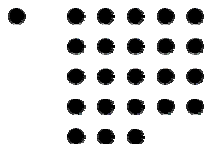


Virtual Reference Services in Germany:

Some examples of recent applications



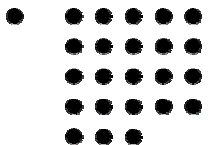
Prof. Dr. Achim Osswald
Cologne University of Applied Sciences
Cologne, Germany
achim.osswald@fh-koeln.de



India and Germany – some orientation



<http://www.weltkarte.com/europa/deutschlandkarten.htm>

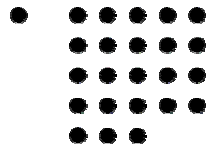


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Achim Osswald – Cologne University of Applied Sciences
Bangalore / DRTC – 6/12/2006





Cologne, Germany

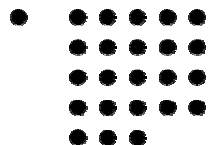


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Further Topics of this presentation

- Overview on types of digital / virtual reference services
- A short history of reference services in Germany
- Form based digital reference services
e.g. DigiAuskunft
- Obstacles of asynchronous digital reference services
- Chatbots / avatars, e.g. Stella
- Advantages / disadvantages of chatbots / avatars
- Summing-up



Internet-based digital reference services

Ask a librarian...

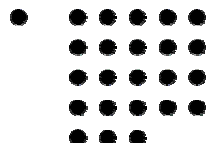


an online reference service from the Library of Congress

- Global Reference Network which resulted in the introduction of the OCLC powered
- Most of the services are collaborative
- Very much literature on the topic; probably one of the best starting points are *IFLA Digital Reference Guidelines* (available in several languages)
<http://www.ifla.org/VII/s36/pubs/drg03.htm> (1/12/2006)



QuestionPoint™
24/7 reference services



Virtual Reference Services in Germany

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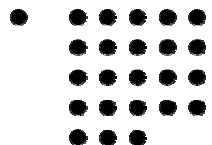
Digital / Virtual Reference Services

Synchronous Services

- Simple Chat
- Extended Chat
- Voice over IP
- Video Conferencing

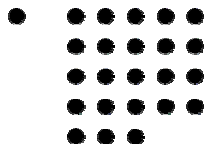
Asynchronous Services

- FAQ
- E-mail
- Web Form
- Chatbot



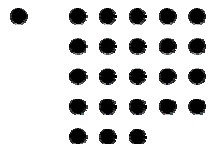
Reference Services in Germany: a short history

- Reference services in Germany have not much changed since the 1960ies until the 1990ies
- For a long time there was no special education for reference librarians
- Reference Services mostly have been collection oriented only
- But:
Since the the 1990ies things have changed ...



Internet: new options for communicating and getting in touch with users

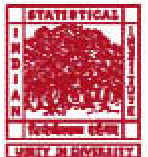
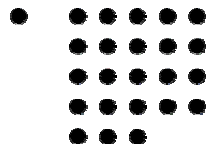
- Since 1994 German libraries and librarians started using e-mail for information exchange between each other
- Mailing lists like INETBIB www.inetbib.de with today about 5000 subscribers and RABE, a list focusing on Reference questions, have been introduced
- E-mail was offered as a complementary option for receiving inquiries by users
- Public libraries in major cities as well as university libraries gradually created Web sites



The Internet

offered new options for communicating and getting in touch with users

- German Internet Library (=Deutsche Internetbibliothek)
<http://www.internetbibliothek.de>
More than 90 libraries – mostly Public Libraries – are offering a subject based link library of proofed links
- Local or regional cooperations of libraries offering e-mail-based or form-based reference services, e.g.
 - InfoPoint, Frankfurt
 - DigiAuskunft, Northrhine-Westfalia (see later)

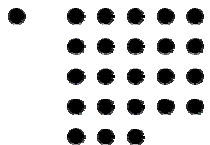


Digital reference services today: meeting the users where they already are

- *E-Mail reference services*
are offered by most of the city libraries and university libraries dedicating an e-mail address to reference purposes only

Problems with e-mail based reference services

- Missing flexibility because e-mail normally shows up only with one account
- Mails may be missed or not answered
- There is no archive of answers given
- Tracking and statistics are time consuming



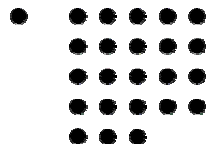
Digital reference services today: meeting the users where they already are

➤ *FAQs*

related to questions asked by the users of
a specific library

➤ *Web forms*

are offered in which users are invited to key in their
questions - structuring them and asking for additional
information - which likely would not have been given
when sending the question by e-mail

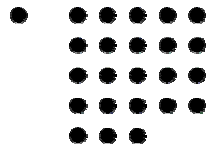


Form-based, cooperative, and virtual reference service consortiums (1)

- e.g. web based form offered by „Central and Regional Library Berlin“
- Examples from other countries
 - biblioteksvagten.dk
 - bibliotheek.nl (Aladin)

=> consortium-based cooperative reference activities

The image displays three overlapping screenshots of web-based reference service forms. The top screenshot is from the Zentral- und Landesbibliothek Berlin, featuring a logo with three horizontal bars and the text 'zentral- und Landesbibliothek Berlin'. Below it is the logo for 'BIBLIOTEKSVAGTEN.DK' with the tagline 'THE ANSWER TO ALL YOUR QUESTIONS'. The middle screenshot is from 'bibliotheek.nl' (Aladin), showing a logo with an eye icon and the text 'bibliotheek.nl'. The bottom screenshot is from 'biblioteksvagten.dk', showing a form titled 'Stel een vraag' (Ask a question) with a logo of a person with a question mark. The form includes a text input field, a dropdown menu, and a 'Next >>' button. The text 'The fields marked with * must be filled in, in order to enable us to give you a' is visible above the form fields.



Form-based, cooperative, and virtual reference service consortiums (2)

- e.g. web based form offered via „DigiAuskunft“ by cooperating Libraries of Cologne <http://www.koelnbib.de>

= one of many access points to a collaborative reference service of Academic and Public Libraries in Northrhine-Westfalia

KÖLN BIB Kooperation Kölner Bibliotheken

Home Wir über uns E-Mail-Auskunft Datenbank Kölner Bibliotheken Archiv Hilfe zur Suche

Fragen Sie uns - Auskunft per E-Mail

Mit diesem Formular können Sie eine Anfrage an die KölnBib-Auskunft starten.
Mit * gekennzeichnete Felder sind Pflichtfelder.

Bitte beachten Sie auch >> [folgende Hinweise](#).

Thema Ihrer Frage: *

Ihre Frage - möglichst detailliert: *

Ihr Vor- und Zuname: *

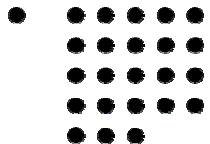
Ihre Email-Adresse: *

Anfrage absenden Text löschen

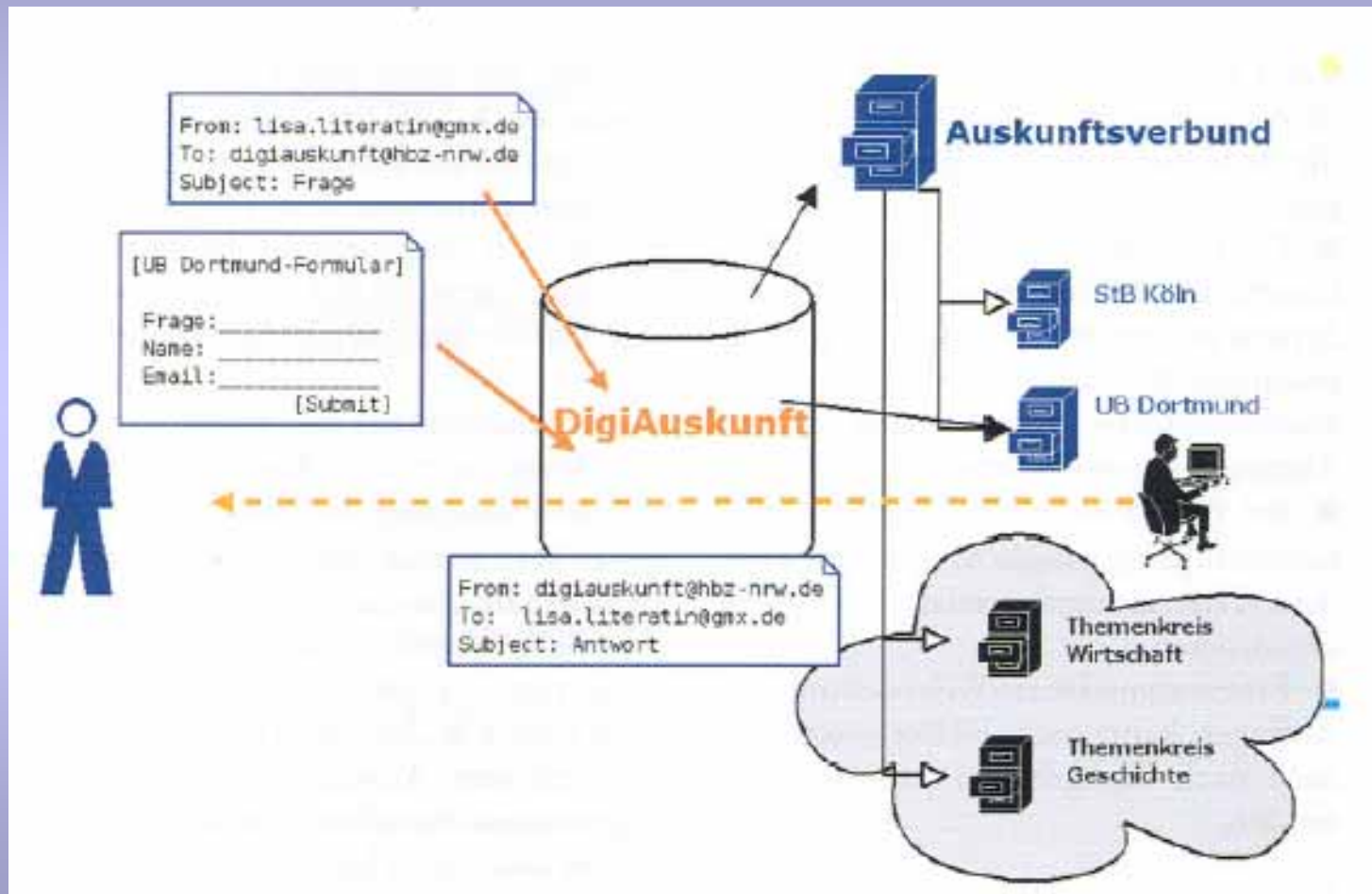
powered by: hbz

Impressum | eMail | letzte Änderung: 18.08.2006

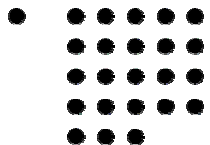
Benötigen Sie Hilfe bei der Recherche?
Oder haben Sie Fragen zu Kölner Bibliotheken?
Wir beantworten Ihre Frage nach Möglichkeit innerhalb von 48 Stunden (Mo-Fr, außer an Feiertagen) per E-Mail.
Falls erforderlich wird Ihre Frage weitergeleitet an eine Partnerbibliothek.
Beachten Sie bitte, dass wir keine rechtsverbindlichen Auskünfte geben können.



DigiAuskunft (=Digi[ta]l Reference)



Source: Daniel et al.: BuB 7/8 2006, p. 559

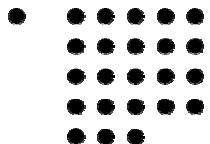


Advantages of cooperative, virtual reference service consortiums

- Reducing the workload by cooperative planning and implementing the service (e.g. developing software, training, policy etc.)
- Sharing costs
- Extending the service in terms of time and subjects
- Improving marketing by developing a brand available on the websites of many libraries

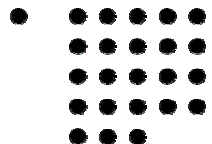
Nevertheless:

Institutional related design of forms is possible depending on the software used –
DigiAuskunft (like GM, NASA and DaimlerChrysler) uses Open Source Software OTRS



Obstacles of digital reference services based on *asynchronous communication*

- E-mail and web-based forms are offering much less information compared to a regular reference interview
 - Information given is not always adequate to answer the underlying question
 - There is no or at least not enough interaction between the user and the librarian to focus on the problem really asked
 - Non-verbal communication is missing
- ⇒ *E-mail and web-forms are good for questions on facts and figures
but less good for complex questions and problems*



Enhancements?

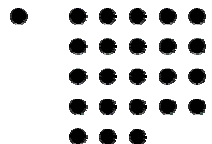
Chatbots / avatars:

Examples developed in Germany

- Stella www.sub.uni-hamburg.de
State and University Library Hamburg
- INA www.buecherhallen.de
Hamburger Öffentliche Bücherhallen /
City Library Hamburg
- AsKademicus www.ub.uni-dortmund.de/chatterbot/
University Library Dortmund

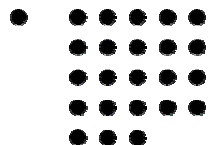


Most of them are implemented in pop-up windows – which have to be enabled in the user's browser



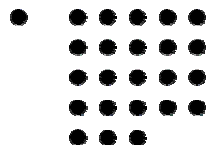
Chatbots / avatars

- Chatbots and avatars are an enhancement of the concepts of web-forms: a user keys in questions in natural language which will be answered by a chatbot
- The chatbot might as well
 - open web pages with information relevant to answer the question or
 - transfer a question to a live chat with a staff member
- A parsing tool is needed to analyze and translate questions which will then be matched against a knowledge database of frequently asked questions and answers given

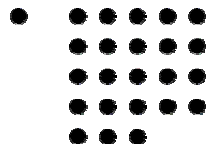
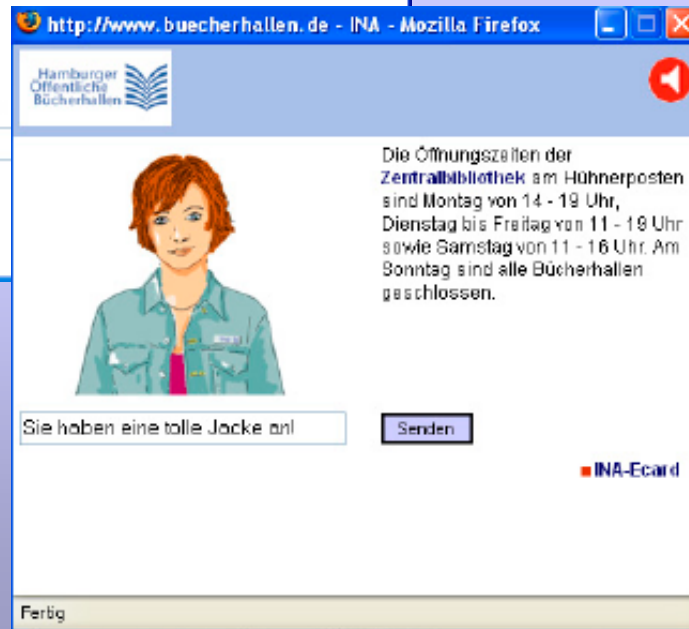


Chatbots / avatars

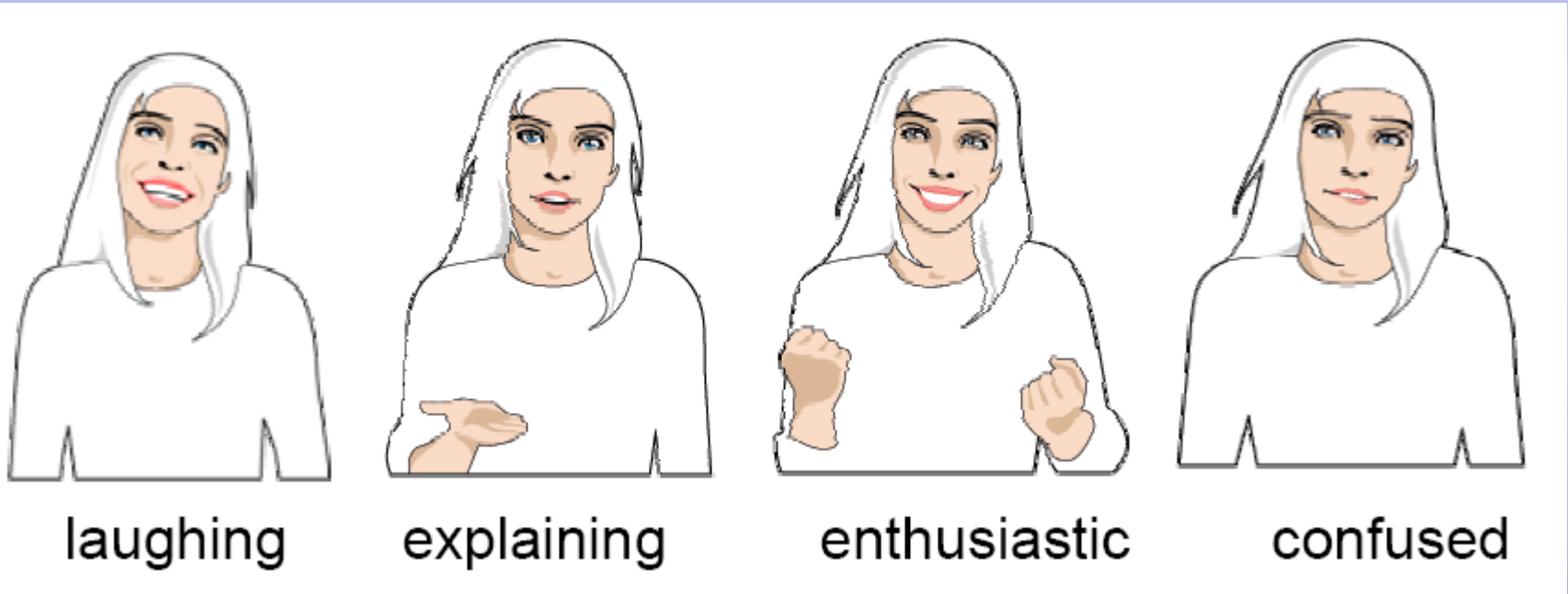
- Answers of chatbots are referencing to the appropriate facts of the knowledge database
- Based on the facts in the knowledge database well-formed sentences in natural language are created by the chatbot software
- A well (?) looking anthropomorphized avatar is delivering the machine based answers – sometimes also as audio output – accompanied by expressions related to moods which might have been appeared in a communication between people
- The avatar additionally can accompany the user while s/he is browsing the website of the library



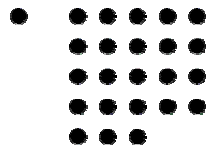
Screenshots of chatbots with avatars



Stella and her moods (4 out of 10)

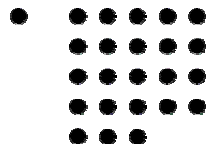


Source: PPT of Anne Christensen, Ottawa, 13/10/06

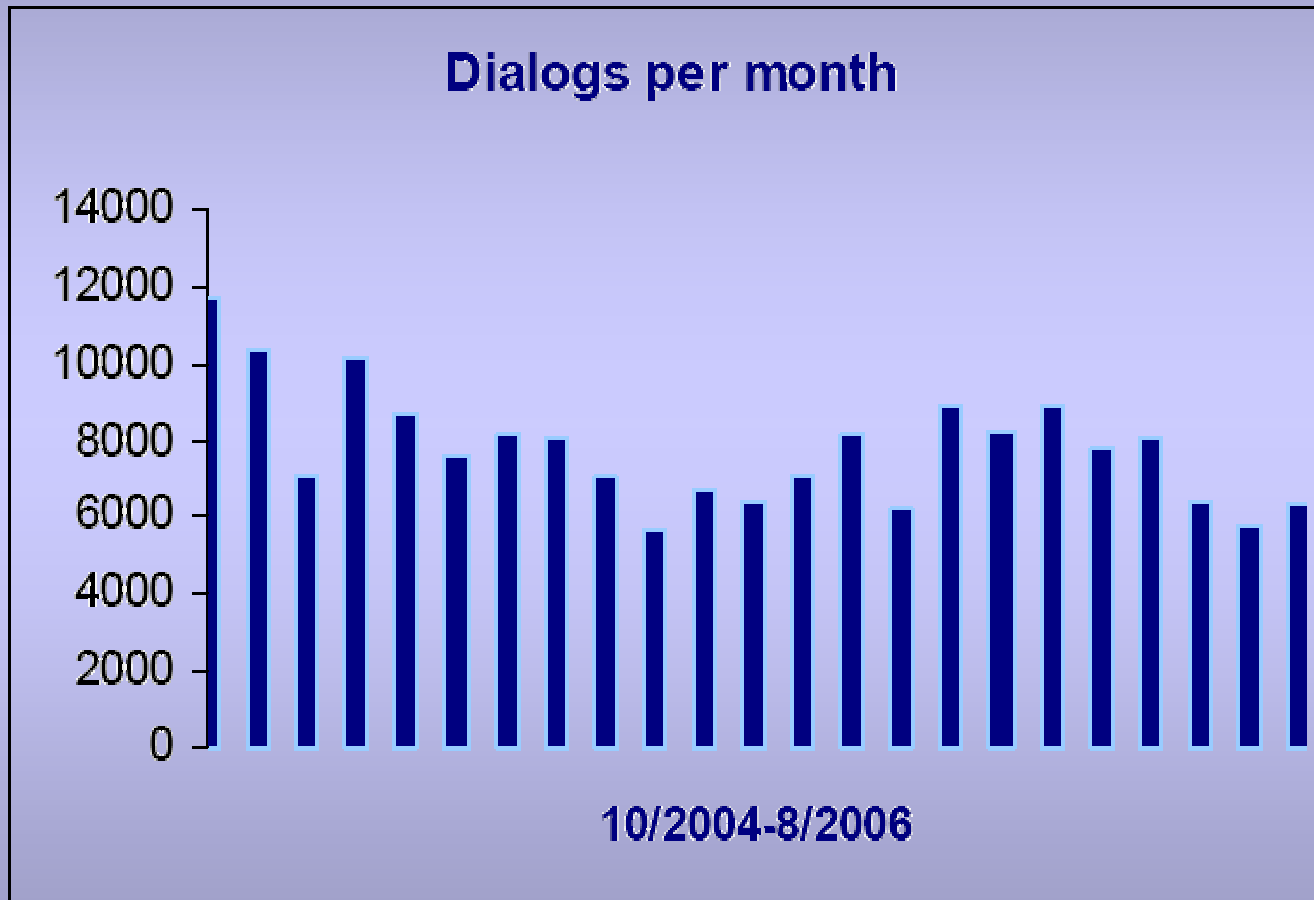


Stellas „Brain“

- About 3000 „rules“, mainly research strategies
- Each rule for a specific topic
- Variations of questions phrased in regular expressions in Perl
- Answers with mood, text, URLs



Statistics of communication with Stella



Source: PPT of Anne Christensen, Ottawa, 13/10/06

Dialogs per day

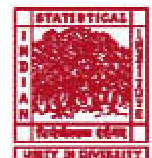
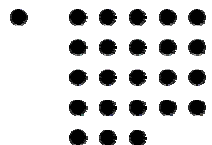
288

Popular Topics:

- Finding books
- Borrowing
- Hours
- E-Resources

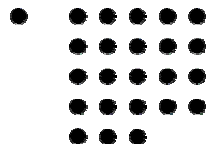
Marriage proposals

15 within first
2 weeks



Transcript analysis of communication with Stella

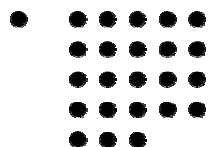
- Extensive start after launch and extensive ongoing usage
- Decrease in wrong answers from 30% to 15% within 2 months
- 83% of dialogs on library-related topics
- 25% information literacy related communication



Digital / Virtual reference activities / day

	Usage per day	Source of data
FAQs	160	Log files of library website (2005)
Online Tutorials / Guided Tours	25	Log files of library website (2005)
E-Mail	5	Statistics from Reference Services (2005)
Chat	0,7	Study on live chat reference services in Germany (2004)
Stella	288	October 2004 – September 2006

Source: PPT of Anne Christensen, Ottawa, 13/10/06

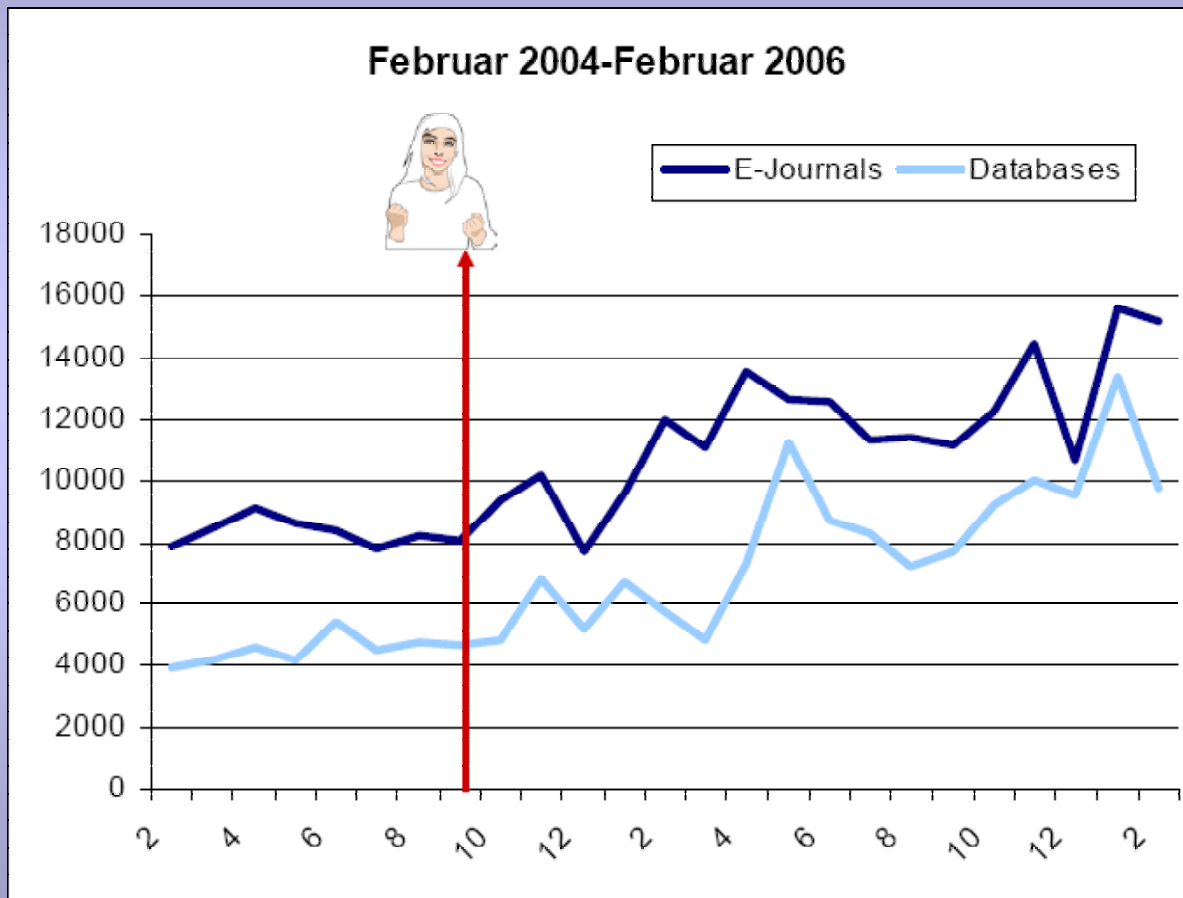


Virtual Reference Services in Germany

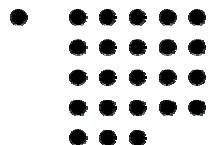
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Usage of Databases and E-Journals

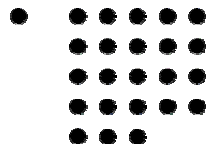


Source: PPT of Anne Christensen, Ottawa, 13/10/06



Advantages of chatbots / avatars

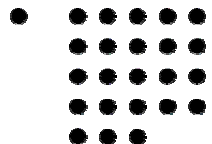
- Chatbots are available nearly 24/7
- Easy and cheap accessibility from the distance
- Natural language interface to FAQ
- Anonymity to the users
- Marketing side effects for the library



Disadvantages of chatbots / avatars

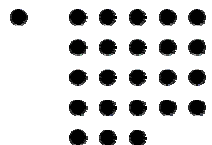
- Limitations of the technology so far (no AI application)
- As a result questions asked sometimes go far beyond the „competence“ of the chatbot / avatar
- Not a real interaction with the user who sometimes assumes this nevertheless
- Non-verbal communication is missing

⇒ *chatbots – like e-mail and web-forms – are good for questions on facts and figures but less good for complex questions and problems*



Summing-up (1)

- German libraries – like libraries in other countries – have invested much effort in offering digital / virtual reference services to their users
- Most of the digital / virtual reference services provided are collaborative and use specifically developed software
- Recent multimedia related e-learning funding resulted in the development of applications with rule-based chatbots / avatars – which have become quite popular
- In terms of availability and attraction Chatbots extend and intensify the usage of reference services and digital resources which are made available by libraries



Virtual Reference Services in Germany

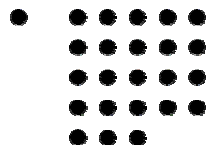
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Summing-up (2)

- Nevertheless chatbots can only take some of the workload from reference staff by answering easy questions - most of them related to a local library
- Until now chatbots can not replace the personal interaction within the reference interview
- Knowledge based chatbots using artificial intelligence might improve the scope and style of chatbot based reference services in future

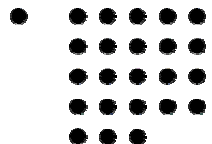




Dhanyawad ...

... for your attention!
I will be happy to answer your questions!

achim.osswald@fh-koeln.de



References

- **Daniel**, Frank; Maier, Christine; Mayr, Peter; Wirtz, Hans-Christian: Die Kunden dort bedienen, wo sie sind. DigiAuskunft besteht Bewährungsprobe / Seit Anfang 2006 in Betrieb.
In: BuB 58 (2006) 7/8, 558-562
- **Christensen**, Anne: Library Chatbots in Electronic Reference
http://www.sub.uni-hamburg.de/informationen/projekte/stella_english_ottawa.pdf
- Stella-Website:
<http://www.sub.uni-hamburg.de/informationen/projekte/infoass.html>
- **Rösch**, Hermann: Digital Reference. State of the art in the Focus on Quality. World Library and Information Congress. 72nd IFLA Conference and Council. Seoul 20.-24. August 2006
<http://www.ifla.org/IV/ifla72/papers/098-Roesch-en.pdf>

