Designing mobile support technology for zoo interpreters

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Designing for interpreters
(a.k.a. docents, explainers, facilitators, guides, museum educators, volunteers...)

Museum staff that draw **connections** from visitors’ interests to exhibit content, and help them **make sense** of complex ideas by means of **dialogue** and **artifacts**

Tildon & Craig, 1977

What do interpreters need to learn to accomplish this task? How can we better support them?
Content mastery

Breadth and depth of knowledge about exhibit content

- Typically learned during formal **training** or **on-the-job** explanations and observations
- Need to **decide** what content to emphasize
- Learning process is **ongoing** as human knowledge expands over time
Pedagogical content knowledge

How to present ideas so they are comprehensible for learners (Shulman, 1986)

- Interpreters often learn **abstracted** pedagogical strategies unrelated to their own content knowledge
- Able to **adapt** instructional strategies based on judgments of visitors’ **interests** and **motivations**
- **Range** of exhibit content requires range of PCK
Reflective professional development

Using reflection to drive change in professional practice

- Interpreters have **little time** in-the-moment or post-hoc to reflect on their experiences
- **Sharing** reflection with other interpreters is essential
- Providing **feedback** to peers is a **learned skill** that may need support
Mobile technology as a support

Electronic guidebook (Hsi, 2003)  

21-Tech project (Garibay & Ostfeld, 2013)  

Hybrid tours (Tebeau et al, 2014)

But beyond **re-purposing** existing apps, mobile technology can be designed with interpreters as the **primary** audience.
A Mile in My Paws
Timeline of project

- Embedded researcher
- Paws demonstrations for interpreter training
- Temporary installation with controlled trials
- Temporary installation with in situ trials
- Permanent installation
- Participatory design revisions

Interpreters’ initial goals
- Engaging the visitor audience
- Elucidating climate change concepts

Researchers’ initial goals
- Exploring design space of support tools for interpreters
- Creating & revising designs to address problems
Current *Paws* tablet tool

- Control of *Paws* exhibit
- Live data representations and multimedia
- Helps peripheral spectators understand what’s going on
- Relates the game to real-life polar bears and climate change concepts
Participatory design sessions

Motivation: Incorporating novice interpreters’ needs, goals, and feedback into design of the tool

Participatory design using KJ idea-clustering method
Findings: Content mastery

- Initial design: Multimedia content (text, images, audio, video) displayed based on in-game events
  - Wanted to discuss content when it was most relevant to the Paws player’s actions
- Presentation was difficult for novices and detrimental for experts
- Struggled with presenting dynamic and relevant content in an effective way
Bear calories burned: 0 Calories
Distance covered: 0 Ft.
Remaining time: 00 min 40 sec
What is life like for polar bear cubs today?

Bear calories burned: 0 Calories
Bear calories burned: 0 Calories

Distance covered: 0 Ft.

Remaining time: 00 min 44 sec
Distance covered: 0 Ft.

Remaining time: 00 min 40 sec

Bear calories burned: 0 Calories
Distance covered: 0 Ft.

Remaining time: 00 min 33 sec

Bear calories burned: 0 Calories
Findings: Pedagogical content knowledge

• Automatic display of relevant content interfered with interpreters’ presentation
• Distinction between situationally relevant and visitor relevant
  – Interpreters chose what to talk about in terms of visitors’ present interests and needs, rather than the exhibit’s current state
• Interface reorganized to support more flexible pacing and connections between topics
What is life like for polar bear cubs today?

Bear calories burned: 0 Calories
Distance covered: 0 Ft.
Remaining time: 00 min 44 sec
Bear calories burned: 0 Calories

Distance covered: 0 Ft.
Remaining time: 00 min 44 sec

Seal pup: 10 lb, ~500 calories
Adult seal: 100 lb, ~150,000 calories
Findings: Reflective professional development

- Our tablet tool had to fit within interpreters’ **existing norms** for PD, despite the limited time allowed for structured reflection.
- **Automatic logging** of exhibit and tablet usage
  - Building on existing video-recording practices with Surface tablets.
- Exploring the use of **tagging** to build a “folksonomy”-style organizational system.
An adult seal can feed a polar bear for about one week.

Seal pup
10 pounds
~500 calories
Adult seal
100 pounds
~150,000 calories

Tags:
#foodSource

Notes:
Xxxxx xxx xx, xxx xxxxx xxx xx xxx

TOP 4
Current Confidence level

Master content:

Need help:
Contribution

- Automatic, dynamic content can be valuable as long as it’s relevant to visitors
  - Situational relevance is important but secondary
- First step to PD is documenting
  - Mobile tool makes interpreter practice more visible, which can lead to sharing ideas and feedback
- Designers should pay attention to interpreters and help create tools specifically for them
FRAIMS project
(Facilitation, Reflection, and Interpretation Mobile System)

- Generalizing from Paws testbed to wider variety of exhibits
- Emphasizing both visitor and interpreter learning and scaffolding
- Focus on interpreters’ ability to respond to situational features and create dialogue with visitors

Are you interested?
Thanks!

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