Interactional Digital Libraries: Uses and Users

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Importance of Interactivity

Source: http://www.umich.edu/~newinfo/Releases/2002/Oct02/r101502.html
What is a digital library?

Definition of digital libraries

Commonly heard: Digital libraries, Virtual libraries, Traditional libraries (libraries), Digital archives, Digital repositories

Information systems – knowledge bases, expert systems, decision systems

Gateways, portals, p2p services, tools
Characteristics

- Managed collections of recorded information
  - Selected according to some criteria
  - Organized for retrieval
- Lowest-common denominator uses
  - Collect and Disseminate; Search and Retrieve
- All users
  - Contrary to popular belief, there is a typical library user – for example, one must be literate.
Components

- Collections (Content)
  - Text, Multimedia
- Services
  - Discovery/Identification (search engines)
- Tools
  - Highlighting, Marking, Exporting
- Interfaces
  - User-machine; user-user; user-message
Perseus Digital Library

URL: http://www.perseus.tufts.edu/
Informedia DVL

- Synthetic interview – [video of] an interaction between a human and a sophisticated multimedia database – Einstein is played by actor Jerry Mayer
- Vocabulary (dictionaries – quotations)
- Multimedia (video, audio, images)
- Interaction (real and archival)
Social Perspective: Storehouse of knowledge; Repository of information; etc.

User Perspective: Human Information Behaviors
- Information Seeking – discovery/finding
- Information Searching - strategies
- Information Use – reading, recreation, annotation, create documents (reports, articles, reviews), planning, decision-making, learning
User-Centered Perspectives

To build digital libraries

- What do digital technologies enable that traditional libraries cannot?
- What can users do with digital information?
  - What do users do with information now?
  - What will users want to do?
- Checklist of uses (requirements document)
- Design systems to meet these requirements
Design+ Evaluation

Design and Evaluation go together
- Simultaneous & Synchronous

How?
- Challenge: Disparate teams, terminologies, processes

Interactional digital libraries
- Interactivity in digital libraries
- Interactivities
- Design concepts are measurable
Interactional digital libraries

Information spaces
- Complex objects (items, resources, material types, files, formats) brought together for display or presentation of information

Learning spaces
- Objects are presented to enhance, facilitate learning

Interaction spaces
- Objects are acted upon – *transformation & impact*
IDL Attributes

- Interactivity
- Language (Vocabulary)
- Information Behaviors
  - Facilitate Searching, Browsing, Encountering
  - Support Sharing, Withholding, Filtering
  - Avoid Overload
  - Encourage Disciplinary & Interdisciplinary Uses
Interactivity

- Human Computer Interaction
  - Theories of Interaction Design

- Marketing
  - Advertising
  - Consumer Behavior

- Education
  - Psychology, Instructional Design

- Communications
Definitions

Interactivity is
- “Extent to which users can participate in modifying the form and content of a mediated environment in real time” (Steur, 1992)
- “Extent to which messages in a sequence relate to each other, and especially the extent to which later messages recount the relatedness of earlier messages.” (Rafaeli and Sudwecks, 1997)
Benefits & Drawbacks

Benefits of Interactivity
- User Involvement
- User Satisfaction
- Enhanced Learning

Drawbacks
- Active (Learning by doing)
- Overload
Measuring Interactivity

Evaluation
- Does “it” do what “it” is supposed to do?
- Current evaluation of complex systems is piecemeal
- Interface, tasks, content, user

Four-dimension construct (Liu, 2001)
- Active Control
- Two-way communication
- Freedom of Choice
- Felt Synchronicity
Attributes

- Reciprocity
- Feedback
- Immediacy
- Relevancy
- Synchronicity
- Choice
- Immersion

- Play
- Flow
- Multi-dimensional sensory experience
Measures

Interactivity scales

– Online marketing (websites)
  • Cho and Lockenby (1999)
  • Wu (1999) included affective responses
  • McMillan (2000)
  • Liu (2001) – 10 items for each of the 4 constructs
    – 40 undergraduate students
    – Student community website, Amazon.com, Ericsson
Involvement
- Consumer Involvement Profiles
- Reader’s involvement with magazine articles

Perceived Control (Flow)
- Novak, Hoffman, Young (1999)

User satisfaction
Measures (contd.)

- Computer-mediated communication apprehension
- Locus of Control
- Self-efficacy
- Recall
Language

Vocabulary
- Controlled vocabulary
- Natural language

Tools
- Glossaries
- Thesauri
- Scientific classifications and systems of organizations
Information Behaviors

Groups of Users
- By occupation, social role, demographics, discipline

Avoiding Overload
- Information overload
- Cognitive overload

Providing Contextual Information
- Standard Reference Tools

Supporting User Activities - Interactivities
- Information Tasks Beyond Information Retrieval
References

