

Do Digital Libraries satisfy Users' Information Demand? Findings from an Empirical Study

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Empirical Study

Empirical study

- From the users' perspective
- 2007 at Jönköping University and
2009 at Karelian Research Center

Guiding question:

Do the users of digital libraries perceive that their information demand is satisfied?

Subject can be divided into two aspects:

- (1) the users' awareness of the own information demand
- (2) the usability of the retrieval tools

Which library systems were investigated?

Jönköping University:

- meta search system SAMSÖK
- interface offering search in most elements of bibliographic data
- Searching in 24 bibliographic databases, fulltext archives and digital collections
- Stepwise refinement of search results
- Access to fulltext from the list of search results

Karelian Research Center:

- digital collections in the scientific library
- Publications in the web portal
- Search interface
- List of results and access to digital content

Study Design (1)

Jönköping University

Main questions:

1. How does Samsök support the end-users, in particular in satisfying the end-user's information demand?
2. How does Samsök support the library's activities and services?
3. What are the results of evaluating Samsök from a usability perspective?
4. What improvement potential can be identified based on the results from the first 3 questions?

Karelian Research Center

Main questions:

1. How does the digital collections' infrastructure meet the users' information demand?
2. What are the usability results of working with digital collections?
3. How can we improve the digital collections' infrastructure?

Study Design (2)

Guidelines:

- define the *tasks* to be performed by respondents,
- structure the *session* and
- support the evaluator during the *observation*

Questionnaire: sub-set of the Questionnaire for User Interface Satisfaction

Pilot study with two respondents in Jönköping

Improvement of guidelines and questionnaire

Jönköping University

Main study:

- 5 students, 1 researcher, 3 PhD candidates, 1 subject teacher

Karelian Research Center

Main study:

- 5 students, 2 researchers, 3 PhD candidates,

Information Demand - Observations

Awareness of the own Information Demand

- JU: **clear tendency** that the research and teaching personnel has a more specific and better defined information demand
- KRC: **no** significant difference in the user groups' awareness of their specific information demand

Satisfaction of information needs

- JU: **only a few perceived the support from Samsök as satisfactory** for finding (enough) information meeting their demand
- KRC: quite **big number of unsuccessful search queries** as consequence of specialization of digital libraries

Is work context important for information demand?

- JU,KRC: observations show **tight connection between the respondent's role and the activities** for which the searched information is needed

Usability – Observations (Selection)

Problems observed in "Interpret Search Results"

- *Database knowledge* – lack of knowledge regarding the databases makes the interpretation of the search results difficult
- *Incomplete Searches* – users tend to misinterpret to what extent a search is "completed" when they start to look at the hits
- *Navigation between views* – some users had problems to navigate between the list of search results and the view showing details for one search result
- *Terminology* – respondents had difficulties to interpret certain system terms, like meaning of "weight" in search results, significance of different databases, meaning of "get more hits"

Usability Questionnaire – General Perception

Jönköping University

Perception	1	2	3	4	5
1.1 Terrible - Wonderful		2	7	1	
1.2 Frustrat. - Rewarding	3	3		4	
1.3 Boring - Stimulating	4		4	2	
1.4 Difficult – Easy	2	2	5		1
1.5 Insufficient - Powerful		4	1	5	
1.6 Rigid – Flexible		7	2	1	

Karelian Research Center

Perception	1	2	3	4	5
1.1 Terrible - Wonderful			2	8	
1.2 Frustrat. - Rewarding			3	2	5
1.3 Boring - Stimulating		1	2	3	4
1.4 Difficult – Easy	2	1	2	3	2
1.5 Insufficient - Powerful		1	1	5	3
1.6 Rigid – Flexible		2	7	1	

Usability Questionnaire – General Perception

Jönköping University

Perception	1	2	3	4	5
2.1 Design		2	4	2	2
2.2 Terminology		3	1	3	3
2.3 Graphic symbols	2	4	1	3	
2.4 System status	1	3		5	1
2.5 Feedback (content)		2	4	3	1
2.6 Feedback (visibility)		2	3	5	
2.7 Search results – amount of information		2	3	4	1
2.8 Learning - basic		1		5	4
2.9 Learning - advanced	1	1	3	3	2
2.10 Navigation	1	1	2	5	1
2.11 Response time (search)	2	3		3	2
2.12 Response time (navigation)	1	3	1	2	3

Karelian Research Center

Perception	1	2	3	4	5
2.1 Design			3	2	5
2.2 Terminology			1	5	4
2.3 Graphic symbols				3	7
2.4 System status			1	7	2
2.5 Feedback (content)			1	5	4
2.6 Feedback (visibility)			1		9
2.7 Search results – amount of information	2	1	2	3	2
2.8 Learning - basic	2	1		4	3
2.9 Learning - advanced	2	1	3	3	1
2.10 Navigation			3	5	2
2.11 Response time (search)			2	3	5
2.12 Response time (navigation)		1	1	4	4

Conclusions: Required System Improvement

JU:

- Database knowledge
- Search competence (general + specific for Samsök)
- Unclear access to fulltext
- Terms and symbols
- Requested functionality
- Unfinished searches
- Navigation between views
- Response time

KRC:

- main problem is the lack of content

Conclusions - General

- usability questionnaire was helpful in identifying shortcomings and proposing improvements
- the two systems at JU and KRC are far too different regarding user interfaces, functionality and amount of content that a comparison of the findings should be considered
- main limit of the research is the limitation to just two digital libraries/collections and to just groups of 10 end users in every part of the study

Thank you for your attention!

Questions?

More information about Information Engineering: Kareljan Reseach Centre:

- www.hj.se/cenit
- infoeng.hj.se
- www.informationslogistik.se
- www.informationslogistik.org
- www.isst.fraunhofer.de

www.krc.karelia.ru