



A new interaction evaluation framework for digital libraries

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Presentation structure

Description of the interaction

- Components
- Relationships

Interaction attributes

Requirements for the evaluation

- Who
- What
- Where
- When
- How

Conclusions

Description of the interaction

Components

- User
- Content
- System

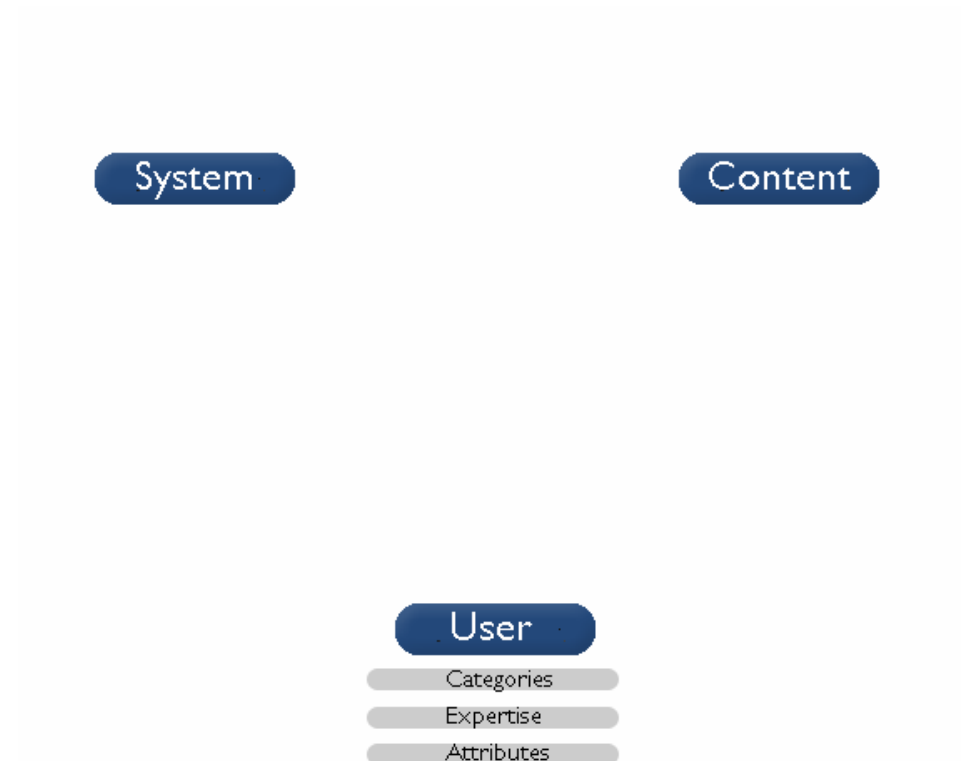
System

Content

User

User

- Categories
- Expertise
- Attributes

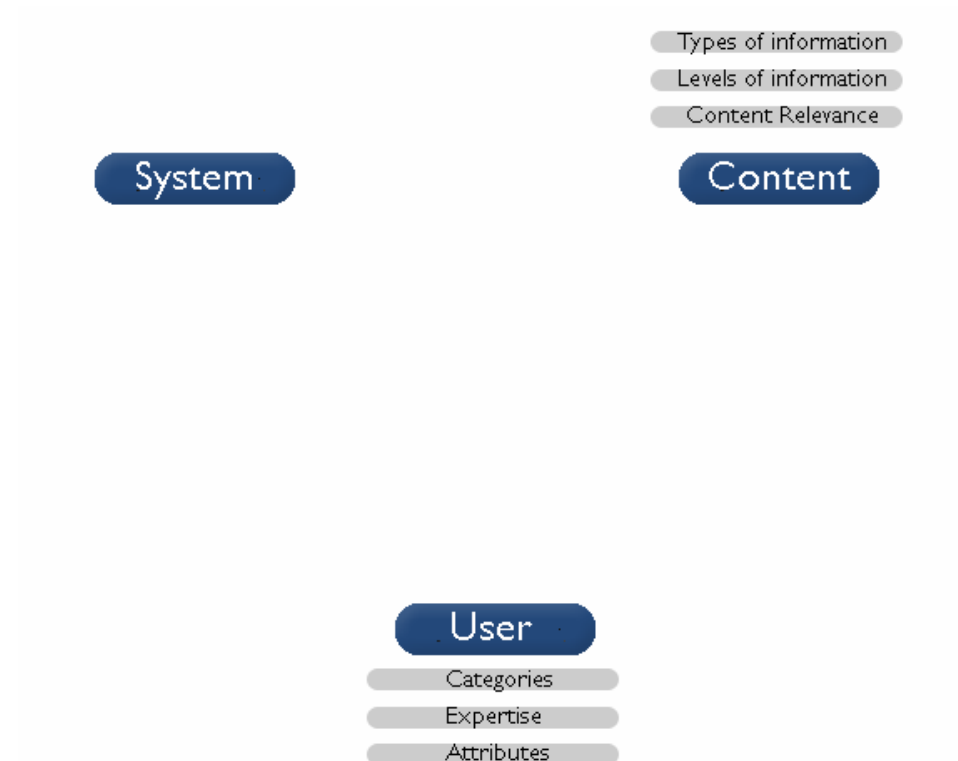


Content

- Types

-- Level

--- Content
relevance



System

- Interface

-- Basic functionalities

--- Complementary functionalities

Complemental Functionalities

Basic Functionalities

Interface

System

Types of information

Levels of information

Content Relevance

Content

User

Categories

Expertise

Attributes

Description of the interaction

Relationships

- User

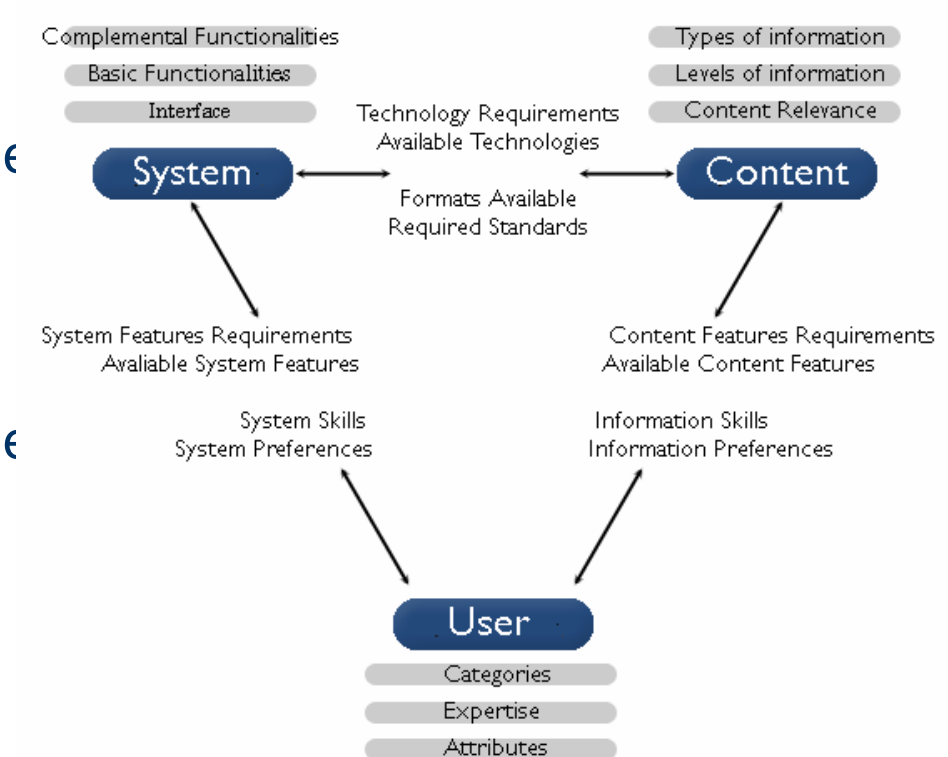
Skills and preferences (system and information)

-- Content

Required and available features

--- System

Required and available features



Interaction attributes

- Control
- Shift management
- Lucidity



Control

- Consistency
- Error restriction
- Familiarization
- User awareness





Shift management

- Information shifts



-- System shifts

--- Flexibility

---- Serendipity



Lucidity

- Visibility



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Affordances



Requirements

- Who

-- What

--- Where

---- When

----- How

Requirements

- Environment dictates requirements
e.g. existence of laboratory facilities
- Requirements dictate methods
e.g. laboratory facilities lead to controlled observation
- Methods dictate metrics
e.g. observation leads to usability criteria



Who

- Developers

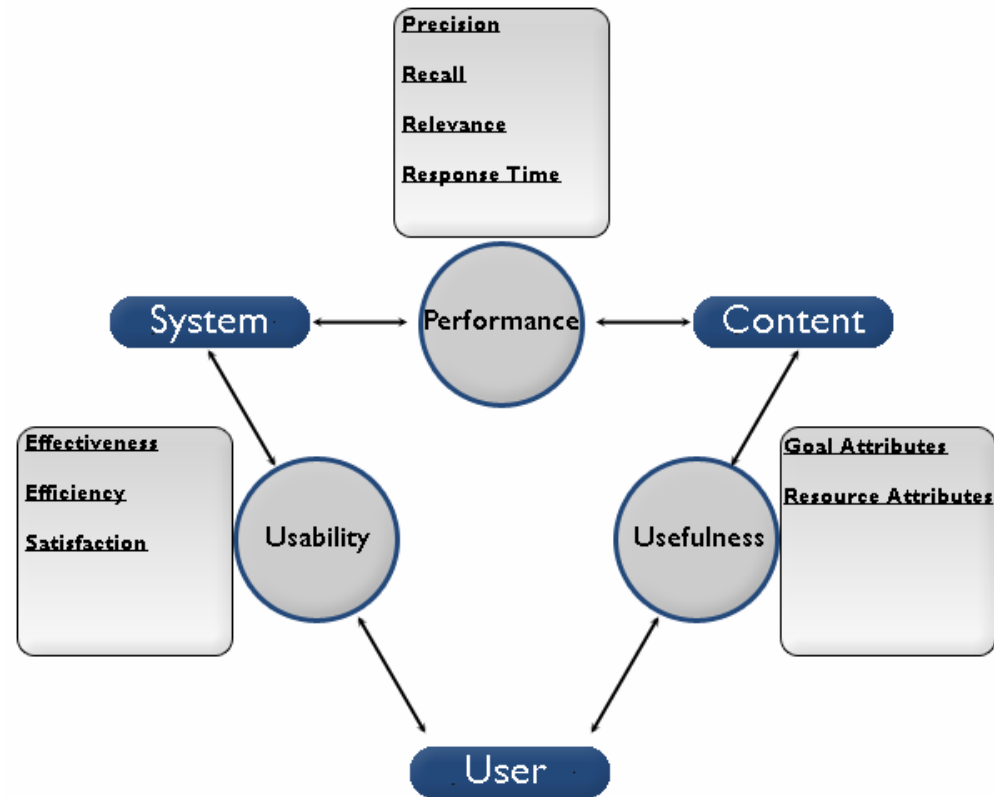


-- Users

--- Experts

What

- Usability
- Usefulness
- Performance



Usability**Effectiveness**

How effective can the user be?

User performance

Rates of accomplished tasks, rates of abandoned tasks, rates of serendipitous accomplishment of tasks

Error generation

How many errors generated, types of errors, severity of errors, recovery time

Efficiency

How efficiently the user can accomplish his tasks?

Completion time

Completion time per task, use of support functionalities, e.g. FAQs, number of accomplished in a certain session

Support requests

Number of questions, types of questions according to task.

Task completion context

Time available, resources available.

Satisfaction

Does the interface and the IR mechanisms are satisfying the user?

Aesthetic comfort

Aesthetic appropriateness, visibility of interface.

Readability

Opinions about writing style, clearness of texts, fonts contrast.

Usefulness**S****Goal attributes**

What attributes has the information need that affects the information retrieval and use?

Relevance

Topical relevance, situational relevance, appropriateness to the information need.

Utility

Importance of the task to the information need, consequences of non accomplishment

Complexity

Number of sub-tasks, order of execution, dictation of specific

Resource attributes

Do the resources acquire quality attributes that attach to the information need?

Currency

resources.
User judgments of the timeliness of the resource. Suitability with the task.

Level of information

Number of level choices, e.g. surrogating formats, number of chosen levels.

Reliability

User judgments of the reliability of the authoring/publishing/recommending agent.

Format

User judgments about the format and the suitability to the task.

Performance**Precision**

Division of the number of relevant documents by the number of those

Recall

retrieved.
Division of the number of relevant documents retrieved by the number of relevant documents

Relevance

Similarity between the query term(s) and the documents.

Response time

Time needed to perform a query and to present the results to the user.

Where

- Controlled environment
 - laboratories
- User's real environment
 - observations
 - systematic recording

When

- Formative
during the design

-- Summative
after the design

But most of all

--- Iterative

How

Method(s)	Criterion
Comparative analysis	Resources attributes Usability
User studies	User attributes (age, sex, role, skills, preferences).
Transaction log analysis	User attributes (activity). Usability.
User scenarios/ Cognitive walkthroughs	Goal attributes User effectiveness. User efficiency.
Questionnaires and surveys	Goal attributes. Resource attributes. User satisfaction
Personal interviews and focus groups	Goal attributes. Resource attributes. User satisfaction.
Expert participation methods - heuristic evaluation - formal usability testing - standards compatibility check	Usability (effectiveness, efficiency, satisfaction).
Other user participation methods - critical incident reports - virtual reference	Usability (effectiveness, efficiency, satisfaction). Resource attributes (currency, level, format etc)

Conclusions

- Invest of resources on sustainable user centered policy
- Cooperation with other organizations, e.g. with laboratories
- Participation in research programs
- Testbed creation and experimentation