Learning in Hybrid Museums


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Overview

- Physical/digital discontinuity
- Ubiquitous computing
- The museum experience
- MER: The Museum Experience Recorder
- Learning and learning about learners
- Discussion
The physical/digital discontinuity

Physical (real) resources:
- People
- Objects
- Places

Digital resources:
- Object info and location
- Maps
- Person info
- Activities
Ubiquitous computing

- Ubiquitous computing:
  - activates the world,
  - is invisible, everywhere computing that does not live on a personal device of any sort, but is in the woodwork everywhere,
  - makes a computer so imbedded, so fitting, so natural, that we use it without even thinking about it.

- Also called: pervasive, 4G mobile or sentient computing, and ambient intelligence.
Enabling Technologies

- Automatic identification
- Sensing and actuation
- Wireless communication
- Context awareness (physical, information, social)
- Small form factor devices
- Ambient displays
- Machine learning
- Inference
- Personalisation
The museum experience

• Museum setting as a context for learning
• Embedding digital resources in the physical space
• Support learning during the visit
  – Free-choice of what to learn
  – Learning occurs via interaction with peers and others within the social context of the visit
  – Groups: families, peers, school groups
• Multimedia guides remove the social context
  – Interaction with group and space vs. screen
  – Content development is required (can’t reuse existing resources)
• Ambient displays, personalised labels
Learning about the museum experience

• Learning about learners
  – What they do
  – How they learn
  – Interactions with objects and group members

• Supporting reflection
  – Extending the experience beyond the spatial and temporal constraints of the visit

• Augmenting the experience record with digital resources
  – Making use of the “digital museum”

• Linking the physical experience into a digital representation
The Museum Experience Recorder

- The ER creates an electronic record of a visit which can be enhanced via different information sources
- Core idea: Navigation
  - Through virtual spaces (e.g. the web).
  - Through physical spaces (e.g. museum).
- Personalisation – my experience can be different to yours.
- (Machine) Learning – The machine should adapt to the user and not vice-versa
The Museum Experience Recorder

• The MER creates an electronic record of a visit which can be enhanced with different information resources
• Electronic annotation of landmarks (e.g. exhibition stands, museum exhibits)
• The MER Badge: A wearable pervasive device to record visitor experiences during a visit.
• MER Infrastructure:
  – Wireless infrastructure for easy, non-invasive deployment
  – Post-processing into a website
Trail Records

- Trail records are at the core of the ER system
- A trail is a sequence of landmarks (physical or information) that were visited by the user during a navigation session
- A trail record is a digital (hypertext) record which provides an account of a user navigation session i.e. a trail
Navigation: Trail Aggregation

Details:
Name: Main Entrance, Great Russle st

Summary:
Total visits: 1090
Total visitors: 770
Total visit time: 07:57:01
First visited: 10-09-04 00:00:44
Last visited: 10-09-04 07:58:26
Average opinion (mean): Neither
Most common opinion (model): Neither

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Visitor research
Summary

• Glimpse of things to come
• Bridging the physical museum space and the museum digital resources
• Record the museum experience
  – Support reflection
  – Aide-de memoir
  – Does not disrupt social interaction
• Learn more about how visitors use the space
• The MER system