

A Trend from Germany: Library Chatbots in Digital Reference

Anne Christensen
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Outline

1. Introduction to library chatbots
2. The making of a library chatbot
3. Experiences and learnings from chatbot projects

1. Introduction to library chatbots

A **chatbot** is a computer program designed to simulate an intelligent conversation with one or more human users (...).

<http://en.wikipedia.org/wiki/Chatbot>

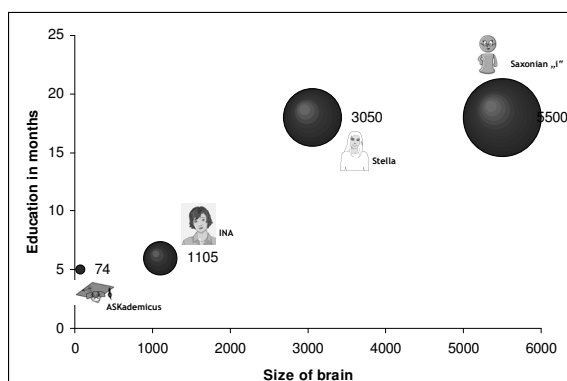
intelligent conversation
=
reference interview

automatic reference
interview
=
24/7 availability

How much reference can a chatbot actually take care of?

Let's take a look at the four chatbots.

Library chatbots in numbers



Benefits of library chatbots



2. The making of a library chatbot

Create a chatbot in 10 steps

1. Define the scope
2. Find a suitable software solution - or create one
3. Figure out who is going to pay for it
4. Create an avatar
5. Build the knowledge base
6. Put the chatbot on your website
7. Go online - but be aware that you are not done yet!
8. Read session transcripts
9. Improve the knowledge base
10. Evaluate the chatbot

Create a chatbot in 10 steps - The particularly tricky parts -

1. Define the scope
2. Find a suitable software solution - or create one
3. Figure out who is going to pay for it
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6. Put the chatbot on your website
7. Go online - but don't relax just yet!
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Costs

Chatbots don't come cheap.

Costs of a chatbot project

	Euros
Software license	5,000-24,000
Training	2,000
Avatar (e.g. graphics, photos)	2,000
Personnel (6 months minimum)	25,000
Consulting (optional)	1,000 (per day)

Most of the German bots were
build with funds from grants.

Create an avatar

The development of a biography
for a library chatbot is a
challenge for creativity.

Stella about herself

User	Are you a ghost?
Stella	No I'm not. I am chosen to revive at the library's website. As a patron saint for all those searching for literature and information.
User	How did you die?
Stella	I fought for the implementation of the library – which was never acknowledged. An unmarried woman in academia – that was sort of suspicious at the time and caused some examinations. In the course of which I died...
User	I like you.
Stella	Well, thank you! I am happy when I can help you.
User	Cool system – thank you, library folk!

None of the library chatbots is a
librarian.

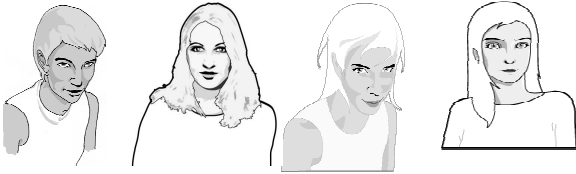
A chatbot needs to be credible
and reliable.

The chatbot has to fit in with
the library's image.

Humour is vital!

Graphic design

First drafts...



Men were afraid
of her...

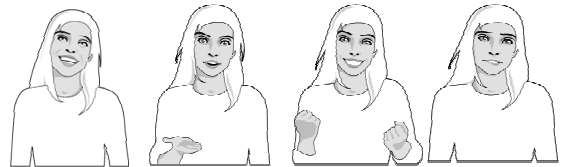
Steffi Graf?

Too hot

Star Trek librarian?

Giving Stella a face

Four out of ten moods



laughing

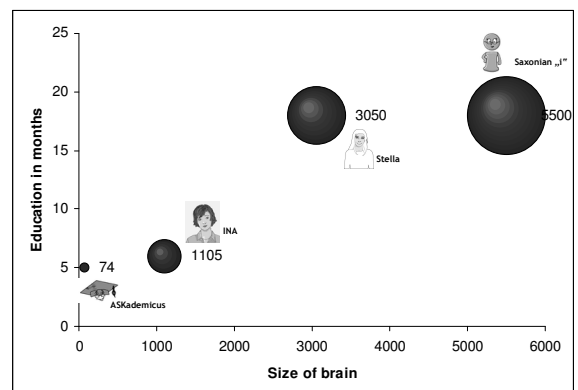
explaining

enthusiastic

confused

Build the knowledge base.

Library chatbots in numbers



The basics



Brain,
aka knowledge base



Rule 3
Rule 2
Rule 1

- Input from user
- Answer from chatbot

Each rule addresses one subject

The differences

1. How specific are the rules?
2. How are the rules coded?
3. Which means of dialog control are available?

How specific are the rules?

*what is interlibrary loan?
how much does ill cost?
where can I buy ILL vouchers?*



...
ASKademicus features approximately 10 ILL-related rules

*can I renew books from interlibrary loan?
what is the difference between ILL and document delivery?
how can I order a book from abroad?
can I order a book that is checked out here from another library?
do I have to know which library holds the book I want before I can order it?
in which cases do I have to pay more than 1,50 Euros?
what does „Mehrkosten“ mean?*



...
Stella features 128 ILL-related rules

Depth of knowledge depends on the scope of the project.

Large knowledge bases require software products that can handle this complexity.

Coding rules: AIML

```
<alice>
  <category>
    <pattern>Good morning * </pattern>
    <template>Good morning. How are you?</template>
  </category>
</alice>
```

Coding rules: Regular expressions

```
((("#HOW# .*#(order|make|do) .*#ILL#) || ("#HOW# does #ILL# work") ||
("how works #ILL#") || ("what do I have to do to (make|place)?
.*order(s)? .*#ILL#")))
```

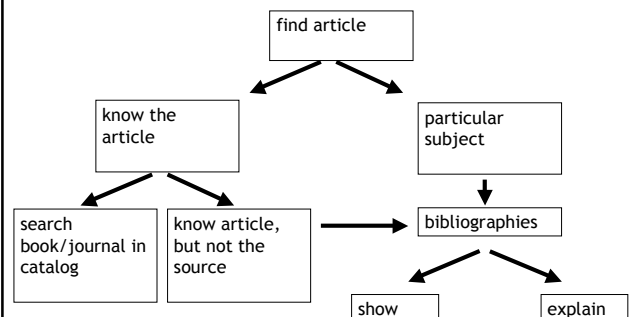
covers these questions plus semantic variations

- How does interlibrary loan work?
- How do I order via interloan?
- What do I have to do to order something via document delivery?
- How do I order something with the interlibrary loan system?

Answer:

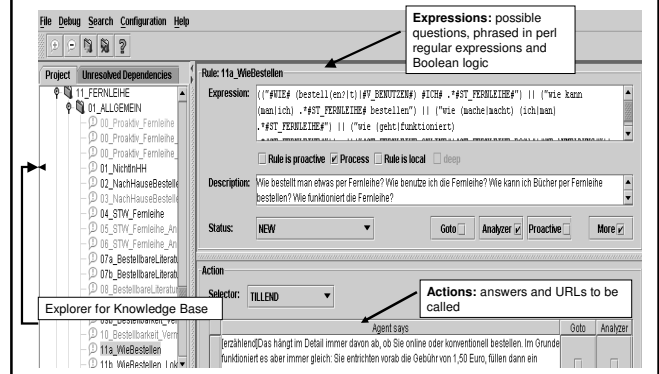
It depends! You can either order online or with a paper form. But the process is basically the same: You pay the fee of 1,50 Euro in advance, fill out the online or paper form. You will be notified when your order has arrived.

Dialog control

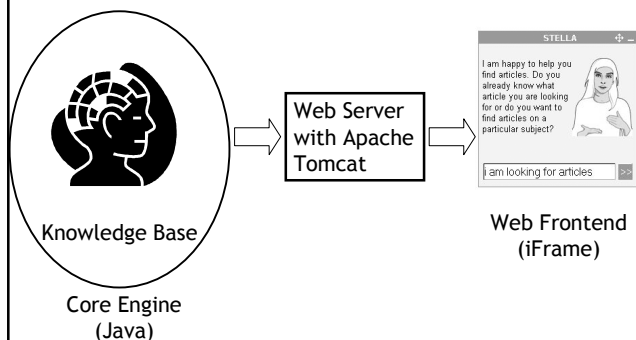


Reference interview as a model.

Software for chatbots: Novomind IQ™



Stella: System architecture

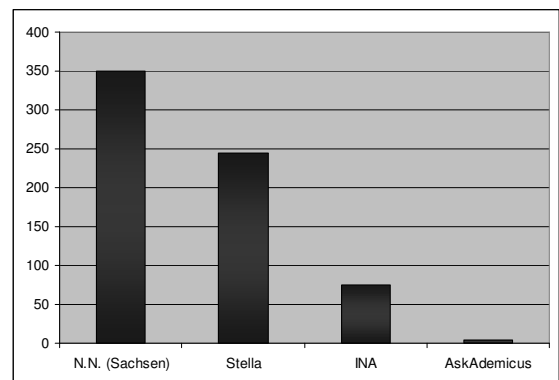


3. Experiences and learnings from chatbot projects

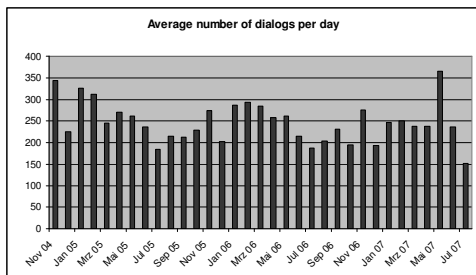
How Stella runs into trouble...

User	(...) quick reference
Stella	Just a quick reference - in this case I would suggest using the reading rooms on level 1 and 2. They offer for comprehensive resources for all subjects.
User	But I am not in Hamburg
Stella	I am sorry, but could you rephrase that for me?
User	I don't live in Hamburg.
Stella	Hamburg is my favourite city – that's for sure!
User	Help!!!!
Stella	Call my real colleagues at 42838-2214 or send us an <u>email</u>

Dialogs per day



Stella: Usage



Dialogs per day (total)
251

Popular topics

- Finding books
- Circulation
- Hours
- E-Resources

Off topic

- 592 marriage proposals

Stella and other electronic reference services

Benchmark „real“ reference: 370 queries per 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	251	October 2004 - July 2007

Evaluation methods used for Stella

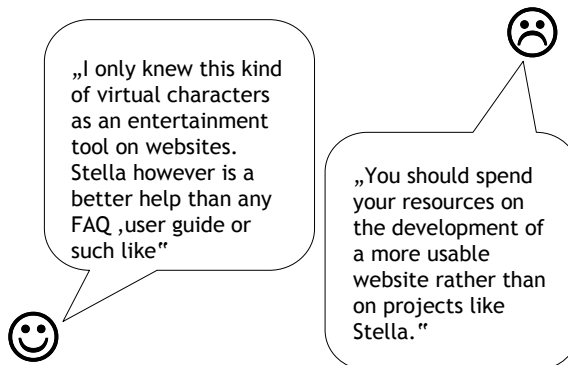
Transcript analysis

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

Questionnaire

- 1 month, online
- Poor turnout => limited validity
- High polarisation
- Interesting quotes

Users about Stella



Stella - an alternative catalog interface?

Stella Hello – my name is Stella and I am here to help you navigate the Hamburg State and University Library website. Can I help you?

User ameri?a? Society

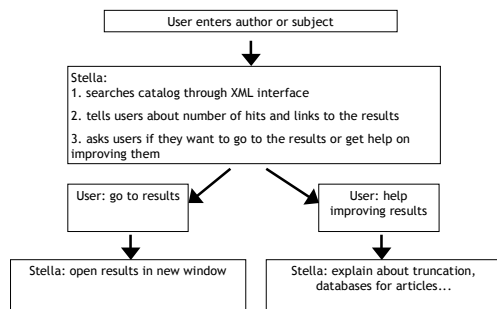
Stella Is that a topic you want to find information on?

User ameri?a? society

Stella I can not perform the actual search for you, but I will be delighted to help you find suitable catalogs and databases. Are you interested?

Usability studies would be helpful!

Connecting Stella to the catalog



Learnings

Chatbots are used much more frequently than other forms of digital reference.

Why is that?

Chatbots don't make you think.
(At least, they shouldn't.)

Chatbots provide instant answers.

Asking stupid questions is easier.

Chatbots can be used
anonymously.

Chatbot reference resembles
peer-to-peer services.

But:

Other forms of reference
doubtlessly provide better
answers.

Chatbots can do marketing for
other reference services.

Anyway:
Chatbots are really good at
marketing.

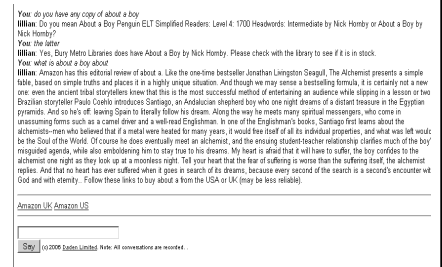
Stella: Press articles



Chatbot merchandise



Chatbot 2.0: Lillian



- designed to inform about library holdings
- uses Web Services from Amazon and OCLC to pull more information on a title
- prototype stage

Points for discussion

1. How much reference should chatbots take care of?
2. Are chatbots worth the money and the effort?
3. What are the alternatives for digital reference in a web 2.0-world?