Setting the Agenda for IA Research

Panel, IA Summit, March 25, 2006
(The SHORT version of my presentation - 10 minutes- comes first)

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Outline

- What is Research?
  - What types of research do we need?
- What is a Research agenda?
  - What are they good for?
- How do we get one?

Defining the damn thing

- "Active, diligent, and systematic process of inquiry aimed at discovering, interpreting and revising facts" (wikipedia)
  - Also, a collection of information about a particular subject

- Basic research: to further knowledge for knowledge's sake
- Applied research: producing results that may be applied to real world situations
  - "Research phase" within our ordinary projects

Defining the damn thing

- Exploratory: to help define the problem
- Constructive: develop a solution to a problem
- Empirical: collect data to test hypotheses
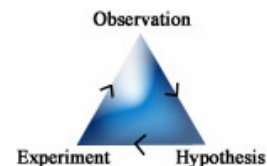
Peter Morville's IA research reading list (Semantics article)

- Information seeking behavior
- Structure and organization
- Navigation
- Search

What is a Research Agenda?

- Agenda
  - A list or outline of things to be considered or done (e.g., meetings)
  - An underlying often ideological plan or program (e.g., political)

- Research agenda
  - List of things you want to see researched
  - A bunch of questions you want answered
  - Structured list of issues, that when researched, will serve some greater goal

Examples of where I have posed IA research questions

- Breadcrumbs
- Faceted browsing
- Personalization

Peter Van Dijck

- "A research agenda for information architecture"
- Cognitive science: categories, search terms
- Business theory: process model
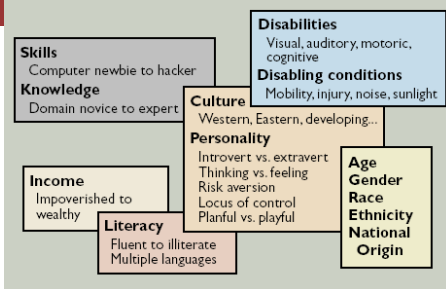- Social Science & Anthropology: information sharing

Related research agendas

- Hypermedia, semantic web
- LIS
- Digital libraries
- HCI
- Enterprise architecture

- How would these overlap with an IA research agenda?
- How were these agendas built?
- How do they related to funding?

Universal usability challenges – Research agenda

- Technology variety: Supporting a broad range of hardware, software, and network access
- User diversity: Accommodating users with different skills, knowledge, age, gender, disabilities, disabling conditions (mobility, sunlight, noise), literacy, culture, income, etc.
- Gaps in user knowledge: Bridging the gap between what users know and what they need to know

User diversity: Accommodate different users

Skills
Computer newbie to hacker
Knowledge
Domain novice to expert

Disabilities
Visual, auditory, motoric, cognitive
Disabling conditions
Mobility, injury, noise, sunlight

Culture
Western, Eastern, developing...
Personality
Introvert vs. extravert
Thinking vs. feeling
Risk aversion
Locus of control
Planful vs. playful

Income
Impoverished to wealthy

Literacy
Fluent to illiterate
Multiple languages

**Age
Gender
Race
Ethnicity
National
Origin**

Research agenda & Curricula?
IA Curricula: SLIS / Indiana U.

IA & Design	HCI & Communication	Strategic Info Management and Leadership
Introduction to Human Computer Interaction	User Needs and Behavior in Theory and Practice	Organizational Informatics
Strategic Intelligence	Introduction to Research and Statistics	The Information Industry
User-centered Database Design	Organizational Informatics	Information Accounting
Organizational Informatics	The Information Industry	Information Policies, Economics, and Law
Computerization in Society	Computerization in Society	Computerization in Society
Digital Libraries	Computer-Mediated Communication	Computer-Mediated Communication
Information Architecture for the Web	Online Information Retrieval	Gender and Computerization
Design of Information Systems	Information Architecture for the Web	
User Interface Design for Information Systems	Communication in Electronic Environments	**IR Systems Design**
Descriptive Bibliography	Interface Design for Collaborative Info. Spaces	Interface Design for Collaborative Info. Spaces
Information in Science and Technology	Design of Information Systems	Design of Information Systems
Metadata	User Interface Design for Information Systems	User Interface Design for Information Systems
	Information Visualization	Information Visualization
		Bibliometric Techniques and Problems
		Information Storage and Retrieval Theory

Keith's Punch line:
Treat the IA Research Agenda as an IA project

- A research agenda is a framework for classifying existing research and (more importantly) planning future research
- Research agendas have an IA
- Apply our IA methods to create an IA research agenda

What we can talk about during this session

- Defining the damn thing
  - "Research" in this case
- What should the IA research agenda be?
  - What questions need asking?
- How do we get there?
  - Let's get started!

Back up

- The LONG version of my panel presentation follows

## Defining the damn thing

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- Basic research: to further knowledge for knowledge's sake
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Research methods

- Action research
- Case study
- Observation
- Intuition
- Interview
- Data analysis
- Simulations, models
- ...
- Controlled experiments

The scientific method

- Empirical verification: A descriptive statement is true if and only if it is found to correspond to observed reality
- Operational definition: Detailed description of how a concept or variable will be measured and how values will be assigned
- Controlled observation: To show that A $\rightarrow$ B, observe B as A changes and discount other factors
- Statistical generalization: An adequate random sample from the conditions you want to generalize
- Empirical confirmation: 1 negative rejects, 1 positive only increases likelihood
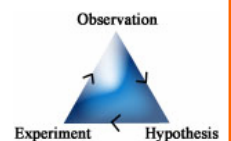
Peter's IA research / readings

- Information Architecture Research, Morville, Semantics
- Information seeking behavior
- Structure and organization
- Navigation
- Search

Example of empirical IA research

- Larson & Czerwinski, CHI 98, "Implications of memory, structure and scent or information retrieval"
- Hypothesis: STM limitations impact web site usage
- IV: Structures (3 levels) - 8x8x8, 16x32, 32x16
- DVs: Lostness, Reaction times, Subjective ratings
- Results: 8x8x8 slower, more lostness
- Duh: 2 levels of depth better than 3

Example of empirical IA research

- Yee, Swearingen, Li, Hearst, CHI 2003, "Faceted metadata for image search and browsing"
- Hypothesis: Faceted browsing better than regular search/browse
- IV: System (2 levels) - Baseline, Flamenco
- DV: Satisfaction, success, perceived usability, familiarity, …
- Results: Flamenco preferred
- Duh: There is something here, not just a toy

Example of empirical IA research

- Bernard, Developing Schemas for the Location of Common Web Objects
- Hypothesis: User's expect certain links to be in certain locations on the page
- IV: Expertise (2 levels) – Novice/Expert
- DV: Frequency of placement on a grid
- Results: No expertise difference
- Duh: De facto design standards have evolved

What is a Research Agenda?

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Practitioner's view – Questions I wish there was empirical research for

- Location, Path & Attribute Breadcrumbs, 2002 IAS – included a "Research agenda"
  - There still are a lot of questions we need answers to re: breadcrumbs
  - These definitions do not provide any answers, only more questions
  - Ask these question before using breadcrumbs on your site
  - If you are a student and want to do your thesis on breadcrumbs, contact me!

Breadcrumb questions

- Who is responsible for the user's path: the browser or the site?
- When are path vs. location breadcrumbs appropriate? What does it depend on: IA, user's goals, type of user, type of site, …?
- When are simple keywords better than attribute breadcrumbs?

Faceted browsing questions
(Fun with Faceted Browsing, 2004 IAS)

- What is the best flow? How integrated should the destination pages be?
- How should the elements be arranged on the page?
- How easy is this to learn?
- What contexts does this work well in?
- What if you have too many facets? What if you have too many facet values?
- Do you show the hits on the links?
- What if users need to select more than 1 value for a given facet?
- Do users understand what they are doing when they undo?
- How does FB fit into the top-down IA of a site?

IA & personalization research issues

- IA perspective on personalization, Instone, Designing Personalized User Experiences in eCommerce

- How do we design the interface to convey to users "who you are"?
- What user interface design conventions are needed?
- How do the navigation and personalization metaphors co-exist?
- Do users even care about what "magic" is happening behind the scenes?

Peter Van Dijck

- "A research agenda for information architecture"
- Cognitive science: categories, search terms
- Business theory: process model
- Social Science & Anthropology: information sharing

Replies

- Morville: I've always seen IA as an applied field…I agree that it would be great to see more research that's specific and useful to the practice of IA, but practitioners have limited influence over the research agendas of academic institutions.

- Instone: To me the first step is getting the practitioners to explain the problems they are facing so that the researchers can study something that has value outside the ivory tower.

- Campbell: But usually they do research because they have to: either because they're driven to it by inner demons, or driven to it by outer pressures.

- Nekrasovski: I don't think the problem is that HCI is usurping IA, more that HCI is (mostly) unaware of IA…Search the CHI archive for "findability", and you will get no results that are even remotely related to IA.

Donna Maurer

- "Maybe we do need IA research"
- Genre: defining aspects
- Cognition and categorization
- Facets: mental model, UI elements
- Re-finding information

Sample research agendas

- Hypermedia and the Semantic Web: A Research Agenda, van Ossenbruggen, Hardman & Lloyd Rutledge, JODI

- Links vs. relationships
- Embedded links
- Time-based hypermedia
- CSCW

Sample research agendas

- Research Agenda for Library Instruction and Information Literacy, ALA, 2000
- "Each section poses general questions with the goal of encouraging those interested - practitioners, researchers, and students alike - to conduct research around these important areas."

- Learners: audiences, skills, learning styles
- Teaching: pedagogy, design, methods
- Organizational context: library, institution, faculty
- Assessment: instructors, learning, transfer

Sample research agendas

- Enterprise Architecture Research Agenda Set for 2005, Lapkin, Gartner
- "Gartner's enterprise architecture research agenda for 2005 identifies issues that are key to the success of an enterprise architecture program, as well as subjects that explore the practice of enterprise architecture in different industries and organizations."

- Enterprise Architecture Management and Governance
- Trends and Directions in Enterprise Architecture
- Enterprise Architecture Methods and Tools
- Architecture in Practice by Industry
- Cultural and Organizational Issues Affecting Enterprise Architecture

Sample research agendas

- Strategic directions in HCI, Myers, Hollan, Cruz, etal., ACM Computing Surveys, 1996
- Strategic themes: Universal access to info, Education/learning, E-commerce, End-user programming, Info Viz, CMC
- Technological trends: Ubicomp, Hardware, Natural modalities, VR
- Design & evaluation methods
- Tools

Sample research agendas

- The Digital Library Research Agenda, Allen Renear, D-Lib magazine, 1997
- Metadata for Digital Libraries: a Research Agenda, EU-NSF Working Group on Metadata
- Research Agenda for the Intelligent Digital Library, Liddy, etal, DL94
- Interoperability, Scaling, and the Digital Libraries Research Agenda, IITA Digital Libraries Workshop, 1995
- …

My favorite: Universal usability

- Shneiderman, CACM, 2000

- How can information and communications services be made usable for every citizen?
- Universally usable - More than 90% of all households as successful users of information and communications services at least once a week

Universal usability challenges – Research agenda

- Technology variety: Supporting a broad range of hardware, software, and network access
- User diversity: Accommodating users with different skills, knowledge, age, gender, disabilities, disabling conditions (mobility, sunlight, noise), literacy, culture, income, etc.
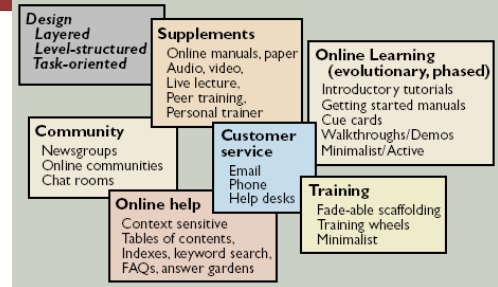- Gaps in user knowledge: Bridging the gap between what users know and what they need to know

Technology variety: Support broad range of hardware, software, and network access
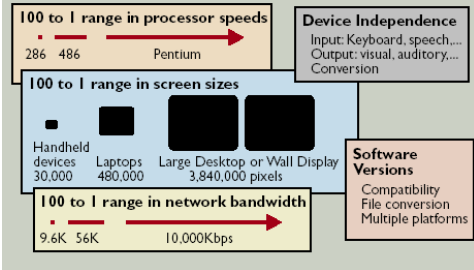
User diversity: Accommodate different users
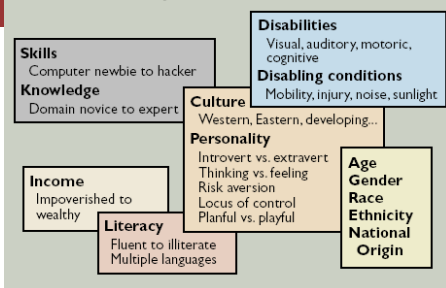
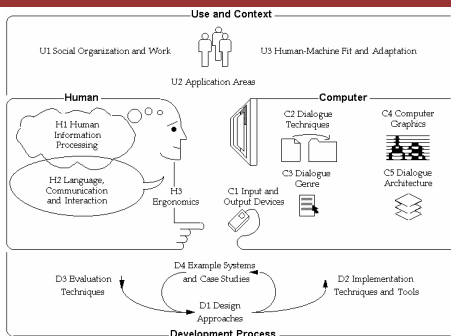**Gaps in User Knowledge:** Bridge the gap between what users know and what they need to know

Research agenda & Curricula?
ACM SIGCHI Curricula for Human-Computer Interaction, 1996

Research agenda & Curricula?
IA Curricula: IAKM

IA	Information use	KM
IA	Usability	Org. Memory
Visual design	Task analysis	Research methods
Research methods	IA	Intell. Capital mgmt
Usability		BPM
CMS		BI
Online branding		

IA & Design	HCI & Communication	Strategic Info Management and Leadership
Introduction to Human Computer Interaction	User Needs and Behavior in Theory and Practice	Organizational Informatics
Strategic Intelligence	Introduction to Research and Statistics	The Information Industry
User-centered Database Design	Organizational Informatics	Information Accounting
Organizational Informatics	The Information Industry	Information Policies, Economics, and Law
Computerization in Society	Computerization in Society	Computerization in Society
Digital Libraries	Computer-Mediated Communication	Computer-Mediated Communication
Information Architecture for the Web	Online Information Retrieval	Gender and Computerization
Design of Information Systems	Information Architecture for the Web	
User Interface Design for Information Systems	Communication in Electronic Environments	**IR Systems Design**
Descriptive Bibliography	Interface Design for Collaborative Info. Spaces	Interface Design for Collaborative Info. Spaces
Information in Science and Technology	Design of Information Systems	Design of Information Systems
Metadata	User Interface Design for Information Systems	User Interface Design for Information Systems
	Information Visualization	Information Visualization
		Bibliometric Techniques and Problems
		Information Storage and Retrieval Theory

ASILOMAR INSTITUTE FOR
INFORMATION ARCHITECTURE

IaCurriculumProposal

IAInstituteProjects | RecentChanges | Preferences

IA Curriculum > Proposal

Overview and Goals

The IAI Education Curriculum Initiative will create a framework which instructors will use to create information architecture programs, courses, and syllabi for courses. The framework will include a sampling of courses, program configurations, and syllabi. Over time the curriculum might be complemented by case studies, interviews with instructors, and/or anecdotal quotes regarding the effectiveness of various pedagogical approaches.

By developing a framework and not a how-to manual, instructors will receive guidance on creating programs and courses without having to subscribe to a particular philosophy of education or selection of topics.

Keith's Punch line

- A research agenda is a framework for classifying and planning research
  - If you think of the research findings as content shared by the research community
  - Or think of building a web site for all of the research that is part of the agenda
  - Then: The agenda's framework would be a key way to organize the research
- The research agenda would be an information architecture
  - The information architecture would be the research agenda
- We need an information architecture for our IA research agenda
  - We know how to create information architectures: apply our IA methods to create an IA research agenda

- *The IA Research Agenda is an IA problem*

Let's get started!

- (insert debate here…)