Beyond Hands On: Web 2.0 and New Models for Engagement
by Nina Simon

I recently sat on a plane next to a man who was working on a presentation on elementary education and technology. I sneaked glances at his laptop screen, watching it fill with words like "Web 2.0," "virtual worlds," – terms that I work with in the museum field. Curiosity got the better of me, and that's how I met Bob Whicker, a K-12 Education Development Executive for Apple. Bob's job is to set up and support "wired" schools and school districts. A former superintendent of such a district, he explained the basic premise to me: each student, from kindergarten on, has a personal laptop. The schools have open wireless internet, so each student has continual access to the Web. Apple calls this program "one to one" learning, meaning not one instructor but one computer per child.

I was fascinated by this concept. When we talk about personalizing the education experience, we often are focused on increasing teacher-to-student ratios. To Bob Wickhan, however, personalized education isn't about more access to instructors—it's about more tools for learning. From Bob and Apple's perspective, kids are growing up in a digital world. The tools are relevant to their future, but Bob also argues that giving kids laptops enables more participatory, engaged learning. New questions are raised as classes can rapidly access information relevant to lessons, and students no longer look to the teacher to have every answer. They look to their own tools, and by extension, to their own abilities to learn.

The wired classroom, however, is not a free-for-all, nor an entirely screen-based experience. Teachers and administrators have remote desktop applications that allow them to view any kid's screen at any moment. Bob told me stories about principals instant messaging students to ask them to remove objectionable content from their machines, and students instant messaging principals to ask for more variety in school lunches. He explained lessons where the teacher successively displays different students' work with a projector for full-class discussion, and group projects where kids work together across different schools and grade levels using collaborative software. Teachers still steer the boat, but students have much more freedom and opportunity with the controls.

In short, Bob told me about a new model for progressive education, one that offers flexibility, personalization, and respect for students' self-determination. The "wired classroom" model accepts and integrates technology instead of avoiding or denying it. As Bob explained, in wired classrooms, there is no longer a continual cat and mouse game between teachers and students about the use of approved devices. Teachers don't have to pretend that Wikipedia, YouTube, and other online tools don't exist, or aren't used by their students. Instead, teachers and administrators work creatively to educate with these tools, thus giving their students relevant experiences with the tools that are becoming the hallmark of the adult world.

What does Bob Whicker have to do with children's museums? Too little. Children's museums have historically been progressive sites for the exploration of contemporary educational theory, but that progress appears to have stalled. Today's children's museums continue to reflect the "open classroom" experiments of the 1970s. Where is the children's museum that understands, embraces, and extends today's "wired classrooms?"

That children's museum is not a place where each exhibit features a computer. It is a place that reflects and grows with a society increasingly organized around digital tools. It is a place where individual experiences are tracked and personalized so that visitors can establish and develop unique identities. It is a place that encourages social interaction and collaboration among past, present, and future visitors. It is a place that includes visitors in content creation and distribution. It is a place that continually changes and adapts based on the contributions of the museum community.

The description given above currently applies to a host of Web 2.0 technologies like Wikipedia, MySpace, and YouTube, in which users create, manipulate, and curate digital content. These technologies affect the way we work, recreate, and interact with our families. Harnessing their power requires neither fancy gadgets nor expertise as a software programmer. It takes a willingness to explore, a desire to understand, and an interest in taking museums to a new place—a place I call Museum 2.0.

What is Museum 2.0?

Museum 2.0 is the application of Web 2.0 models to the organization and activities of museums. To understand and evaluate it, one must understand Web 2.0. Web 2.0, also called the "social web," is a term that defines a set of Web-based applications with the following characteristics:
- the venue as content platform, not content provider.
- an architecture of participation with distributed network effects.
- in a state of perpetual beta, that is, always a work in progress.
- distributed, flexible, modular development of expanded products.

Note that none of these mentions "internet," "Web," or "computer"—all of these characteristics are portable to non-Web systems like museums. Let's explore each of them, both in their native Web and non-native museum contexts.

First, the venue is a platform that supports the creation, manipulation, and distribution of user-generated content. Consider the difference between NBC and YouTube (www.youtube.com). NBC is a content provider that produces video content for distribution, whereas YouTube is a content platform that allows users to upload and share their own videos. Museums are content providers when staff determine which objects, messages, and experiences are available for visitors. Museums become content platforms when staff relinquish control of content and instead facilitate opportunities for visitors to generate those objects, messages, and experiences.

Second, the application encourages participation, and its value grows the more people use it. While Web 2.0 applications often support content, they are fundamentally user-based and encourage peer-to-peer interactions. Consider Flickr (www.flickr.com), a website on which users can upload, display, and manage photographs. Flickr is a community site, which means that it doesn't only enable you to maintain your own personal album of photos. It links your photos to other similar photos, encouraging use of search tools, comment boxes, and peer interest groups to encourage users to engage with one another. The more people use the site, the more photos are available, and the more useful Flickr is as an image resource and photo community.

In the museum context, architecture of participation means incorporating visitor-to-visitor interactions into museum experiences. One simple and frequent example is talkback walls, on which visitors can share and react to each other's impressions of the content. However, the architecture of participation is most powerful when it can provide a sustaining network in which visitors interact with one another as a community.

Third, Web 2.0 applications are in "perpetual beta," which means they continue to adapt and grow based on the needs of the user base. Many Web 2.0 sites are open about this growth, posting upcoming changes on developer's blogs and soliciting feedback from users about their interests. In museums, perpetual beta means putting prototypes on the floor, co-creating exhibits with visitors, and transforming exhibits from finished products to ongoing projects. Again, it's about relinquishing control and involving visitors as co-owners in the determination of what the museum "is."

Finally, Web 2.0 applications often have open frameworks and encourage outside developers to create "plug-ins" that can be attached to the core system. The most powerful example of this is Facebook (www.facebook.com), a social networking site on which outside developers offer plug-ins to do everything from donating to candidates to comparing movie preferences to playing Scrabble. Facebook's support for plug-ins extends its core functions, and thus makes it valuable to a larger, more diverse audience. On a smaller scale, many museums incorporate modular outside services, such as food distributors, libraries, or daycare centers, to extend their offerings. In North Carolina, ImaginOn (http://www.imaginon.org/) combines a youth library, children's theater, exhibit space, and online Second Life community to offer kids and families a diverse set of experiences, all "plugged into" the same institution. Some may be concerned about diluting the museum brand by opening the door to outside developers, but if museums truly want to become inclusive "town squares," that may mean including services and providers with which we are not traditionally aligned.

While these points may seem overly conceptual, without these core definitions, it's easy to start applying the term 2.0 erroneously to a whole slew of interactive experiences. For example, consider a "photo booth" exhibit that allows kids to take digital pictures of themselves, which are posted on a personal website that can be accessed from home. This may *sound* 2.0—after all, it uses technology, the Web, and personalizes the experience—but it only fits one of the Web 2.0 definitions, that of providing a platform for content production.

Now imagine the same photo booth, only now visitors can submit portrait tasks, like "Take a photo with your tongue sticking out." Kids can create a task and or fulfill other visitor-created tasks, and all the completed photos on a particular task are accessible to all participants on the Web. If there's a photo of my friend Kyle sticking out his tongue on the web, I can click through to other kids sticking out their tongues, or other pictures of Kyle doing other things. Now, the venue is a platform for kid-directed, kid-initiated activities. There's an architecture of participation around the growing network of images, linked by tasks and engaged people. The exhibit can expand to accommodate other tasks, like group photos. And maybe there's even a way to plug in additional features, like the ability to record voice commentary about your photo or have it printed and mailed to grandma. We've gone from an exhibit that interfaces with individual visitors to a participatory, kid-powered entity that allows visitors to inspire and connect with each other. That's Museum 2.0.

Different Applications for Different Audiences

Not every Museum 2.0 experience should be geared towards encouraging performative experiences as in the example above. These participatory experiences can be about community building, social exchange, and group reflection. The common denominator among all of these is a focus on audiences, not to understand and accommodate their needs as content recipients, but to facilitate their involvement as creators and communicators. Michael Spock famously said, "Children's museums aren't about something. They're for someone." Museum 2.0 takes it to the next level—from being *for* someone to *with* them.

How do we bring visitors with us? By giving each subset of our audience a platform that works for them. There's no one-size-fits-all 2.0 experience, and different audiences are attracted to different things. In the following sections, we consider how current and potential Museum 2.0 projects impact four different core museum audiences: children, parents/caregivers, teachers, and museum staff.

2.0 for Kids: Star Contributors

For the most part, Web 2.0 applications are adult territory, but that doesn't mean kids don't understand or have interest in their function. In 2007, CNET reported on The Laptop Club, a group of afterschoolers who designed (on paper) their own laptops. The imagined machines included keys to contact friends directly ("IM," "Friends," or simply, "Amanda"), listen to music, watch YouTube videos, and access content of interest ("Harry Potter trivia"). What's striking is that kids see computers not as generic tools, but as worlds in which they can control their experiences and communication, and that perception of ownership is powerful.

Since most Web 2.0 applications are considered inappropriate for children, museums have the opportunity to use their position as positive, educational, safe institutions to

create networks in which kids can experiment with content creation and sharing. In the museum, this can mean displaying kids' personal content, as in the London Science Museum exhibition on play in which visitors' toys sat in vitrines alongside curator-selected ones. Or, on the Web, this can mean hosting a custom, closed network in which visitors can view and share photos, videos, and other digital forms of content created at the museum.

The Indianapolis Children's Museum has recently launched a social network of this type to accompany the exhibition *The Power of Children*. The exhibition uses the stories of three remarkable children in history as a launching point for a platform on which kids and families can make "promises" for how they will impact or change the world. Note that even the content of this exhibition is focused on 2.0-style behaviors: being actively engaged as a participant, connecting to a larger network of individuals. The exhibition culminates at the Tree of Promise, a giant tree surrounded by computer kiosks. At the kiosks, children can make a promise, which floats up into the tree as a digital leaf. Those promises are then emailed home both to the kids and their parents, and families can then elect to join the Tree of Promise social network, an online space where they can share, expand, and manage their promises. If at-home users complete their promises, they can return to the museum, where the tree "remembers" and congratulates them on their success. In this way, the Tree of Promise takes a quick participatory in-museum experience—writing down a promise—and provides a supportive platform on which users can cultivate and substantiate that action.

Where else might 2.0 experiences geared towards kids go? Some of the Web 2.0 functions of greatest value to childen are:
- the opportunity to create and use personalized content. Being a venue for participation means each user is highly valued as a special contributor. Amazon.com sells more books because it addresses me and my interests by name. Similarly, at the Sony Wonderlab in New York, each visit begins with a trip to a kiosk, where the visitor takes a photo, types in his or her name, and records a sentence. Then, throughout the museum experience, those simple inputs are used again and again to create engaging, personalized experiences. If an exhibit allows you to manipulate an image, it's your face. If you're distorting audio, it's your voice. People, especially children, are fascinated by themselves. Imagine the museum in which each exhibit greets each visitor by name and interacts using personal content. At that point, the museum experience feels magical to the child, an experience created just for her/him.
- the opportunity to be famous. Even if they aren't posting videos on YouTube, kids understand the societal value of doing so. When an eight year old was told that her interview would be published on the Web, she responded by saying, "I'm going to be popular! I should make a blog button, right now". If individual actions and experiences are tracked and recorded in the museum, kids can go home and view their own personal online show—me inside the bubble, me doing a puppet show—and share it with a closed online network of other museum visitors. Some museums may feel comfortable posting some of this content in

public forums, like Flickr or YouTube; for others, hosting internal networks may feel like a safer choice.

- the opportunity to be a contributor. One of the ways that Web 2.0 applications build strong communities is by legitimately listening to and valuing the contributions of users. For some kids, the chance to pitch in, to work on the museum project, is more exciting than using finished exhibits. The more kids value the institution, the greater their excitement in contributing. I was surprised to learn that Club Penguin, the largest virtual world for kids with over 12 million activated accounts, has a blog on which staff post information about upcoming events and solicit comments from young visitors. I didn't think kids would care to read about the "back of house" when they could just enjoy the games being presented. But the kids' comments on the blog are overwhelmingly energetic. You don't have to know how to spell to be excited about getting to talk back to adults who provide enjoyable content.

2.0 for Caregivers: Scrapbooks and Support

For parents and caregivers, children's museums are useful educational and recreational resources. They are also places where memories are made. Adults may be less interested in performative venues for participation than supportive social spaces that assist them with visit-planning, connect them to other like-minded caregivers, and track and record their children's creations. Some museums engage and support "parents' clubs," connecting members to make museum-going a social, collective experience. Formalizing these endeavors into more robust platforms for caregiver communication can help caregivers see the museum as a place that supports their individual family goals for education and fun.

For these reasons, children's museums can best serve parents and caregivers using Web 2.0 techniques by:

- providing personal, networked records of museum experiences. When caregivers see museums as places for memory making, they want to return. While kids may be drawn to the performative aspect of a personal, virtual record of the museum experience, for adults such records are commemorative. It would be relatively easy to enable popular exhibits with digital cameras and a simple "take a photo" button that visitors could use to record special moments. These photos could then be networked and emailed home as a personal digital scrapbook.
- tapping into existing social networks. Unlike kids, for whom museums may need to invent their own protected online spaces, middle- and upper-class parents of young children are already on the Web and are likely to use Web 2.0 applications for everything from social networks to visit planning to parenting information. There are parenting groups on Facebook, homeschooling networks, activity blogs, all of which are open to your comments, suggestions, and support. The most important to start is by listening, learning about these existing communities. The Bay Area Discovery Museum takes listening to the next level, proudly displaying

its Yelp (www.yelp.com) reviews on the museum homepage, linking prospective visitors to reviews of the museum by other visitors like them.
- being a resource for information about informal learning and safe, positive children's experiences on the Web. There's a huge volume of parenting information on the Web, but little of it comes from known authorities. Children's museum staff, who already offer in-person educational support to caregivers, can both document and disseminate their knowledge through blogs and podcasts. While there may be thousands of others out there posting their own content on this topic, children's museums have the established authority to rise to the top—and to attract new visitors who are drawn natively from the Web rather than starting as museum users.

2.0 for Teachers: Tie-ins and Extensions

In many ways, teachers are the audience that can be best served by the addition of Museum 2.0 experiences. More so than parents, they are incentivized to connect with and understand the ways other educators use the museum so they can plan the best experiences for their own classes. And to get the most out of visits, teachers are looking for ways to extend and interface the museum experience into their own classrooms, so flexible development and open platforms are very useful.

For teachers, some Museum 2.0 options include:
- Teacher-to-teacher online networks. Curriculum and standards tie-ins don't have to be generated by museum staff alone. With a simple online submission form or wiki (a website that anyone can edit), teachers with established museum relationships can share with prospective teachers the links they make between museum content and in-class activities. As incentive for participation, teachers could receive group visit discounts for submitting their own museum-related curricula.
- Closed device networks for group visits. There are some museums beginning to experiment with using mobile devices to track visitors while in the museum, using a combination of GPS (to know where they are), instant message applications (to communicate with them), and RFID tags (to record what exhibits they have interacted with). For a teacher, being able to hold a master device and instantly see, message, and interpret student actions allows the teacher to be more hands-off for the entire group, while focusing attention on the students who need it. This is a perfect example of the way that technology can make the museum experience more open-ended by assisting teachers in managing groups in the informal learning environment.
- Growing projects that allow groups to participate before, during, and after the museum visit. Teachers already think of museum visits as a kind of "plug in" into the semester. Why not formalize that with some ongoing projects that start before visiting and end (if ever) long after? Many museums provide fabulous pre-visit resources, but few provide exhibits that are ongoing projects. If the museum provides that venue, then teachers can tap in early, rather than spending time

developing their own pre-visit content. And then the relationship between museum and classroom can extend throughout the year.

2.0 for the Field: Sharing and Listening

The last children's museum constituency that can be served by Web 2.0 is museum staff. There are a variety of professional tools, networks, and resources in the Web 2.0 space specific to the needs of museums. There are networks such as ExhibitFiles (www.exhibitfiles.org), on which users post reviews and case studies of completed exhibitions, and collaborative sites, like Tech Virtual (http://thetechvirtual.org), on which users propose and work together on exhibit concept development. There are blogs documenting museum experiments with technology, notably The Brooklyn Museum's blog (www.brooklynmuseum.org/community/blogosphere/bloggers/) and Museum 2.0 (www.museumtwo.com). There are museum interest groups on Facebook and individual program wikis and exploratory spaces. You don't have to navigate these waters alone. Join up, jump in, and start exploring with the rest of us.

Conclusion

When we don't understand something, the reaction is fear. It's easy to castigate the "wired classroom" advocates as people out to enslave every child to a computer. It's easy to argue that our institutions' value lies in their ability to provide a haven away from technology. But the wired classroom is a forward-thinking reaction to a digital revolution that is not going away. Instead of rejecting it, these educators are proactively engaging with the implications of a digital society, trying to give kids the ability to responsibly use and understand technology.

These educators need our help. As they define the frameworks for formal education looks like in the digital age, so should we start exploring the future of informal education. Integrating Web 2.0 doesn't mean we won't serve our visitors as well; instead, it gives us new, exciting additions to our toolset with which we can make the museum experience more participatory, personally impactful, and community-focused. This technology can help us move forward with our visitors, as a community of explorers surveying the future landscape of informal learning. What comes beyond hands-on? It's time to find out.