ASSOCIATION OF CHILDREN’S MUSEUMS GRATEFULLY ACKNOWLEDGES THE LEADERSHIP SUPPORT FOR REIMAGINING CHILDREN’S MUSEUM PROVIDED BY METLIFE FOUNDATION.

HOW TO USE THIS REPORT:

*Reimagining Children’s Museums Leadership Pre-Conference Proceedings* report serves as both a resource and a tool for ACM museum members. The document provides a collection of forward-thinking language that museums can draw on while developing their own plans and materials.

If quoting from this report or including it as a reference, the correct citation for the document is:


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INTRODUCTION

Over the next three years, ACM will engage the field in reimagining children’s museums. We believe we need to fundamentally consider learning and strive for ways to amplify learning and make it scalable. What does a 21st century children’s museum look like? What are the experiences we offer? What is our evolving role in our communities? How can we embrace change and enjoy making sense out of a constantly changing world?

The Reimagining Children’s Museums project launched with a leadership pre-conference prior to InterActivity 2012 in Portland, Oregon. Hosted at the World Forestry Center, this gathering brought together children’s museum leaders and thought leaders from the worlds of design, philanthropy, education and technology to talk about the future of children’s museums. Content was organized around a recurring sequence of thought leader presentations, in-depth table discussions and reports to the entire group. Speakers included: Carol Coletta, director, ArtPlace; Drew Davidson, director, Entertainment Technology Center, Carnegie Mellon University; Dale Dougherty, founder and general manager, Maker Media, and co-founder, O’Reilly Media, Inc.; John Pluhowski, vice president, corporate communications, eBay Marketplaces, NA; Christine Tebben, executive director, Grantmakers for Education; and Charlie Trautmann, executive director, Sciencenter. These proceedings document the presentations and participant responses, and we hope you find inspiration and concrete ideas in the thoughts that are presented.

What’s next?

The conversation will continue during InterActivity 2013 in Pittsburgh, Pennsylvania. The conference theme is Reimagining Children’s Museums, and the first day will be devoted to an exploration of the theme at Pittsburgh’s Byham Theater with a mix of speakers, videos and performances. Continuing through InterActivity 2014, ACM hopes this conversation will inspire—indeed propel—children’s museums to dramatically reimagine their roles for the future.

A key component of this process is the inclusion of voices from outside the children’s museum field. Included among those voices are philanthropists, educators, technology gurus, business leaders and designers. The designers will consider the “space” of a children’s museum in a radically different way. They will utilize the design process as a methodology to solicit and offer ideas for the next generation of children’s museums. The design teams will develop concepts that answer what it means to experience a children’s museum in the 21st century, and their work will showcase how design excellence promotes innovation and strengthens community building. Ideas and concepts will be exhibited at InterActivity 2013.

All are invited to join this conversation. Share your radical ideas. Tell us what you think is new in our field. Come to Pittsburgh. Visit www.ChildrensMuseums.org to read more and add your voice to this conversation.

Jane Werner
President, Association of Children’s Museums
Executive Director, Children’s Museum of Pittsburgh

Janet Rice Elman
Executive Director, Association of Children’s Museums
Carol Coletta is the president of ArtPlace, a collaboration of top U.S. foundations and the National Endowment for the Arts (NEA). Prior to joining ArtPlace, Coletta was president and CEO of CEOs for Cities, a national network of urban leaders building and sustaining the next generation of great American cities. While there, she hosted and produced Smart City, a nationally syndicated public radio show. Coletta was executive director of the Mayors’ Institute on City Design, a partnership of the NEA, the U.S. Conference of Mayors and the American Architectural Foundation. She was a Knight Fellow in Community Building at the University of Miami School of Architecture, and she was named one of the world’s 50 most important urban design experts by the Copenhagen Agenda for Sustainable Cities. She is a senior fellow with the Design Futures Council.

Coletta discussed the roles that art, culture and creativity play in expressing and determining the power of place. Highlighting their value to communities, she asserted that arts and culture can:

- Create a common ground;
- Create little victories that make people feel they are on a winning team;
- Serve as an anchor for downtown and neighborhood development;
- Be a community gathering place, bringing people together;
- Engage the community;
- Make a place unique;
- Build a community’s brand;
- Drive development;
- Help drive and retain talent; and
- Be an economic driver.

Moreover, she explained, investment in art and culture is fundamental to creative placemaking, the revitalization of a community around its capacity for the arts. Citing Rocco Landesman, chairman of the NEA, she described creative placemaking as, in many respects, “the only storyline that sells.” Though the broad definition of what creative placemaking is can pose challenges when seeking funding, Coletta argued that the “so what” is far more important. In describing ArtPlace’s approach, she explained that it “will make communities and their partners across the United States measurably more vibrant, resulting in increased economic performance.”

Referring to children’s museums, Coletta recommended that they strive to be more pervasive in their local communities. Moving beyond the field’s traditional understanding of outreach, she suggested that children’s museums not remain “locked into a building,” but focus on being “everywhere, all the time.” In sharing knowledge and capabilities with local resources and in supporting their constituencies—children—children’s museums can engage children as community citizens.

Coletta posed the following questions to the audience:

1. What would the pervasive—everywhere, all the time—children’s museum look like?
2. What challenge could children’s museums tackle with their constituencies—children—that would be celebrated on the front pages of newspapers across the country for making a real difference?
3. How can children’s museums make a demonstrable contribution to the vibrancy of their communities?

**KEY THEMES AMONG TABLE DISCUSSIONS:**

**QUESTION 1**

**Importance of community partnerships**

Across group discussions, the theme of museums, and particularly children’s museums, as conveners played a key role. Whether physically or philosophically, children’s museums are resources that can serve as town squares, uniquely situated to understand and connect “the ecosystems of children.” Participants explored whether children’s museums could make the greatest impact by working with schools, community organiza-
Children’s museums will be well connected within their communities, clearly a needed and trusted partner, whose space is used for both convening the community and celebrating the achievements and milestones of its children.

— Jeri Robinson, Vice President of Education and Family Learning, Boston Children’s Museum (MA)

...tions, local leaders, other museums and informal learning institutions or funders.

Growing potential for pop-up/satellite locations
As the needs of communities and families change, more children’s museums are exploring possibilities for being more about “experience, not place.” Ideas included bringing children’s museum experiences and activities to schools, workplaces, parks, airports, clinics, offices and neighborhoods; expanding satellite locations; and rethinking the concept of a formal museum experience.

However, challenges around the integral relationship between built environments and programming, as well as finding added funding, were raised.

Role of social media and Web presence
Expanding on the idea of moving beyond the four walls of a traditional museum, participants shared thoughts on using social media and the Internet to increase pervasiveness, particularly with parents.

Support for parents
Children’s museums provide tools for and partnerships with parents that other educational institutions are missing. Children’s museums know how to connect with and serve as a resource for families.

Evolving concept of a children’s museum
Does our title as “children’s museums” stand in the way of our ability to be more pervasive? Would inclusion of broader audiences and older age groups take away from our ability to meet the needs of families and young children?

Key themes among table discussions: Question 2
Play and 21st century learning
Children’s museums evolved around the ideas of supporting play and early learning, rendering these topics ideal for advocacy by the field. Participants discussed the right to play; the critical role of play in early learning and child development; the need for parents and caregivers to understand the importance of play; the economic case for the value of play, as articulated by economist James Heckman; and play as a foundation for community-based learning. Tables also shared thoughts about the concept of play—whether the term “play” is a nonstarter, and whether children’s museums ought to focus on changing the public understanding of play.

Empowerment of children
In positioning themselves as primary advocates for children, children’s museums have the opportunity to promote not just the value of childhood, but also the capabilities of the youngest members of our communities. Tables shared ideas on engaging children with real world scenarios, whether locally or globally based; creating a civic role for children, using children’s museums as a headquarters or a civic space; and amplifying the voices of children to be heard by larger audiences.

Children’s health and wellness
With issues from childhood obesity to autism spectrum disorders on the rise, children’s museums have both a unique opportunity and a responsibility to promote children’s health and wellness. Through children’s programming, increased accessibility, parental support and community conversations, children’s museums can build awareness around major health crises affecting the nation today.

Reflection of community
As audiences change and evolve demographically, children’s museums need to work to better reflect their communities. Children’s museums can boost their cultural competency and increase their role in multicultural dialogue, moving cross-cultural understanding beyond play and childhood.

Key themes among table discussions: Question 3
Integration with the community
Children’s museums have a vibrancy of their own that can be expanded to reach outside communities—whether locally, nationally or internationally. Some children’s museums have already begun to explore this through unique partnerships, such as with public housing authorities; permanent exhibits in the community; or establishing dedicated centers to promote nontraditional learning ideas and methods. Attendees expanded on these concepts, sharing ideas around community building through programming and events, partnerships with arts districts and local artists and partnerships or activities shared between children’s museums.

Intergenerational engagement
Building on their ideas around community integrations, participants discussed ways to engage audiences outside of the traditional 0-8 target age. By engaging teenagers and children who have aged out of standard children’s museum activities, parents and grandparents, children’s museums can serve as whole-community play centers.

Advocacy
Participants revisited their responses from Question 2 to use advocacy as a potential means of contributing to community vibrancy.
Since 1990, Charles Trautmann has served as executive director of the Sciencenter, an educational science museum located in Ithaca, New York. Dr. Trautmann has directed more than $9 million of sponsored research and has more than two decades of teaching experience, from pre-K through graduate school and in-service training of individuals. As a certified professional geologist and registered engineer, he has worked with the U.S. Geological Survey, Geotechnical Engineers Inc. and Cornell University, where he teaches as adjunct professor in the School of Civil and Environmental Engineering. Dr. Trautmann serves on several advisory boards and is on the board of directors of Tompkins County Area Development.

Trautmann offered a statistical illustration of both the internal and external factors changing the way children’s museums will need to view and address their audiences in the coming years. Drawing from data collected by the U.S. Census Bureau, Reach Advisors, ACM and the Association of Science-Technology Centers (ASTC), he illustrated current trends as well as future demographic projections. Before relaying his findings, Trautmann briefly reminded his audience to bear in mind the following four questions while reviewing his findings:

- Is the data real?
- Am I analyzing the data correctly?
- Does the data matter?
- How should I respond to this data?

Comparing data collected by ACM and ASTC, Trautmann first explained how attendance numbers and trends have changed over the past five years. Using 2006 as a baseline, he observed that median attendance for children’s museums had expanded dramatically in five years, whereas both large and small science centers had experienced less striking changes and saw lower median figures. However, he noted that while museum professionals certainly stay attuned to changes in attendance, this data represents only a proxy for significance in terms of a museum’s overall focus.

Trautmann then shifted to discuss external trends, lending greater context to changes in children’s museum audiences. Referring to data collected by the U.S. Census Bureau, he explained that the percentage of the U.S. population represented by children had decreased sharply in relation to that of children in minority populations. With the number of white, non-Hispanic and minority children now at near-parity, children’s museums will need to evaluate their strategies and messaging. This need will only increase over time, he added, as the percentage of minority children in the United States is expected to supersede that of white children within the next decade.

Finally, Trautmann referred to wider implications that children’s museums will need to address. Looking at ticket sales, he pointed to a measurable rise in prices over the past five years as an indication of how museums have responded so far to environmental changes and the resulting losses in revenue.

Charlie Trautmann posed the following question to participants:

- What is one thing that children’s museums are doing well, that might contribute to their upward trend in attendance?

The 21st century children’s museum should be accessible to children globally, both physically and virtually, bringing us closer to the idea of engaging with those ‘hard to reach’ children who won’t otherwise have a chance to benefit from the children’s museum experience.

— Leigh-Anne Stradeski, Director, Eureka! The National Children’s Museum (Halifax, UK)
Reimagining Children’s Museums Leadership Pre-Conference Report

Key Themes Among Table Discussions

Accessibility
Children’s museums offer a level of accessibility not often achieved by other types of museums or informal learning institutions. Participants noted children’s museums’ activities around economic accessibility, keeping admissions and membership rates at affordable prices while offering free and reduced admissions to families in need. Children’s museums work further toward achieving cultural accessibility, ensuring that museum exhibits and activities reflect the diversity present in their communities. Attendees also described efforts around increasing physical and developmental accessibility, with a particular focus on the needs of diverse learners; children’s museums offer extra resources, services and events to ensure that the needs of all children are met.

Community engagement and outreach
More so than other types of museums, children’s museums engage broader audiences and create deeper ties throughout their communities. By organizing partnerships with local resources, promoting local initiatives and supporting local needs, children’s museums provide vital community services that families and organizations may not be able to find elsewhere. Children’s museums also reach out to communities of diverse race, religious, economic and/or cultural background, to build an inclusive community and to welcome all audiences.

Cultivation of future museum-goers
Frequently offering children and families their first museum experiences together, children’s museums lay a foundation and expectation that independent and informal learning is fun and appealing. Furthermore, children’s museums create and foster a culture of museum attendance through memberships, public activities and free or reduced-price programs.

Offer of a safe environment
Children’s museums provide families with a safe, low-risk environment where children can learn, experiment and explore in a space designed specifically with their needs in mind. Families looking for a comfortable, monitored, homelike setting come to children’s museums as places that allow unstructured and open-ended play.

Responsiveness to audience needs
While certainly all museums look to their audiences for feedback, children’s museums in particular need the input of their visiting children and families to ensure that all learning, playing and accessibility needs are met. Unlike any other type of museum, children’s museums invite children to directly inform the creation of experiences through consultation. Knowing the needs of their communities and audiences allows children’s museums to provide intuitive, visitor-centric programming.

Support for play and informal learning
With a primary focus on play and unstructured learning, children’s museums fill a need for young families that other museums cannot. Children’s museums provide an alternate space to schools or other conventional learning institutions, emphasizing creativity and imagination. While the formal education system becomes increasingly bound by measurements, data and testing requirements, children’s museums allow for free and open thought through authentic play experiences. Children’s museums provide the added benefit of allowing families to play and learn together, spreading the impact across generations and creating meaningful memories.

Support for parents and families
Children’s museums provide parents with comprehensive resources and much-needed support that other types of museums simply cannot offer. Through onsite training sessions and lecture series, online resources, onsite information and health and wellness related family outreach, children’s museums serve as both advisors and sounding boards for parents of young children.

As children’s museums evolve, the ones that are most successful have continued to reinvent themselves, staying ahead of the trends and identifying the next “big” issue society will turn its attention toward.

— Joanne Morrell, Executive Director, Kansas Children’s Discovery Center (Topeka)
Dougherty examined the growth of the Maker Movement and its potential for impact on the informal education stage. In describing making and makers, Dougherty referred to the example of Steve Jobs and Steve Wozniak making the first Apple computer. Their shared ingenuity, passion and skills led to the creation of what is now one of the world’s most recognizable brands; yet, at its core, the original Macintosh was handmade in the truest sense. In the same way, the idea behind the Maker movement is one of personal identity and innovation combined with a do-it-yourself mindset.

“IT doesn’t matter what you make,” Dougherty explained, “it’s the process of making that matters.”

Expanding on this idea of the importance of process, Dougherty detailed the different factors involved in making that have helped spawn the Maker Movement. Making, he explained, appeals to a very human sense of personal identity, giving a maker a unique set of qualities specific to his own interests and level of ability. At the same time, this sense of identity intersects with a broader social appeal to making, where an entire community of makers can share its interests and ideas with one another. “It’s something human, in all of us, that we’re makers,” he noted.

Dougherty further described the making process as a fundamental part of human learning that also involves a certain level of risk. Unlike traditional areas of education that require one to follow directions based on others’ original work, he explained, making relies on the application of previously acquired knowledge to experiment with something new and unknown. The level of learning involved in making is unique to the maker and his interests. In this way, Dougherty observed that making and formal education are not conducive to one another. While there are overlaps between the two—he highlighted the connection between STEM learning and making—the different processes and metrics involved render the incorporation of making into formal learning highly challenging, if not impossible.

On the other hand, separate informal learning spaces can be extremely conducive to the support and growth of making. Dougherty described the excitement and intensity around Maker Faire, where communities of makers share their interests and work both with themselves and the public. He also cited a program for maker spaces currently funded by Defense Advanced Research Projects Agency, in which high schools might open workshops that combine concepts from shop, art and science classes to provide students with both the room and the tools to express their creativity. But Dougherty pointed to museums (and children’s museums in particular) as possible points of entry for children and families into the world of making. He cited the Children’s Museum of Pittsburgh’s MAKESHOP and offerings by San Francisco’s Exploratorium® as examples of how children’s museums can facilitate making and similar hands-on learning projects. Museums can teach making to children in any number of ways, he added—offering instruction sets for children to take home, facilitating specific projects, bringing in college students and young people interested in making to serve as makers in residence. By offering these sorts of opportunities, Dougherty concluded, children’s museums can help teach the public that every child is a maker.

The audience then discussed design concepts, facilitation, parental roles and the value for maker spaces.

KEY THEMES AMONG TABLE DISCUSSIONS
Design concepts for maker spaces in children’s museums

The creativity and do-it-yourself nature of making appeals to children’s museums and aligns with their broader mission. Attendees discussed the following design and planning areas to be considered by children’s museums when looking to develop a maker space. For comparison purposes, many tables referenced the curiosity-based maker space at the Exploratorium and the construction-based MAKESHOP at the Children’s Museum of Pittsburgh as models.

Time: Unlike most programming in children’s museums, much of the maker experience is dependent upon time, with makers potentially spending hours on a particular project. A children’s museum may want to consider whether offering surface encounters with larger numbers
of children, rather than deeper encounters with smaller numbers, would better suit its programming goals.

**Space:** In addition to time, maker spaces require a significantly greater dedication of square footage than other types of children’s museum programming. Children’s Museum of Pittsburgh, for instance, moved its MAKESHOP studio into space previously occupied by an exhibit.

**Products:** Should children’s museums plan to allow children to take home all finished products at the end of their making sessions, or should they offer more collaborative projects to which children can contribute? Does one system require more or fewer materials over another?

**Metrics:** Children’s museums are frequently required by funders to provide some basis for metrics of success in their projects. Making, on the other hand, is such an interpretive and open-ended activity that a standard set of measurements may be neither practical nor ideal. In instances where metrics are required, some sort of feedback mechanism or system of constraints would be critical to producing a satisfactory outcome.

**Facilitation**
Maker spaces require different types and levels of facilitation than do other types of children’s museum programming.

Issues explored by attendees included:

**Supervision:** Because making is so inherently interactive, a greater level of supervision and guidance is required of maker spaces. Children’s museums looking to incorporate a maker space will want to consider whether to dedicate extra paid staff for these purposes, whether to rely on volunteers from a pool of local makers, or whether to rely primarily on parents and caregivers to facilitate maker activities.

**Project parameters:** Some participants observed that it can be difficult for children of an age frequently visiting a children’s museum to work on open-ended challenges. To address this, children’s museums may want to consider setting up constraints, either by providing directions to make a specific item or by providing an example.

**Required resources and materials:** Making frequently requires a greater number and different types of materials than those traditionally provided by children’s museums for projects. Children’s museums will need to consider the added costs and product sources required for making.

**Parental roles and engagement**
A number of participants raised concerns around the ability to empower children to make creatively in an environment where a “helicopter parent” may be inclined to become over-involved. At the same time, young children enjoy having the opportunity to play alongside their parents. To this end, some participants agreed that children’s museums work to throw off parent expectations. For example, one table suggested that parents ought to be assigned specific and comparable tasks, making parent and child equal players on the making field.

**The value of maker spaces**
Above all, attendees voiced their belief in the importance of maker spaces, whether in or out of children’s museums. Maker spaces rely on one’s own action and activity, as opposed to what is pre-made; are great for cooperative play, community and communication; allow the hands, whole body and mind to interact with learning; and incorporate a focus on the fun of learning, similar to the methods of Reggio Emilia.
Drew Davidson is a professor, producer and player of interactive media. He is the director of the Entertainment Technology Center at Carnegie Mellon University and the editor of ETC Press. He chaired Game Art & Design and Interactive Media Design at the Art Institute of Pittsburgh and the Art Institute Online, and has taught and researched at several universities. Davidson consults for a variety of companies, institutions and organizations and was a senior project manager in the New Media Division of Holt, Rinehart and Winston. He helped create the Sandbox Symposium, an Association for Computing Machinery video game symposium also known as SIGGRAPH and served on the International Game Developer’s Association Education’s Special Interest Group.

Davidson described advances in the use of games in teaching 21st century skills to current and future generations of students. Learning happens inherently as children work their way through games: through mastery of the game’s rules, challenges and boundaries. The broader goal is to see the impact of that learning spread beyond the game and translate into other skills and environments.

Davidson posited that it is misguided to believe that fun is the most important aspect of educational games. “Fun on its own has a half-life,” he explained. “We need to keep games pleasantly challenging. The challenges present in a game and in learning,” he added, “will keep audiences engaged.”

By focusing on the level of engagement and by meeting children at their level of mastery, educators can use games to build learning literacy through students’ own agency. Thus, designers work toward achieving flow—a state of engagement at which a player’s rising mastery is met with rising difficulty.

Failure, doubt and curiosity, Davidson noted, are all very important to the success of a game. He explained that everyone learns from their failures; mistakes are opportunities both for developers and for players to learn and adjust. The key is to allow for repeat experiences whereby players move from failure to success. Doubt, likewise, allows student-players to question the answers and the rules provided. In educational contexts, lessons should encourage one to challenge assumptions, figuring things out to develop one’s own understanding. The curiosity that combines with this doubt builds engagement, pushing children to take things apart and ultimately develop lifelong problem-solving skills.

The challenge for developers and educators is determining how to do all of this effectively. Davidson warned against the concept of covert learning, explaining that children recognize this easily and frequently find these games tiresome. Instead, he suggested, educators should work to facilitate learning through design, pushing students to do more. Teachers and informal educators can provide children with context, shaping challenges appropriately so that games are indeed meeting players at their skill level, then help kids translate the lessons from games into literacy of learning.

To provide participants with an example of this sort of facilitation, Davidson described the work of the ETC at Children’s Museum of Pittsburgh through its Digital Dream Lab project. Working with children in the museum’s MAKESHOP, the ETC team has attempted to integrate both physical and digital aspects of making into a game. In this game, children work with a physical block interface to manipulate the shape, color, size and actions of digital characters. By getting children to think in terms of storytelling and modeling, he explained, the game is effectively working toward teaching children to code.

By motivating through difficulty, children can exceed adults’ expectations. “Games aren’t about the fun,” Davidson concluded, “they’re all about the challenge.”

EXPERIENCING A 21ST CENTURY CHILDREN’S MUSEUM IN THE NEXT 10 TO 20 YEARS SEEMS LIKELY TO INCLUDE A RANGE OF UNIQUE BLENDS, AS NEW IDEAS AND TECHNOLOGIES ARE INCORPORATED INTO EXISTING SPACES AND PLACES.

— CYNTHIA MARK-HUMMEL, DIRECTOR OF EARLY LEARNING RESEARCH & EDUCATION, DUPAGE CHILDREN’S MUSEUM (NAPERVILLE, IL)
Drew Davidson posed the following to the audience:

It is not about what you teach with games, but how you teach with games. How do you and your institutions teach with games?

**KEY THEMES AMONG TABLE DISCUSSIONS**

**The role of technology in children’s museums**

The issue of whether, and in what ways, technology is appropriate in children’s museums has long been fodder for debate among professionals in the field. Davidson’s presentation raised a number of ideas around this issue:

**Technology for adults:** Nearly all attendees agreed that technology could be a useful tool for adults, whether referring to museum floor staff or to parents. The instantaneous nature of technology, particularly mobile technology, provides a simple method for reporting and collecting feedback from visitors. Technology also allows museums to extend families’ learning before, during and after engaging with exhibits—a useful and increasingly expected resource, when filtered through a parent or caregiver.

**Technology for children:** Do children’s museums have a responsibility to make technology relevant to children, or to remove it altogether from the museum experience? Some participants expressed concerns about overexposing children to technology through extended screen time, the lack of interaction between children and parents when using technology, and the lack of hands-on learning traditionally associated with technology. Others noted that society has allowed technology to become an important factor in many creative processes. Further, it was observed that to some extent, technology could actually encourage children to explore new ideas and activities to which they might not otherwise be exposed.

**Current best practices:** A number of tables shared their ideas on best practices currently in use in children’s museums. Examples here largely centered on the use of technology to enhance otherwise non-technological exhibits and activities, such as sound sequencers, or technology that requires physical interaction, like the Xbox Kinect.

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**Technology is changing so rapidly that it is impossible to predict where these breakthroughs will be in twenty years, but they will inevitably create both opportunities and challenges.**

— Sue Broad, President and CEO, DuPage Children’s Museum (Naperville, IL)
The value of teaching through games
Regardless of their opinions on the use of technology, participants agreed that there is an inherent value in teaching through games. The ideas of challenge and mastery align well with the goals of children’s museums. Games allow for the incorporation of these concepts in ways that traditional exhibits cannot. Furthermore, participants connected with the flow concept that Davidon described, recognizing the importance of keeping children engaged. Games that engage your brain, building 21st century skills through a set scaffolding that players work through.

Games are traditionally associated with older audiences than those typically visiting children’s museums, primarily because of the time and extended concentration required on the part of the player. However, participants cited examples of games designed for children as young as three that could work well in a children’s museum environment.

Comparison between making and gaming
Tables discussed similarities between making and gaming and discussed how the two concepts might be combined. Participants liked the element of the unknown present in both games and making, in that neither the player nor the maker knows at the beginning of his/her endeavor how it will end. They also liked the empowerment that each activity offers children, allowing them to work and play with relative independence from adults and to explore their own abilities.

Gaming and making present a number of opportunities for crossover projects. Several tables discussed the feasibility of children’s museums helping children make video games, which would bring an added level of creativity and DIY to a tech-heavy activity.

Design and facilitation
Participants reviewed processes and challenges that could potentially be involved in a children’s museum creating and facilitating a digital game. From a design perspective, the children’s museum field has more limited experience in making digital media of this nature. Participants noted that, for a game to truly work in the children’s museum environment, talented game makers with experience in K-3 education would need to be recruited to work with museum educators. On the other hand, the ability of children’s museums to consult with audiences during the design process, as well as to prototype once a game has been designed, presents them with a greater opportunity to design to the needs of the children they serve.

As is the case in discussions of making, facilitation of games in a children’s museum setting appears to present more complications. Games require a more structured dedication of time than most activities at a children’s museum. Also, games are typically more individual activities, so that fewer children could be served at a time, whereas other exhibits are frequently designed to serve larger audiences simultaneously. Establishing a system around how many children can play, and for how long, would require heavier facilitation by museum staff and volunteers.
Chris Tebben is executive director of Grantmakers for Education, a national network of 295 foundations, corporations and donors who are working to improve student achievement and opportunity. Collectively, members of Grantmakers for Education give away more than $2 billion each year to improve outcomes in early learning, K-12 public schools, afterschool programs and postsecondary education. Tebben joined Grantmakers for Education in 2002 as program director and later served as deputy director before being appointed to lead the organization in 2008.

Tebben gave participants a glimpse of funder perspectives in envisioning the future of learning. Reviewing the history of education in the United States, she illustrated how developments that have occurred over time have done so only incrementally, leaving the basic frame for the primary and secondary education system relatively unchanged. The problem we face now, she explained, is that our current generation of students faces problems in global and technological contexts that the current education system cannot effectively address. To tackle this, Grantmakers for Education invited other funding groups to convene at Learning 2025, a collaborative discussion of how the future ideal educational system would look and operate.

Based on sample profiles of eight theoretical students of 2025, Tebben explained, participants at Learning 2025 envisioned the primary learning needs of all future students, regardless of socioeconomic background:

- The need to feel uniquely valuable in and for the world;
- The need to know how one’s value can be realized;
- The need for a map of possibilities based on one’s experiences;
- The need for help navigating that map of possibilities;
- The need for a more personalized learning experience; and
- The need for financial, social/emotional and technological resources throughout one’s learning experience.

Tebben observed that, in many ways, children’s museums have already been able to address these needs in ways that formal education systems cannot. In order for formal education to meet these needs, however, Learning 2025 participants established that schools would have to be personalized, engaging, mediated, flexible, resourced with individual students in mind, financially tenable and accountable.

To help educators and education systems achieve these goals, funders in attendance developed the following list of philanthropic priorities targeting the full education spectrum:

- Building a research agenda around the continued improvement of learning and the learning process;
- Defining the skills that students will need as 21st and 22nd century learners;
- Prototyping and scaling new models of learning;
- Fostering personalized learning in a community context that extends beyond the traditional learning environment;
- Delivering on the promise of digital media in learning;
- Reimagining assessments of and for learning;
- Defining new governance models tailored to the particular learning contexts in which they operate;
- Innovating funding mechanisms to allow resources to follow children;
- Helping build public will for new learning models; and
- Advocating for policy that allows change in education models.

Tebben added that many of these priority areas speak to the goals and current initiatives of children’s museums, pointing in particular to the work of prototyping and scaling new models and fostering personalized learning opportunities.

However, as education moves toward a more decentralized model, Tebben warned that ensuring equity for all children would present a major issue. Educators will need to pay close attention to students with the least support and with the least access to resources in order to ensure that their needs are equally met.

Chris Tebben posed the following question to participants:

How can children’s museums ensure that children who are the most needy have at least as much access to new and rich learning resources as their more advantaged peers?
KEY THEMES AMONG TABLE DISCUSSIONS

Accessibility and equity

Children’s museums, perhaps more so than other types of museums, place a tremendous value on making their resources available to as many children—and to as many types of children—as possible. Participants cited accessibility practices from their own museums, including offering free and reduced admissions to families with economic need; offering scholarship memberships; offering free field trips to school groups whose students predominantly receive free or reduced-cost lunches; and bringing activities directly to communities and neighborhoods with greater need.

At the same time, participants acknowledged that children’s museums can always do more to ensure that no child in their audiences receives less access to much-needed tools and opportunities. Ideas for new best practices included:

• Building relationships with individual families to learn what specifically they need;
• Dedicating free passes for government agencies to distribute to families;
• Training presenters to run programs specific to local communities;
• Hiring bilingual staff and offering bilingual materials;
• Organizing transportation from underserved neighborhoods to children’s museums; and
• Sending pop-up museum trucks into underserved communities to meet audiences where they are.
Pluhowski guided participants to rethink the role of technology in audience outreach to use children’s museums as platforms. As he explained, the 21st century marketplace has become massively connected through technology: thanks to mobile communications, individuals are now empowered to do and see what they want in real time. This places children’s museums at an inflection point.

Pluhowski identified four established trend areas in technology and marketing: mobile, digital, local and social. Through the flexibility provided by products such as smartphones and tablets, these trends both alone and intertwined have grown to dominate today’s commerce. In response, retailers have had to adjust their tactics for reaching target audiences in order to achieve and maintain success. Pluhowski explained that companies are following these trends by meeting emerging customer needs: the need for seamless experiences that he described as being available “anytime, and anywhere”; the need for easy access; and the need for multiple connection points.

At the same time, non-retail markets such as children’s museums can benefit from harnessing these trends in their outreach efforts. Like other organizations, children’s museums need to reach their members and audiences, whether through Web sites, social media, or direct communication. The challenge, Pluhowski said, is to leverage those media to reach audiences in more tailored and personalized ways. He suggested that sending email communications during rush hour, for instance, might make a museum’s message that much more appealing to recipients. Likewise, optimizing museum Web sites for mobile use is a relatively cheap and effective way to provide audiences with more personalized, enjoyable experiences through technology.

Pluhowski expanded on this idea to explore using technology to enhance already-present exhibits and activities at children’s museums. Technological enhancements to exhibits and resources such as QR codes, for example, would allow museums to provide parents and families with additional information about certain concepts, thus deepening their experience and enjoyment of those exhibits. Thinking further of children’s museums in terms of connection points, he added, a physical museum can serve as a platform for other resources, providing additional ways to become engaged outside of the traditional museum experience.

In closing, Pluhowski explained that the ubiquitous nature of technology provides groups with the opportunity to be in front of people “right at their moment of inspiration—be that in a museum or out on a street corner.” Children’s museums, he said, can make education and intellectual curiosity instantly obtainable. The key is to take advantage of the means with which to do it.

John Pluhowski posed the following questions to the audience:

1. How do you imagine leveraging technology to benefit children’s museums?
2. How do you use technology to drive traffic to children’s museums?

KEY THEMES AMONG TABLE DISCUSSIONS: QUESTION 1
The role of technology in children’s museums
Participants reviewed many of the ideas that had been shared throughout the day on what place technology has in a children’s museum. Questions continued to arise around the extent to which children’s museums, which in many cases have embraced a role as technology-free play environments, should incorporate technology into their play experiences. In addition, museum professionals questioned whether gearing more information and activities toward visitors with smartphones would limit equity and accessibility in children’s museums, noting that not all audiences have access to a smartphone. However, other participants observed a lack of correlation between poverty and technology: many adults and families with financial need still have access to smartphones.

On-site experience enhancement
Much of the discussion centered on using technology to enhance already-present exhibits and activities at children’s museums. QR codes, for instance, would allow parents to answer questions that children may have about
exhibits and activities while on-site, providing instant access to further information and resources. QR codes offer the added benefit of allowing museums to provide information in multiple languages in an efficient and cost-effective way. Participants also reflected on the possibility of providing mobile audio tours, complete with commentary from visitors and staff. More experimental ideas explored the possibility of using mobile technology to interact with exhibits. For example, one table discussed using tablets or smartphones to change the colors and brightness of lights in sections of a museum.

Technology can also be used to support children and families with special needs. Some children’s museums already offer online resources to provide children on the autism spectrum with previews and maps of what they can expect during their visits. This technology could be expanded to provide mobile access to Picture Exchange Communications Systems (PECS) and other resources to enhance experiences and support families while at the museum.

Off-site children’s museum experiences
In the same way, participants explored how technology could help to expand audiences’ children’s museum experiences before and after their visits. With the boundaries between home, school and community blurring through technology, children’s museums can make their experiences ubiquitous at a relatively low financial cost. Several tables discussed possibilities for mobile apps with activities based on exhibits and programs available at local children’s museums. Similar activities could be designed for the home computer, allowing for greater interactive possibilities.

KEY THEMES AMONG TABLE DISCUSSIONS:
QUESTION 2
Internet and social media outreach
Several tables discussed their online presence and use of social media to connect with audiences. Some museum professionals suggested connecting with social couponing companies (for instance, Groupon or Living Social), as these have a much larger reach and could spread the word about children’s museums to new potential audiences. Others discussed relationships with mommy bloggers, who can quickly disseminate stories about their children’s museum experiences to other parents in their communities.

Personalized learning experiences
Much of the discussion about personalizing learning experiences drew from participants’ ideas around on-site and off-site experience enhancement. Several participants reiterated their thoughts on emphasizing family learning through “plan your visit” apps and online activities.

LEARNING WILL BE REAL, OFFER CHALLENGES AND PROBLEMS TO BE SOLVED AND SHOW THAT EVERY VISITOR CAN CREATE AND INNOVATE. TECHNOLOGY WILL ADD VALUE TO IMAGINARY PLAY.

— CATHERINE WILSON HORNE, PRESIDENT AND CEO, EDVENTURE CHILDREN’S MUSEUM (COLUMBIA, SC)
Chris Siefert, deputy director of the Children’s Museum of Pittsburgh (PA), led a creative brainstorming activity. Each table was assigned one of six terms that had been used throughout the day. Groups were asked to graphically map out any ideas that those terms elicited. The following are the main ideas as presented by each table.

**CHANGE**
- We need to change the way we communicate internally and externally. Are we using old language? Is the word “museum” worth reimagining?
- Who do we [children’s museums] play with?
- Who is the consumer? Who is the producer?
- Change everything? Why? We’re not starting from scratch. If it ain’t broke...

**COLLABORATION**
- Needs to be a labor of love. Collaboration should be about relationships, partnerships, reciprocity.
- The children’s museum needs to maintain its own identity throughout the collaboration.
- Needs to be mutually beneficial.
- Collaboration requires trust.
- Through collaboration children’s museums can learn through others, build capacity, build impact and realize innovations.
- Find/Engage 4.0 community partners.
- Don’t forget about collaborating with inner stakeholders—it’s not just about collaborating with new partners.
- Need to examine the What and Why of collaboration; the advocacy role of the children’s museum; and need to examine Who is really important for collaboration to matter.

**COMMUNITY**
- Be accessible for all genders, for people of all financial backgrounds, for people from diverse geographic locations.
- Children’s museums need to be pervasive throughout the community.
- How? Build a flagship children’s museum in the community but not the whole fleet.
DESIGN

• Avoid building bad stuff—cookie cutter, brightly colored floors. Don’t look like a doctor’s office unless you’re intending to create a doctor’s office environment playscape. Authenticity is a must in the environments that children’s museums create.

• It’s important to design for joy, for ritual (e.g. End of the Day Parade). Need to design in moments.

• The building itself should define the children’s museum pedagogy.

• Design as a designer; listen, visit, observe, need fresh eyes.

• Need intimate, welcoming, place-based defining environments.

SUSTAINABILITY

• Children’s museums need to preserve play in a changing world that is often decreasing time for play and indoor and outdoor places to play. Think about how the museum is sustaining/ofering continuity and play experiences for children; otherwise, what are we sustaining?

• Children’s museums need leadership and a vision that will strengthen the entire field and in turn will help each children’s museum plan for sustainability.
Andrew Ackerman, executive director of the Children’s Museum of Manhattan (NY), tasked each table with developing two new ideas for children’s museums—one directly involving technology, the other not. The following are the ideas reported by groups. Please note: Repeated ideas have been included only once.

### TECHNOLOGY-RELATED IDEAS

- Stay true to the original children’s museum mission—no “tail wagging the dog.”
- Allow smartphones to extend children’s museum experiences into the home.
- Disseminate making activities at children’s museums using social media.
- Create a travel app for children’s museums (an app to use on the airplane, for instance).
- Use technology to smooth parent experiences in children’s museums.
- Leverage children’s museums’ authority and authenticity through pop-up, mobile experiences.
- Provide mobile location-based/exhibit-based information to promote relevance.
- Host a global community dinner, connecting children’s museums via Skype or some other technology.
- Offer two-way communication, expanding the impact of the museum into the home.
- Raise online profile with parents around early learning.

### NON-TECHNOLOGY-RELATED IDEAS

- Make outdoor spaces more natural—include rotting logs with bugs underneath, enormous sand pits, tree forts, etc.
- Focus on the critical importance of unstructured family learning.
- Incorporate making into activities and exhibits in children’s museums.
- Increase access to underserved communities similar to the Bread & Art program at Portland Children’s Museum.
- Make the entire community a partner—ask the community what it wants from its children’s museum.
- Address real issues (in the community, in early learning, in children’s health and wellness, etc.).
- Involve teenagers as mentors for younger children’s museum audiences.
- Convene community discussions around the importance of play.
- Use children’s museum pop-up trucks to organize a flash mob-type experience.
- Extend museum activities into communities (e.g. at playgrounds).
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WOULD LIKE TO THANK ALL OF THE PARTICIPANTS WHO JOINED US FOR
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| Andrew Ackerman, Executive Director, Children’s Museum of Manhattan (NY) | Dale Dougherty, Editor & Publisher, MAKE (Sebastopol, CA) |
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| Rich Barth | Jennifer Farrington, President & CEO, Chicago Children’s Museum (IL)* |
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| Jaccque Boyd, Board Member, Children’s Museum of Tacoma (WA) | Neil Gordon, Chief Executive Officer, The Discovery Museums (Acton, MA) |
| Lisa Brahms, Manager of MAKESHOP, Children’s Museum of Pittsburgh (PA)+ | Claire Green, President, Parents’ Choice Foundation (Baltimore, MD) |

**KEY:** * = Table Anchor   + = Facilitator
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