Interaction Design in Digital Libraries:
Some critical issues

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(From slide presentation)
HCI and Digital Libraries

- critical technological fields in the emerging Information Society
- identification of synergies towards a common, international R&D agenda

Main issues

- how can they be designed, implemented and evaluated
- what functional & non-functional quality attributes need to be addressed
- how can diversity be accounted for
- what software components are needed
- what architectural models need to be followed
- etc.

Characteristics of DLs

- Distributed (across the Internet)
- Large volumes of data
- Multimedia content
- New virtualities
  → new range of computer-mediated human activities
HCI challenges in the context of DLs

- Diverse user groups
  - orientation
  - navigation
  - information overload, etc.

- Technological proliferation
  - terminals (portables, network attachable equipment)
  - novel input/output devises (e.g., wearables)
  - new interaction platforms (e.g., Java)
  - etc.

- Variety in the context of use
  - desktop versus nomadic use
  - user tasks in the DL domain
  - physical and social environment

Meeting the challenges

- Designing for the broadest possible end-user population
  - studying the dimensions of diversity
    - users with different abilities, requirements and preferences
    - context of use
    - terminals, novel platforms and network-attachable devices
  - context and intend
    - alternative styles for instantiating user tasks
• conveying context through assigning interaction objects to dialogue states

• Shifting the focus of implementation
  • specification-based framework versus programming
  • tools for developing interactive software

Recent contributions from ICS-FORTH (AT&HCI Lab)

• Unified user interface development method
  • Comprehensive methodology for integrating universal accessibility and interaction quality as part of the user interface development life-cycle

• Unified user interface development platform
  • USE-IT: Design environments
  • PIM: Platform Integration module
  • G-DISPEC: 4G Specification language
  • I-GET: Integrated Development Environment

• HCI International ’97 Tutorial

Common themes (from the ECDL ’98 Proceedings)

• User interface adaptation
• User interface agents
• User modelling components
• Metaphors, including visualisations
• Virtual reality
• Multilinguality
A perspective

Phases:

- design
- implementation
- evaluation

Phases (1/3)

- Design processes & techniques
  - Human-centred design (ISO 13407) fosters
    - usability focus
    - iterative evaluation-feedback loops
    - techniques to attain the above
  - Is “usability” (as approached today) enough?
  - What about quality (functional & non-functional attributes)?
  - Do existing UCD techniques cope with design pluralism?
  - Do existing UCD techniques offer process-oriented support?
  - e.g. unfolding, capturing and maintaining design rationale

Phases (2/3)

- Implementation
  - Approaches
— programming
— specifications

Tool requirements
— support for collaboration
— inter-operability
— sharing knowledge and experiences, etc.

What is the role of software architectures?

Phases (3/3)

Evaluation

Does evaluation ever lead to innovative designs, or does it simply help identify design defects?

How can one evaluate some of the non-functional quality attributes which are critical to DLs?
— inter-operability
— modifiability
— reusability
— portability
— scalability

Our focus

• Bridging across the two communities
• Awareness raising
• Exchange of experience and establishment of common ground
• Developing a common vocabulary
• Focusing on a common research agenda
Possible questions

1. Is “usability” (as approached today) enough?
2. What about quality (functional & non-functional attributes)?
3. Do existing UCD techniques cope with design pluralism?
4. Do existing UCD techniques offer process-oriented support?
   e.g. unfolding, capturing and maintaining design rationale
5. What is the role of software architectures?
6. Does evaluation ever lead to innovative designs or does it simply help identify design defects?
7. How can one evaluate some of the non-functional quality attributes which are critical to DLs?