The *Digital Education* Problem

Fragmented Brand
Outdated Platform
Lack of *Detailed Data*
  Who is using our resources?
  Why are they using them?
  How are they using them?
  Where are they using them?
  How would they prefer to access them?
  In what format would they prefer them?
  Are they using them as designed?
  Are students *learning* from them...?
The Solution

Research
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- Evaluation of Learning Materials
- Audience Survey
- Digital Learning Resources Project
- Tools for Middle Schoolers
- Learning Resource Metadata Initiative
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Remedial Evaluation of the Materials Distributed at the Smithsonian Institution’s Annual Teachers’ Night (2010)

Literature review and evaluation to produce generalizable guidelines for the design and development of museum-based lesson plans and investigated classroom educator methodologies for incorporating museum-based lessons into classrooms.
Usability and navigability of websites are important. Common usability problems for visitors (including classroom educators) who are non-museum professionals when using museum websites:

- Frustration with overloading of content
- Distracting graphical user interfaces
- Browsing not conducive to understanding specific topics
- Difficulties with certain terminology
- Disconnect of museum websites to the physical museums
Key requirements classroom educators need for museum material to be incorporated into their teaching:

- Aligned to curriculum standards
- Updated
- Interdisciplinary
- Related to big concepts
- Educational
- Not dependent on museum visits
Results: Analysis and Focus Groups

Key requirements classroom educators need for museum material to be incorporated into their teaching:

• Enjoyable for their students
• Interdisciplinary
• Adaptability
• Alignment with curriculum standards
• Flexibility to accommodate a diversity of students
Results: Overall

Educators reported that they used Smithsonian materials acquired at Teachers’ Night as resource starting points for their teaching. Museum materials do not always fit into their teaching (museum materials must be deconstructed and then reconstructed). There was no definite indication that participants from the focus groups used the materials as intended by the Smithsonian.
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Capturing the Voice of Customer, Satisfaction Insight Review of SmithsonianEducation.org (2011)

Collected from more than seven thousand surveys completed by visitors to the central Smithsonian Education website, the makeup of this audience, their motivations for site visitation, their activities while on the website, and their sources of dissatisfaction were explored.
Teacher
48% / n=3,587
Find Educational Resources
59% / n=4,110
Read Material Online
48% / n=3,344

Use Search to Find Resources
47% / n=3,274

Share Information with Others
22% / n=1,533

Download PDF of Materials
25% / n=1,742
Teaching Resources

39% / n=2,717

Lesson Plan Downloads
15% / n=1,045

Content Information
13% / n=906

Other
9% / n=627

PD
7% / n=488

Field Trip Resources
2% / n=348

Interactives & Games
1% / n=69

Standards of Learning
1% / n=69

Images
4% / n=279

Inspirations & Ideas
1% / n=69
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Digital Learning Resources Project (2012)

To assist the Smithsonian to better understand the educational uses of Smithsonian digital resources and provide a road map for future digital development.

Research objectives focused on classroom educators’ ability to identify, analyze, and extract digital content, with the ultimate goal of enabling all users to achieve their own personal learning objectives through the Smithsonian’s resources.
Intended Outcomes

**Short-term:** to increase classroom educators’ skills in identifying, analyzing, and extracting specific Smithsonian digital learning content

**Medium-term:** to increase skills to make strategic use of digital learning content

**Long-term:** to foster online users who are active creators of digital resources personalized for learning in their own classroom.
Results: Focus Groups, Literature Review, Environmental Scan

Search and Visualization Tools

Museums need to make resources more findable and to generate assets that are personalized and accessible anytime, anywhere, and on multiple platforms. Classroom educators also asked for:
• Search results with thumbnails, previews, tag clouds, and rating systems that allow them to easily identify what is useful and what is not
• Personalized search hints
• Search capabilities that can be either highly filtered or extremely broad
Results: Focus Groups, Literature Review, Environmental Scan

Engaging, Standards-aligned, Learner-centered Content

Classroom educators put student interest and engagement at the top of their list and need content that aligns with learning goals and standards.

• Engage students
• Allow for student interaction and adaptation
• Afford accessibility for various learning styles and levels
• Offer coherence with the lesson and multidisciplinary opportunities
• Support problem-based learning goals
• Support standards-based teaching goals
Results: Focus Groups, Literature Review, Environmental Scan

Instructional Tools

When extracting resources, classroom educators want:
• Flexible technologies for a diversity of devices and delivery methods
• Tools to assess learning
• Tools to adjust reading level of text
• Ways for classroom educators to upload their self-authored components into a saved file, or resources from other sites or collections
• Specific pedagogical tools
Prototype
http://scems.navnorth.com
Wright Brother's First Flight

Category
Historic images of the Smithsonian

Notes
NASM Archives also has a copy. Original negative number is 26776-0, but that negative has been lost.

Summary
The first flight on December 17, 1903, at Kitty Hawk, North Carolina with Orville Wright at the controls of the Wright Flyer. The plane flew for 12 seconds and a distance of 120 feet.

Details
- Topic: Wright Flyer (Airplane)
- Topic: Aeroplanes
- Topic: Aeronautics
- Topic: Wright Brothers
- Topic: Event
- Date Source: Smithsonian Archives - History Div.
- Restrictions: For permission to reproduce or publish, contact osiam@email.com or call 202-633-5875. To order reproductions, call 202-633-1893 or contact photos@sm.edu
- Author: Unknown
- Physical description: Color: Black and White; Size: 8 x 10; Type of Image: Event; Medium: Photographic print
- Date: 1903
- Standard number: 2002-12169
- Type: Photographic print

http://scems.navnorth.com
Results: Iterative Prototyping

Search and Visualization (Identifying)

- Search by entering a general search term, then filtering further if needed. Educators also preferred the gallery view to review their search results. Participants want more intelligence in their searches and results to guide them toward the most valuable resources.
- Use a diversity of locations to find what they need and have little loyalty to one site in particular
- Use the Facebook Share option, but the most popular method of sharing was emailing the link to themselves or a colleague.
Results: Iterative Prototyping

Authentication, Saving, and Storing (Analyzing)

• To save resources that they find useful.
• The flexibility to organize and annotate resources according to their own schemas.
• Flexibility in the types of viewing methods available: one for whole-class interaction and one for individual interaction.
• The ability to allow students to use the site and its tools as much as the classroom educator.
• Content that is aligned with Common Core State Standards.
Results: Iterative Prototyping

Instructional Tools (Extracting)

• Were excited about the use of “interactives” with the resources found in the Smithsonian collection.
• Appreciated the search functionality of the site but want better visibility of the tools, including prompts and explanations for their use.
• Liked being able to upload resources from other sources to augment their collections and appreciated being given tools that make this easier to accomplish within the site.
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Piloting Tools to Enable Active and Participatory Learning for Middle School Students: Facilitating Digital Learning with Smithsonian Digital Resources (2014)

Classroom educators have indicated that relevance to students’ needs are a top priority. We are now testing directly with students to better understand how they use digital museum assets (specifically digitized collection objects) and to document the types of scaffolds necessary to enable active and participatory learning using them.
Results: Prototyping

Challenges for Student Users

• Unintelligible descriptions: some of the students found that the descriptions were difficult to understand
• Spelling limitations: some of the students could not find the items they were looking for because they could not spell the search terms correctly
• Loss of authority: some of the participants thought that the information in their collections was unreliable if they (or anyone else) were able to change the information from the original Smithsonian descriptions (a feature of the prototype)
Results: Prototyping

Feature Requests

- Auto-correct to assist with spelling
- Predictive searches/Recommended searches
- Ability to adjust fonts
- Draw on objects
- Put external images into their collection
- Share collections through social media and email
- Export their collection
- Create unique collages from multiple images
- Child-accessible collection descriptions
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Smithsonian produced educationally-relevant metadata for 2,500 Smithsonian learning resources, distributed the metadata via the Learning Registry, and built capacity for Smithsonian educators and content creators to develop metadata as they publish new digital learning resources.

The goals of the Smithsonian LRMI project are to:
• Develop and publish metadata required to fully describe the existing Smithsonian learning resources
• Evaluate the impact of LRMI metadata on the discoverability, analysis, and use of Smithsonian learning resources
Only a handful of the participants were familiar with LRMI, having heard about it from “our school librarian” or “at a teachers’ conference.” Almost all of the participants projected that educator specific tags would increase their search satisfaction and increase the likelihood they would use the materials.

Which educator specific tags were ranked most relevant:

• Grade level
• Content/subject area
• Alignment to standards
Results: Webpage Analysis

Majority primarily use Google to search for digital learning resources several times a week, if not almost every day. Less than one half of educators consider their searches successful. Irrelevant results, lack of educator specific filters, and time consumption are the factors leading to search failure.

Participants found search and analysis to be most useful when these metadata fields are visible:
• Content/subject area
• Grade level
• Source
Minimally Viable Product (MVP)- (2 week release cycle)

- Digital Beta-testers
- Classroom-tested iteration
- Persistent feedback button on every page
- In-Person Professional Development, in partnership with professional organizations, fellow Smithsonian museums
Carnegie Corporation Grant & Grable Foundation Grant (Pittsburgh) providing insights into how teachers use digital museum resources and the types of supports they need to increase their use, based on their experiences using the Smithsonian Learning Lab (SLL).

**Metadata**
Existing for each resource, accessible language for a nonSME Useful educational metadata

**Strategies**
Visual Thinking Strategies
Visible Thinking Routines

**Replicable Models**
Adapt vs. Create from Scratch
Shoes: Exploring Culture, History, Place, and Innovation

Teacher's guide for using shoes to explore culture, history, place, and innovation. Includes images of thirty shoes and three different strategies for using object analysis activities, a poster, “If You Walked in My Shoes,” introducing students to basic primary source analysis questions through six pairs of shoes.
Gratitude in the Hawaiian Culture
11/14/2015

An Introduction to Hawaiian Lei Making
by Ashley Naranjo

[Image: Introduction to Hawaiian Lei Making]
What’s next? Next Steps 2017–2020

• Integrate Learning Lab content into school district learning management systems
• Build comprehensive content through a network of super users
• Continue to make audience-driven enhancements
• Demonstrate increased student engagement as a result of using the Learning Lab

Further work with specific groups, including:
Student Use (13-17)
Librarian/Media Specialists
Early Childhood & Parents