC	Universitätsbibliothek Chemnitz (Technische Universität Chemnitz) (< http://www.bibliothek.tu-chemnitz.de/ >)
	Sächsische Landesbibliothek – Staats- und Universitätsbibliothek Dresden (< http://www.slub-dresden.de/ >)
SLH	Universitätsbibliothek Kiel (< http://www.uni-kiel.de/ub/index.html >)
THU	Universitäts- und Forschungsbibliothek Erfurt / Gotha (< http://www.bibliothek.uni-erfurt.de/ >)

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- * Only the public libraries with the digital reference service and replying to the inquiries are listed here.
- * Only the academic libraries and “other institutions” with the digital reference service and replying to the inquiries are listed here.