

Views of science learning inherent in programs and evaluations

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UPCLOSE partnership model

- Research Lab in Children's Museum
- Presence on design teams/ prototyping
- Place for graduate student work
- Ethnographic study of mission/ change/ visitors
- Ongoing connection of theory and practice--two organizations--similar yet different viewpoints

How to think about learning in informal settings like museums?: Conversation

Engaging in the content of the museum in a way that allows one to carry that experience forward as a **memorable**, **interpreted**, and **interpretable** experience.

- *Explanations of exhibit specifics become portable examples that are indexed and co-referenced.*
- *Conversation is expanded to include specific objects, details, thematic constructs.*
- *This happens in a moment, an afternoon, and in a lifetime...A primary tool is conversation- both in the moment and carried over time and place.*

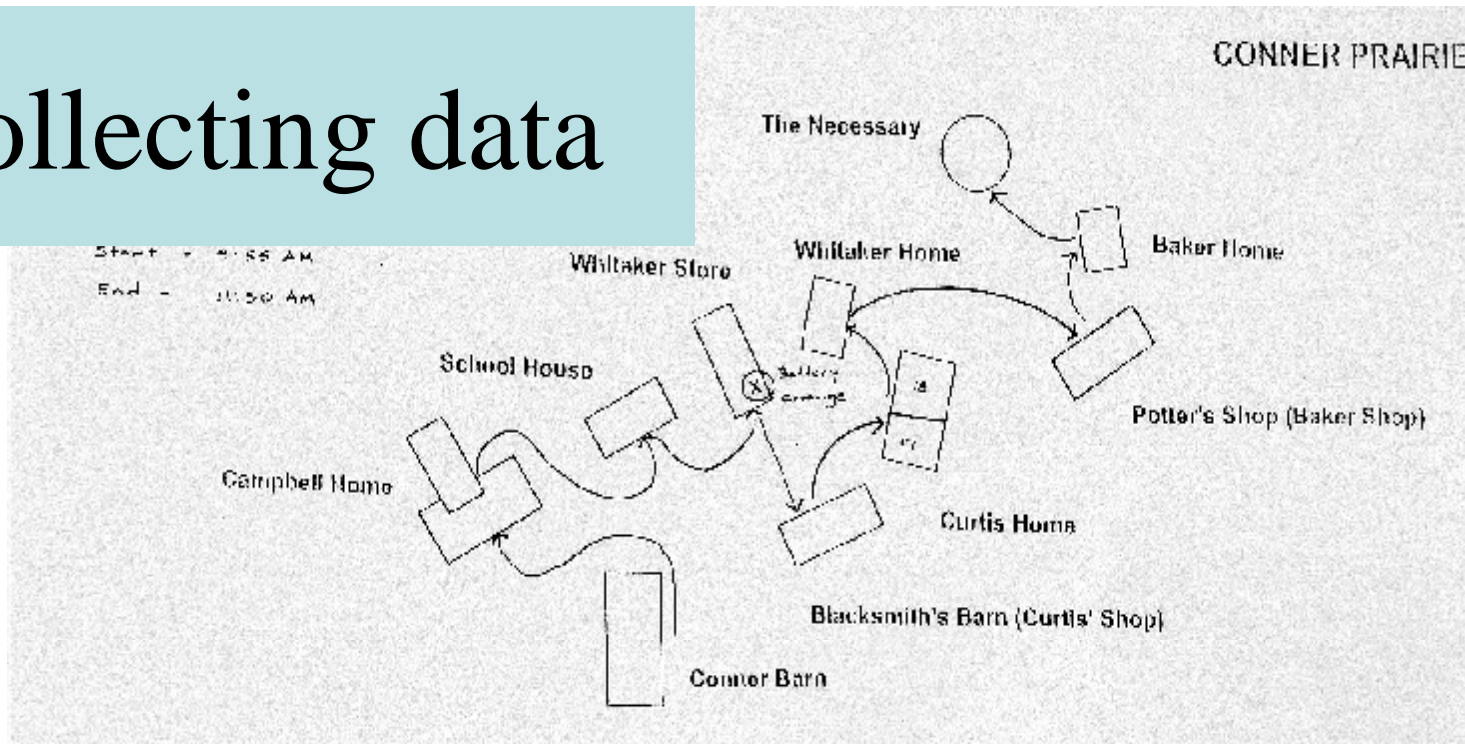
Museum Learning Collaborative--model of informal learning in museums

Study of 200 groups in 6 exhibitions across type

Assumptions

- Conversation as a process and outcome
- Social groups not singletons
- Not talking = no record of learning
- Used a pre and post test
- Exhibition as grain size

Collecting data



Participants: 2 miked, up to 4 in group, general audience
Interviews: Self Administered
Tracking: Audio Tapes
Grain size: Exhibition (<60 mins)
Segments: (on-line and prior)
Chunks: time based level

Creating a measure of learning

Identity: 3 components

Learning environment: 2 components

Structure of talk: NA, NT, list, analysis, personal connection, synthesis, explanation

Theme of talk: 5 specific to each exhibition

Pre and post self-administered interviews

Personal, tangential, irrelevant?

Responding to an installation with
Margaret Bourke-White Photos of airplane propellers,
Brancusi-like aluminum airplane propeller

- **Woman 1:** Aluminum propellers. Look at that old TWA thing. Did you know that all stewardesses used to have to be nurses and they had to wear their white nursing uniforms?
- **Woman 2:** How did you know that?
- **Woman 1:** I spent a summer doing a research project on nurses and aviation.
- **Woman 2:** What? Are you kidding me?!
- **Woman 1:** No, I got hired by these nursing pros...they had me researching the images of nurses for society.
- **Woman 2:** And how are nurses?
- **Woman 1:** They had a bad image in pop culture. Now they're seen as sexy, trying to meet doctors and they're on the covers of romance novels with their uniforms bursting open.

Measuring the experience: What counts as learning?

- Is it factoids? Is it skill development? Is it higher level talk?
- Is it time spent? This one never quite goes away.
- Theoretically we think evidence is there, but hard to measure. We don't know enough about how museum environments operate, or could potentially operate.

To ensure content learning: The bait and switch

- Video in museums
 - Emeco chair manufacturing video.
- Interactive exhibits that use technology (or buttons) to draw visitors in
 - “pinball” game
 - math graph exhibit

Dealing with visitor expectations

- Hands-on exhibits in art museums
- Exploratorium exhibits in Children's Museum

But even before that: Audience variation at different museums

Closing in on the big question

UPCLOSE working on several fronts:

--based around how design can impact change

--following individual over time and place

- Identity and disciplinary content: Islands of expertise: dinos, technology, and art
- Long term impacts/ meaningful change
- Other informal environments (web, games, tech)
- Role of adult learner in family groups
- Organizational practices--top down approach

Evaluation: what we learned

- Somewhat depressing follow through
- Pre-post measuring wrong thing
- Need for professional development--we don't know what to measure and museums want to improve test scores.
- The big void--lack of published work in our field.