Digital Youth Seattle Think Tank White Paper

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Introduction

“I live and breathe technology, I get up in the morning and check Twitter. I go to school, in the evening, I watch YouTube or Vine, post on Facebook, and check Twitter the last thing before I go to bed.”

(Digital Youth Seattle Think Tank Youth Panel Participant)

Every generation faces a world different from previous ones because that world is the culmination of all that came before. However, the pace of human discovery, invention, and innovation has accelerated exponentially over millennia. Today—in the early 21st century—we live in an increasingly digital environment. This environment is characterized by instant and continual access to information of all kinds, improved tools for creating, processing, and making sense of information, and new capabilities for communicating and sharing information with anyone, anywhere, at any time. For those of us concerned about the lives, education, and aspirations of young people, understanding the nature and scope of these revolutionary developments and their impact on every aspect of life is crucial.

Igniting ideas, sharing contexts, and sparking change were the driving motivations for the Digital Youth Seattle Think Tank (DYSTT). On October 16–17, 2014, the Information School (iSchool) at the University of Washington hosted an invitation-only event, bringing together thought leaders in the areas of policy, research, and practice to exchange ideas and experiences, brainstorm research agendas, and confront obstacles in the practice of study and learning from digital youth. Funding from the Institute of Museum and Library Services (IMLS), with additional support from Facebook, King County Library System, Microsoft Research, and Seattle Public Library, supported this event.

It is not easy for youth today to grow up in an increasingly digital environment that is constantly changing (Gardner & Davis, 2013). The study and reflection of scholars and practitioners on the nature and scope of digital advances is crucial to understanding the impact of the digital world on young people, and necessary to providing better learning opportunities and support services to young people for learning and living in the digital age. Over the course of a day and a half, the DYSTT attendees engaged in highly interactive formal and informal sessions including a keynote, a youth panel, featured speakers’ panels, and discussion breakouts.
‘Understanding Change’ was the theme of Dr. Michael B. Eisenberg’s opening keynote—drawing on Dr. Eliza Dresang’s (1999) Radical Change theory to explain three keys ways in which today’s youth drive and are affected by technological change. In our information society, Radical Change addresses how youth innovate and experience change vis-a-vis:

- **forms**: the technologies the various media use for information storage, process, use, and sharing;
- **perspectives**: the people, including new voices, not just the mass media and other gatekeepers, but also those previously unheard such as young people themselves; and,
- **boundaries**: content (e.g., subjects, settings, characters) and other previously forbidden or overlooked areas.

Radical Change proved useful in introducing the Think Tank’s six areas of foci. These focal areas were selected based on extensive consultation and interviews conducted over the summer with scholars and practitioners. Key themes were distilled from the interviews and were used to structure interactive work sessions for creating action plans and agendas. Our six areas of focus were:

- Digital and Information Literacies
- Formal and Informal Learning
- Games and Learning
- Mind, Brain and Behavior
- Social and Mobile Media
- Information and Digital Policy
The keynote concluded by calling educators, researchers, and policy-makers to action, to become the strongest advocates for youth. Researchers and practitioners need to better explain to multiple audiences the scope of the topics involved, the complexity of the issues and concerns, the processes of youth behaviors, and the capabilities and opportunities for learning and socialization afforded with technologies. Today’s youth are not ‘digital zombies’ with their eyeballs glued to screens of varying sizes. They are caring, thinking individuals who are trying to cope in a world very different from that of their parents; a world that continues to develop, innovate, and change at an accelerating pace. This is not a fact to be acknowledged and ignored. It is a fact that changes every aspect of learning, knowing, and doing in our society. However, we do acknowledge the controversy and difficulty of the issues surrounding privacy, cyberbullying, media addiction, and other complex topics surrounding digital youth. Research should expand what we know and identify what we need to learn more about, tackle the hard questions, and fully report results and implications—even when those results and implications are unpopular.

Lastly, advocating and championing for youth means taking on a number of challenges. We must fight for equal access and opportunity for youth. To understand youth in a digital age, we must seek validated knowledge—regardless of pros/cons and being popular or not—and rigorous and ambitious inquiry. We cannot be afraid of trying new things. But all the while, we must be cognizant of safety, privacy, and security when it comes to digital youth.
The Youth Panel: The Main Event

“Without technology I’d feel lonely because my close friends are apart from me in another area of the state, and my parents are not always home. Without technology I’d feel alone a lot of the time.”

(Digital Youth Seattle Think Tank Youth Panel Participant)

Overview

The keynote set the tone for thinking boldly and broadly. However, the next session—the moderated Youth Panel—stole the show. This portion of the DYSTT captivated and energized all attendees by immediately bringing young people’s voices into the conversation and centering attention on their perspectives. The ethnic, economic, and situational diversity of the panel and the deep insights the youth provided highlighted the importance of issues of access, opportunity, behavior, and policy. And, as hoped, the points and perceptions offered by the youth participants influenced the discussions and interactions of all of the panels and sessions that followed.

The youth panel included eight Seattle-area high school students representing diverse socioeconomic, racial, and ethnic backgrounds. The two moderators were Mr. Lassana Magassa, a PhD candidate at the University of Washington Information School, who had worked with four of the panelists as part of the UW InfoMe research study, and Mr. Jeff Tillinghast, Director of Academic Technology at University Prep, an independent high school in Seattle attended by four of the panelists.
Themes

We invited the teen panelists to reflect on how they use digital media in various aspects of their lives, including social relationships, learning, self-expression, and fun. The teens’ responses surfaced several issues related to their use of technology and its role in various aspects of their lives (Moreno, Davis, & Mills, 2014). Notable themes included the inherently social nature of teens’ media use; pressure and anxiety associated with constant connectivity; the unwritten rules of social media sites; strategies for limiting media use; cyberbullying and drama; and technology use in schools.

The Inherently Social Nature of Teens’ Media Use

First and foremost, the youth panelists were, like most teens living in the U.S., avid users of technology. As one teen noted: “I live and breathe technology, I get up in the morning and check Twitter, I go to school, in the evening I watch YouTube or Vine, post on Facebook, and check Twitter the last thing before I go to bed.” As this quote illustrates, much of teens’ digital media use revolves around social interaction. Another teen noted that her phone provides her with an instant connection to her friends, making it easier to coordinate getting together or, when getting together isn’t possible, to share thoughts, feelings, and experiences as they unfold. A third female panelist observed: “Technology opens doors, you can communicate. Like on Snapchat you can share what’s going on with friends really quickly and it lets them see what’s going on. You could just tell them. But it’s different when they can see it by sending them a photo. You can share more of your life. Like, I can take a picture of being on this panel and send it to them.”

When asked what their lives would be like without technology, the words ‘boring’ and ‘lonely’ were repeated down the line of panelists. One girl attending high school in a low socioeconomic neighborhood explained that when she goes home after school she is usually the only one in the house for several hours, as her parents work late. She uses social media to connect with friends and family, preventing her from feeling lonely while home alone. “Without technology,” she said, “I’d feel alone a lot of the time.” Moreover, since her extended family lives in Myanmar, she relies on networked technologies to stay in touch with them. This was also true for the three other panelists who had recently immigrated to the United States. There were clear differences in the relevance of using digital technologies for those students coming from low-income communities compared to those from the more affluent neighborhood and school. This distinction fell clearly on racialized lines of division related to recent immigration status and the location of the extended family with whom these young people communicated. The social, cultural, and economic conditions of these students’ lives meant that the importance of digital technology and social media made sharing and communicating quick, easy, and possible when it might otherwise not be.
Pressure and Anxiety Associated with Constant Connectivity

In addition to feeling bored and lonely without technology, some teens said they would also experience feelings of anxiety. This anxiety stems from the threat of being ‘left out’ of social interactions among their peer group. This observation underscores the fact that social and mobile media are not simply an entertaining addition to teens’ lives; in many respects, they represent the focal point of peer interactions among teens. Given the centrality of peer relationships during adolescence, it is not surprising that teens place such importance on being connected ‘24/7’ through their networked devices. For instance, one girl attending a highly selective private high school described a recent trip she had taken abroad, where she had to keep her phone off for the duration of the trip to avoid excessive international fees. She described feeling extremely anxious for the first several days, fearing that she was missing out on important conversations with her friends. She also worried that her friends would wonder why she wasn’t responding to their messages, and perhaps they might even get mad, even though she had told them that she would be out of the country and not reachable. Interestingly, by the end of her trip the girl said she no longer felt anxious. In fact, she described feeling a sense of freedom as a result of not feeling the pressure to be constantly monitoring social media and responding to messages.

The Unwritten Rules of Social Media

The expectation to be accessible 24/7 is just one of the unwritten rules of teens’ digital media use. The moderators then asked the teens to talk about what one does and does not do on social media. Their responses proved illuminating with respect to the social conventions that guide teens’ social media use. For instance, one male panelist observed: “On Instagram there’s the basic rule that you shouldn’t post more than one photo each day, but on Facebook you can post multiple times a day and that’s ok.” He explained how his Instagram use aligns with this convention: “For Instagram I have strategic posts, once a week, a really good photo where I did filters and planned it out.” He then pointed out how adults are typically unaware of such rules; as a result, they frequently—and unknowingly—embarrass themselves on social media: “At my house we have chickens and my mom is posting all these pictures of chickens on Instagram. So I was like, ’Mom, nobody wants to see so many photos of chickens!’ ” These observations illustrate the way in which teens create and use social conventions to guide their social media use, in the process carving out a teen space online that is removed from their parents and other adults.

Strategies for Limiting Media Use

We learned that teens are also creating rules for themselves offline to manage their technology use. These rules stem from teens’ recognition that constantly monitoring one’s phone for notifications can sometimes detract from the quality of their face-to-face interactions. One teen described the following rule that he and his friends devised: “My friends and I came up with this rule when we go to dinner at a restaurant we all put our phones in the middle of the table. If someone reaches out to answer a call or text they have to hold the full stack of phones, so that
they’ll be embarrassed holding this huge stack of phones.” Several teens said that their families had a ‘no devices at the dinner table’ rule for family meals. Instead of resisting such rules, the teen panelists seemed to welcome them as an effective—even necessary—way to guard the quality of in-person relationships.

Cyberbullying and ‘Drama’

In light of recent attention that cyberbullying has received from the popular media, schools, and concerned parents, moderators asked the teen panelists how they responded to this attention. Their responses suggest that adults’ messages about cyberbullying, though well intentioned, do not always reflect teens’ lived experiences. One panelist observed: “As teens our perception of cyberbullying is skewed right now; you hear things that could be bullying like, ‘don’t hit people’ but what about posting embarrassing photos?” This quote reflects the disjunction between adults’ understanding of cyberbullying and teens’ experiences of it. Often, these experiences come in many shades of grey. Indeed, teens will often use the term ‘drama’ to describe uncomfortable, tense, or challenging situations they’ve experienced online. One teen gave us an example of such drama: “Texting comes with read receipts and if you send a text and someone read it and didn’t respond this can lead to lots of drama and miscommunication.” This sort of drama may not rise to the level of cyberbullying as defined by adults, but at a time when peer group membership is of prime importance and romantic relationships are beginning to be explored, it represents a real source of stress in teens’ lives.

The teens also described what they termed ‘passive bullying’ that happens frequently on social media sites like Twitter and Instagram. Sometimes referred to as ‘sub-tweeting’ (when done on Twitter), passive bullying occurs when a person posts something mean about another person using veiled language so that people outside the social group (like parents and teachers) do not recognize the comment as hurtful. For instance, one panelist recounted a recent episode at his school in which a group of students set up a Twitter account to mock and harass certain girls based on their physical appearance. As troubling as this story is—not least because of its apparent commonness in middle and high school—this particular episode had a positive conclusion. Another group of students, troubled by the hateful Twitter posts, used their technological skills to hack the offending account. In addition, one of the students reported the abuse to Twitter. This response on the part of well-intentioned students illustrates the positive ways in which youth can—and do—focus their fluency with technology.

Technology in Schools

A final theme addressed in the panel concerned the variety of ways technology is used in schools. Two important insights emerged from this discussion. First, while the teens recognize the value of technology for learning, they are also wary of introducing new technologies simply because they’re new. One panelist reflected: “My school gave us all iPads but we still had to have textbooks. The iPad didn’t help with anything; it was like having a big phone that
couldn’t call. So now our backpacks were heavier but we didn’t really get any benefit.” Another panelist reflected on the importance of having teachers who have technological fluency: “Technology in classrooms doesn’t work if the teacher doesn’t know how to use it.” It is noteworthy that both of these comments were made by students attending an elite private high school that ensures students have access to all the latest technologies. In fact, one panelist went so far as to call her school’s provision of technology “excessive.”

In stark contrast, the panelists attending a considerably lower-resourced public school had little to say about the use of technology in their school, primarily because there was so little of it. One teen expressed a wish that his school would give students laptops that they could take home, because he does not own or have access to one currently. This deep disparity between public and private schools’ funding access to technology left a strong impression on the audience and surfaced repeatedly during the following day’s conversations. The disparity serves as a powerful reminder that there is no singular conception of ‘digital youth’ nor how digital tools are being used by youth or adopted for teaching and learning in schools.

**Takeaways**

The youth panel proved an effective way to ground our subsequent discussions in the actual experiences and opinions of young people. Listening to the teens talk about their digital media experiences underscored the fact that we cannot assume that we understand youth’s relationship with technology simply by observing their behavior from a distance. We need to talk with them and invite them to tell us what meaning they ascribe to their varied networked activities. If we take the time to listen, we’ll see that youth’s stance toward technology is variant, complex, and nuanced. The reflections that the teen panelists shared about the pressure to stay connected, the anxiety they experience when they’re disconnected, and the challenges associated with digital drama reveal an ambivalence towards technology that belies the stereotype and myths of the digital native. Such insight is crucial for practitioners, researchers, and policymakers to understand if they are going to succeed at leveraging new media technologies to support learning and development.
Our Focus Areas

Digital and Information Literacies

“I use online dictionaries during the day because English is not my first language.”

“Technology doesn’t work in every classroom, like, you don’t need technology for math class.”

(Digital Youth Seattle Think Tank Youth Panel Participants)

Overview

The Digital and Information Literacies area was facilitated by Dr. Henry Jenkins, Provost’s Professor of Communication and Journalism and Cinematic Arts at the University of Southern California’s Annenberg School for Communication and Journalism. The session was co-led by Dr. Mike Eisenberg, Dean and Professor Emeritus of the University of Washington iSchool.

Information has never been so abundant and accessible as it is in this age of Google and Wikipedia. The Internet has transformed the way young people search for, make use of, create, and disseminate information, opening up exciting new possibilities for teaching and learning. At the same time, the democratization of information production and consumption poses distinct challenges. How does one distinguish between credible and non-credible information online? What is the best way to manage information overload? How should claims to authorship and ownership be re-conceptualized in a copy-paste, remix culture? How do digital technologies bring new concepts of literacy to reading and the preparation to read?

In this session, participants explored these and other salient questions in light of existing research and best practices in the field of information and digital literacy. Drawing on this work, participants discussed the new literacies that have emerged with digital media technologies and considered their relationship to traditional conceptions of literacy. Particular attention was paid to identifying the ways that libraries support youth in becoming discerning consumers of online information as well as skilled and responsible creators and distributors of their own information.
Themes

The sessions attracted a large and diverse group of librarians, educators, and other practitioners, as well as academics, researchers, and policymakers. With the pre-conference questions in mind, the breakout sessions quickly dove deep into the topic. The following key themes emerged.

What is Literacy?

The breakout facilitator, Dr. Jenkins, raised the most seminal of questions—what do we mean by digital information literacies? He spoke further about "what's valuable in young people's lives." Terminology is an important question because words get used for programs, organizations, funding decisions, and policy. The difficulty of terminology also is that the nature of defining is a political act and can be contested.

The most important discussion about terminology came in examining what do we mean by ‘literacy.’ We might think of digital information literacies as a set of skills that transcend technology, as competencies and fluencies rather than technical things you do. But is the term ‘literacy’ a skill set or a toolkit? It’s important to connect literacy to educational standards, and to recognize that literacy is not just finding and using information, it’s being able to express and communicate. Information and media literacies seem to be recognized as important, but they don’t seem to be part of the formal education program. It’s always assumed that young people will acquire these capabilities. One way to look at this issue is to unpack literacy as a whole by thinking in terms of learning and how we can draw upon learning theory in order to build skills to navigate the world. More specifically, literacy can be expanded to finding, locating, evaluating, synthesizing, and using information (Eisenberg, 2008).

And what about the connection to reading and writing literacy—how does the traditional definition of literacy raise awareness of digital, information, and other forms of literacies?
There are now changing perceptions of what is meant by basic literacy today. For instance, computational literacy, data literacy, participatory media literacies (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2009), systems thinking, network building (e.g., different resources connected in social thinking), cultural competency (including the ability to look at information resources and recognize racism, cultural source/asset of where come from), and media or multi-modal literacy are all forms of new ways to examine literacy. Finally, in our conversations, there was also the recognition of the difference between literacy and fluency, specifically that fluency might be a more appropriate goal than literacy as students progress through their learning.

Means—How to Achieve Information and Digital Literacy

Despite the expansion of literacy, there are practical concerns about literacy that need to be examined. For instance, schools often focus on literacy very traditionally in terms of books and reading. What are alternatives? How do we connect skills together so that students are learning these skills when they don’t even realize it? One way to do that is by connecting youth interests to the wider world. Dr. Jenkins pointed out that we need all kinds of approaches—high tech, low tech, no tech interventions. He also noted that researchers are starting to create lesson plans based on research, but it can be difficult (or unhelpful) to hand these directly to practitioners.

Whatever we decide are the valued learnings, we must aim to reach every student in every school or community. All people must become literate in the process of information problem solving, and we must find formal and informal ways to ensure that all young people have the opportunities to learn. Educators need to be creative to make skills and technology learning relevant to students, particularly on multiple levels. In one example, Dr. Jenkins noted that the Chicago Public Library’s YouMedia Lab engages people at multiple levels. It’s not just one expert working with novices, it’s all kinds of expertise hanging out, messing around, and geeking out (Ito et al., 2009). As a result of this distribution, print books are being checked out to find more information and develop expertise.

As we think more about distributed expertise and connected learning, we asked the question: “Can you have a completely virtual learning laboratory?” Engagement is engagement, in the physical world or virtual world. It doesn’t necessarily require a physical component. Virtual resources, facilities, services, and programs can reach out to the larger community. Of course, this requires ensuring that all youth have access to devices and networks.

The Role of Libraries

The discussion considered both formal and informal means of reaching young people. Thinking of students, classes, and schools as communities is one way to start. The students are connected today in numerous ways, facilitated by technology. The formal learning
institutions (e.g., schools) should reflect this, and the informal institutions (e.g., libraries) can benefit as well.

Recognizing and building communities bridges the formal and informal. Dr. Jenkins pointed out that literacy gets ‘over-taught’ in schools while expressivity outside of school gets devalued, so that people think they can’t do this or aren’t good at it. Libraries are not bound by the same rules as schools, so they are more open to various forms of literacy and have more of a chance to teach literacy and love of literacy, such as children in libraries working on computer programming (Lamb & Johnson, 2011). However, we caution that libraries will not replace the K–12 education system, but that K–12 practitioners need to understand and incorporate informal learning more. The library stakeholder challenge is to be able to scale this vision up. Libraries are doing part of this work already, such as providing participatory sites for teen book reviews. But what percentage of potential teens take advantage of these opportunities, or how many libraries have programs of this kind?

Finally, it is important for libraries to be a content center. Some participants in our discussion stressed that connections to the content are more important than having the content itself. Libraries have always been about both—providing tangible collections, but also offering access to resources elsewhere (e.g., interlibrary loan, databases). The networking and access developments of the past 20 years (e.g., the web and Google) have fundamentally changed the situation, so that libraries have to determine the appropriate balance between owning content versus providing access to content.

**Equity**

All participants of the session recognized that equity of access to technology, facilities, and learning programs is a core issue. Ensuring access is the first, most basic necessity for every individual and group. Libraries play a major role, not just with traditional services of collecting, storing, and providing resources, but a long-standing history with a set of other roles—creating collaborative learning environments, providing tools and expertise, coordinating with other institutions—schools, community centers, religious organizations, and the home—to ensure equal access to opportunity. Finally, Dr. Jenkins reminded us that youth can be ‘network rich’ but ‘skills poor.’ It’s not just seeing a “book in one hand and mouse in the other.” So, equity is about providing opportunities for learning and multiple means of support as well as access to devices, resources, technologies, and tools (Neuman & Celano, 2012).

**Takeaways**

We believe there are three takeaways from this session. First, there have been many efforts by researchers, developers, professional organizations, educational institutions, education departments, and practitioners to explain information and digital literacy comprehensively and definitively. DYSTT participants seriously doubted whether it was possible or even
desirable to reach consensus on a universal definition or approach. The group questioned the value of expending time and energy to continually initiating processes to develop or revise standards. It also seemed pointless to continue to argue about the hierarchies of terminology, that is, is digital literacy a part of information literacy or vice versa? Rather, we recommend reviewing the existing models and frameworks in order to adopt and adapt to local needs and move forward with planning and delivering programs and services.

Second, to summarize key issues related to information and digital literacy, the participants coined the phrase, ‘the 6 E’s—equity, ethics, exploration, expression, expertise, and economics. As noted, equity of access must be a pre-requisite priority. Ethics should be translated into desirable behaviors and public policy. Exploration and expression refer to information creation, seeking, use, synthesis, and communication. Expertise today can be social or crowd-sourced not the sole capability of an ‘expert.’ Finally, economic concerns must be to provide wide-ranging programs that offer a range of formal and informal options through existing settings (e.g., schools, libraries, community organizations) and in new physical or virtual environments.

Finally, participants also argued for taking advantage of the changing technological landscape of our society by integrating new modes of work and interaction, (e.g., multi-modal communication, collaboration and community, online learning, telecommuting, crowd-sourcing, and social media) as part of information and digital literacy programs. We live in an increasingly bottom-up, participatory culture—in society, but also in corporate or commercial situations (Jenkins, 2006). Schools and educational institutions on all levels have yet to embrace this and make it part of their culture and modus operandi. We as educators need to look at the big picture and set up our institutions to focus on enhancing citizenship, communication, and culture in digital youth.
Formal and Informal Learning

“Technology in classrooms doesn’t work if the teacher doesn’t know how to use it.”

(Digital Youth Seattle Think Tank Youth Panel Participant)

Overview

The sessions on Formal and Informal Learning were led by Dr. Allison Druin, Chief Futurist for the University of Maryland’s Division of Research and Professor in the iSchool and Researcher in the Human-Computer Interaction Lab. J. Elizabeth (Liz) Mills, Doctoral Candidate at the University of Washington iSchool, co-led the session.

Formal and informal learning spaces encompass much of the spaces where young people encounter information and gain knowledge. Digital media technologies accentuate the variety of ways and venues in which young people learn. Within formal learning environments, students can enjoy unprecedented access to information using powerful search engines and crowd-sourcing platforms; engage in collaborative learning experiences using wikis and blogs; and experience individualized instruction using adaptive educational software programs. With respect to informal learning, the Internet enables youth to pursue their personal, unique interests and connect with others who share those interests in unlimited spaces. There are many issues to consider regarding formal and informal learning, including the perception of informal learning being considered fun and more desirable than formal learning, as well as the problems inherent in this binary distinction. Though young people spend a portion of their days and months in formal learning environments, they spend a far greater amount of their waking hours in one form of informal learning environment or another. Therefore, we need a greater understanding around what informal learning is, as well as a recognition that people are learning all the time.
Featured speaker Dr. Allison Druin chose a unique format for the morning and afternoon breakout sessions that enabled both large group discussion and small group work around specific design exercises. These exercises were intended to enable deep and spontaneous conversation around an idea while participating in an activity.

The morning session first discussed the terms ‘formal’ and ‘informal’ with respect to learning and explored the various issues around such a distinction. Participants also discussed the idea of blurring these distinctions to avoid creating an imaginary divide between what we understand ‘formal’ and ‘informal’ learning to be. This divide can be problematic and privilege one kind of learning over another; it is important to also value the learning that goes on at home. Participants were then asked to contemplate the following hypothetical question:

We are planning to propose 7 projects looking at formal and informal learning to be funded by IMLS, NSF, the Department of Education, and the White House. What can we tell and create to support these projects?

The afternoon discussion built on the morning session by first identifying personal learning heroes from formal and informal learning environments and listing relevant and common traits to those heroes, describing individuals who display passion and curiosity, a fearless and unexpected nature that is nonlinear and iterative, and a tendency to be community-focused, collaborative, and interdisciplinary. The group was then asked to reflect on a follow-up hypothetical question:

You have an opportunity to present an idea or project to Bill Gates, Sergey Brin, Michelle Obama, and Arnie Duncan related to a resource that will really change things so that we can create learning heroes. What would it be?

Themes

Due to the design focus of the sessions, the interactions and conversations were lively and dynamic, enabling participants to consider a variety of interconnected themes.

Bridging Formal and Informal Learning

A key focus was the all-too-frequent disconnect between the learning that young people pursue informally with digital media in places such as libraries and museums and the learning that occurs (or fails to occur) in school (Davis & Fullerton, 2016). Participants considered what research suggests about how to bridge the gap between formal and informal learning, and identified areas for future research. Participants agreed that engagement is key to finding ways to bridge kids’ passion-driven learning and the learning that happens in school (Ito et al., 2013). We need to find a way, perhaps through digital badges (Riconscente, Kamarainen, & Honey, 2013), to acknowledge and communicate expertise in out-of-school activities. And
interest-driven learning can reframe learning into personal challenges that tweens and teens can choose and that promote connection to the community.

Technology and Families

One group discussed how youth information behaviors are changing in environments afforded by digital media technologies; how youth benefit most from these opportunities; and how to expand opportunities for underrepresented youth. The idea of whole family support with respect to technology was particularly salient to this discussion. When we actively invite parents and families to use technology together in informal learning environments, rather than restricting the technology ‘for educational purposes only,’ we enable families to learn together, which is especially important for low-income and immigrant families who may have varied experience and expertise with the technology. Children have the opportunity to shine here as teachers and take on meaningful roles as instructors as well as learners.

Learning Heroes

The afternoon discussion about learning heroes centered on the idea that a learning hero is someone who enhances the informal learning experience and can act as a bridge between formal and informal learning. Learning heroes can be people who come from the spaces in which youth engage and interact outside of formal learning environments, who support collaboration, assessment, and development between formal and informal learning to create a more effective system. Learning heroes can also help children build resilience and grit to promote independent learning and localize the learning in community culture. Learning happens in different places and different times and learning heroes can help promote innovation in these various learning spaces. One group discussed the important role that mentors—especially librarians, teachers, and peers—can play in this learning through collaboration. Experts or educators from non-school settings can help to establish a ‘culture of care’ to help low-income students feel valued in a formal learning setting and help to bridge formal and informal spaces. We can also see opportunities for intergenerational learning through collaboration with learning heroes. In many cases, children are already engaged in informal learning activities; learning heroes can leverage that existing interest to enhance learning opportunities for youth.

Some participants also pointed out that technology is not necessarily the answer, as not all youth use or have access to technology in their formal and informal learning spaces (Ito et al., 2013). People are just as important, if not more important, in a child’s learning trajectory.

Takeaways

The importance of collaboration, intergenerational learning, and the creation of independent learners through intrinsic motivation and building resilience and grit were some important
takeaways for the group. Libraries and librarians were repeatedly identified as potential and existing partners in this quest to bridge formal and informal learning and help teens to connect with each other and with the material in school in an informal way. The group also discussed actions, such as engagement with youth around things that they care about; taking existing artifacts and meaningful items and transforming them; creating a creative space with people who care about youth; enabling formal settings to be transformed by informal settings; and a greater collaboration with librarians as relevant and intrinsic to making learning meaningful for young people.

Much of the discussion around formal and informal learning surfaced ideas, problems, and solutions that were not necessarily new; however there was renewed interest and focus on implementing these ideas and finding new ways to address these problems. Everyone felt that the resources exist to improve children’s learning, but perhaps they have not been brought together in an intentional way. And collaboration may be one way to do this—collaboration across existing silos such as research, policy, and practice. More research is needed into how technology can add value, offer opportunities to create and contribute, and enhance the learning that is already taking place.
Games and Learning

“Without technology I would not have as much connection to my friends. We as teens are much more scheduled nowadays. I have school and then sports practice and then hours of homework. My schedule doesn’t leave me much time for interacting with friends and my friends don’t live near me and I don’t have a driver’s license, so if I didn’t have this it would be harder to interact with them.”

(Digital Youth Seattle Think Tank Youth Panel Participant)

Overview

Dr. Kurt Squire, Professor of Digital Media in the Department of Curriculum & Instruction at the University of Wisconsin-Madison, led the Games and Learning sessions. Dr. Jason Yip, Assistant Professor, University of Washington iSchool, co-led the session.

Just about all youth play video games, no matter their gender, race, or socioeconomic status (Lenhart, 2009). Games of all genres, styles, themes, and interactions surround us on multiple technical platforms. Rideout (2015) reports that youth distinguish different kinds of digital gameplay, such as console gamers, mobile gamers, and computer gamers. For tweens (ages 8–12), 23% are console gamers (playing an average of 2:10 hours per day) and 14% are mobile gamers (playing an average of 1:44 hours per day). For teens (ages 13–18), 20% identify themselves as computer gamers (playing an average of 2:27 hours per day).

With these trends in gaming, concerns from parents, caregivers, educators, and policy makers exist that games distract youth from their schoolwork, undermine their social skills, and promote violence, racism, and misogyny. At the same time, it is also hard to deny that gaming is intensely engaging and rewarding for young people. In recent years, researchers, game designers, and educators have begun to explore ways to tap into the power of games to promote youth learning and development in both game and non-game environments.

In this session, participants considered the specific qualities that make games so motivating, identified key insights from existing research on games, and discussed implications for learning and libraries. The diverse participants came from libraries, games and media scholarship, information science, policy, education, and nonprofit foundations. The sessions were structured as an open dialogue about issues, trends, and concerns in games and learning. After initial conversation, participants came together in groups to create posters about important ideas emerging from the dialogue.
Themes

Access

The digital divide was an important issue in the discussions. For instance, how do we provide equal access to games and learning to youth if they do not have the technological infrastructure in their schools and/or quality social access (e.g., programs, curriculum)?

Based on the youth panel discussion, we observed the divide in that privileged youth may be trusted more with technology and given more agency. Discrepancies exist in terms of what is permitted in schools with technology in privileged communities. For example, participants in the youth panel session noted that public schools have less trust in children. Wireless networks and simply getting onto the Internet are often hurdles in lower socioeconomic schools, which can make any attempt at innovative gaming for learning difficult to implement (Davis & Fullerton, 2016). We also know from research that non-dominant communities are more likely to purchase mobile devices and tablets (e.g., Lee & Barron, 2015; Lopez, Gonzalez-Barrera, & Patten, 2013). In particular, digital games like Civilization, Sim City, and Minecraft may be more optimal on more powerful machines (e.g., PCs, laptops), than mobile versions with fewer features. For instance, Pocket Minecraft (mobile) compared to PC and console versions of Minecraft, is limited when it comes to functionality, like larger multiplayer and modifications in PC versions. Overall, we all asked the question: will digital games and learning just perpetuate the problems in the digital divide in schools if we begin to introduce more digital games-based learning initiatives and curricula to the classroom?

Changing Formal and Informal Learning Structures

Many participants in the session wanted to think about the structure of digital games as a design metaphor for rethinking formal education and informal learning. Participants wanted a way to indicate this way of thinking as different from gamification; we called it ‘gameful design.’ Gamification focuses on the elements and mechanics of gameplay design and integrating them into non-game activities, such as earning points, increased competition, and unlocking achievements. Dr. Mike Eisenberg, in his keynote address, noted the relevance of game mechanics to learning, such as the option to redo and learn from mistakes, leveling up as a form of assessment, and constructing and building up (adding, rather than subtracting). However, gameful design requires a deep rethinking of why people do things and how the activity systems are structured in learning environment.

Gameful design is an examination of how assignments are structured and what the goal structures are right from the ground up. Whether we think of gamification or gameful design for educators and designers, we need to ask: what is ‘good’ and ‘bad’ in games and learning? Can we even agree and define what this is? We noted that this question is difficult to answer, simply because characteristics of the context and participants matter. In games and learning,
we need to acknowledge the ‘hype curve’ and that while innovative as a tool, games are not a silver bullet to solve all learning challenges.

Libraries as Partners in Learning

When people think of digital games and libraries, it might be like oil and water. Some might perceive digital games as loud, psychedelic, entertaining, and fun, while libraries are quiet, academic, and a sanctuary away from digital distractions. However, libraries are not just knowledge and information hubs, they can be digital social hubs in helping to think about ways in which informal engagements around learning can exist (Braun, Hartman, Hughes-Hassell, & Kumasi, 2014). For digital games, there is a social element to gaming and learning that often happens best in collaborative situations. Technology can bring people together and have a positive impact on learning. Libraries are poised as strong positional partners for learning through social gaming. For instance, King County Library system in the Seattle area has Game On game nights (both digital and non-digital) that function as a way to gather youth together. Libraries are seen now as a central place for safe gathering and introducing families to resources. Soon, shifts will occur from game play to game creation, such as the introduction of maker-spaces in libraries. These new forms of technologies are destabilizing how people conceptualize the role and definition of libraries and librarians.

Gender and Gaming

At the DYIT youth panel, one female teen panelist stated her fears about being a girl in an online game space due to the harassment and misogyny prevalent in those communities. Her statement was quite powerful and influenced the discussion about Gamergate and inequities when it comes to games and learning. For instance, the discussion about libraries and gaming invited questions about participation, such as how can libraries be inclusive spaces for all in digital games? The dominant group that comes to Game On is middle-school boys. However, girls who do attend Game On can jump in to play the games. Libraries are asking what games will draw more girls to these spaces and how can gaming in libraries promote intergenerational gaming and learning together? Anecdotally from the discussion, games like Dance, Dance Revolution tended to draw more girls at the Game On event. Supporting girls’ gameplay also involves ensuring that girl-friendly (and possibly girl-segregated) spaces are available for girls to build their skills, confidence and identities within the predominantly boy-culture of videogames (Jenson & de Castell, 2008).

Takeaways

Although it is difficult to summarize the entire field of games and learning in two sessions, digital games reflect many of the rising issues surrounding technology and learning. We have to understand the double edge sword that plays out. In each of the four main points (access, informal/formal learning, libraries, gender), new issues arise as games are introduced for learning. While games might support promotion of learning in the classroom, new digital
divide issue and gender disparities may take place as digital games become more widely adopted.

When we talk about games as changing formal and informal learning spaces, we need to think about the context in which the games are situated and for whom games are beneficial (as opposed to games being beneficial for all). With respect to the changing landscape of libraries in particular, we need to figure out if games belong in libraries. If they do, how should librarians engage youth in games and learning? Overall, games and learning is not about finding the next best tool for learning, but considering carefully how context and situation influence socio-technical systems.¹

Mind, Brain and Behavior

“I use Tumblr for entertainment, I use it in the half hour before bed to unwind so I don’t go to bed thinking about my homework.”

(Digital Youth Seattle Think Tank Youth Panel Participant)

Overview

The Mind, Brain and Behavior area was led by Dr. Joanna Christodoulou, Ed.D, Assistant Professor, Massachusetts General Hospital Institute of Health Professions and Affiliate, Massachusetts Institute of Technology and Harvard Graduate School of Education. She studies the brain-behavior relationship underlying typical and atypical reading development and their implications for education and clinical practice. The sessions were co-led by Dr. Katie Davis, Assistant Professor, University of Washington iSchool.

The Mind, Brain and Behavior breakout groups explored the current state of mind, brain and behavior research as it relates to the impact of technology on child and adolescent development. A leading scholar in this area, Christodoulou gave participants an overview of the main techniques researchers use to study the brain and its relationship to human cognition and behavior, as well as how environmental factors—including digital media technologies—affect brain activity. Functional magnetic resonance imaging (fMRI) is among the most commonly used tools; as a neuroimaging tool, information about the brain’s structure and function can be collected using radio waves and magnetic fields while participants in studies lie comfortably in the brain scanner. Christodoulou used this overview of the field to set realistic expectations with respect to what it can and cannot tell us about digital media’s impact on children. Though technologies such as fMRI have greatly enhanced neuroscientists’ ability to study the brain’s processes, there remains much we do not know about how these processes relate to cognition and behavior, and furthermore how results may inform clinical or educational practices.

Themes

With the stage set in this way, Dr. Christodoulou invited participants to share their questions, concerns, and interests related to the intersection between digital media and the brain. The primary themes that emerged during our discussions included: (1) multi-tasking, daydreaming, and empathy; (2) technology’s role in supporting individualized learning; and (3) the impact of video games on children’s brains.

Multi-tasking, Daydreaming, and Empathy

There was much discussion about young people’s disposition toward media multi-tasking. Participants were interested in what neuroscience has to say about whether young people are
more capable of multi-tasking than adults, as common wisdom would suggest. This turns out not to be the case; existing research suggests that we’re all quite bad at multi-tasking, regardless of age (Ophir, Nass, & Wagner, 2009). In fact, there is research showing that the worst multi-taskers are those people who self-identify as regular media multi-taskers. Our poor performance at multi-tasking is attributable to the fact that our brains are built to focus on one thing at a time. In this sense, multi-tasking is really a rapid switching back and forth between activities. The one group of people who appear to be better than most at this rapid switching back and forth are those who regularly play first-person shooter games (Green & Bavelier, 2006; Green, Pouget, & Bavelier, 2010).

Our skills at multi-tasking aside, participants were also interested in the impact of multi-tasking behaviors on other aspects of experience. In particular, several participants observed that social and mobile media make it possible for us to fill up all our downtime with activity. Whether we’re waiting for the bus, sitting in a doctor’s office, or waiting in the checkout line at the grocery store, we can turn to our phones instead of our thoughts to keep us occupied. There was a sense among participants that something important is lost as a result. Dr. Christodoulou shared findings from neuroscience that prove particularly illuminating. She described a system in the brain called the ‘default mode.’ As the name suggests, this brain system is active when our thoughts are turned inward, for instance, when we are daydreaming or engaged in reflection. When our attention is focused outward on our phones, there is less opportunity for the default mode to become active. The implications are significant, because the default mode is associated with the development of empathy, self-understanding, abstract thinking, and memory (Immordino-Yang, Christodoulou, & Singh, 2012). In fact, Christodoulou described recent research showing a negative correlation between multi-tasking behaviors and individuals’ socio-emotional skills (Becker, Alzahabi, & Hopwood, 2013; Pea et al., 2012).

Technology’s Role in Supporting Individualized Learning

We have known for a long time that no two learners are identical and that a one-size-fits-all approach to instruction is bound to fail many children. The advent of digital media technologies has introduced exciting new possibilities for individualizing learning and instruction (Davis & Gardner, 2012). To that end, several participants—including educators and youth librarians—were interested in what the field of mind, brain and behavior has to say about using technology to support the specific needs of diverse learners. Christodoulou shared research demonstrating the potential for digital media technologies to support individualized learning. In one study, for instance, researchers assigned struggling and normal ability readers to use either an iPod or printed text to read a passage (Schneps, Thomson, Chen, Sonnert, & Pomplun, 2013). They found that struggling readers performed considerably better when reading on an iPod, whereas normal ability readers performed better with print. The logic behind this finding is that the iPod’s narrowed field of vision helped struggling readers to focus their attention. For normal ability readers who did not need help focusing attention, the narrowed field of vision simply slowed them down. This research contributes to our understanding of the systems that underlie reading fluency across
ability levels and how reading with different media affects those systems. It is just one example of many where the affordances and flexibility of new media technologies is being leveraged to support the full range of how children learn.

The Impact of Video Games on Children's Brains

Participants expressed considerable confusion and ambivalence with respect to the topic of video games and their effects on developing brains. On the one hand, there was concern about the violence and misogyny embedded in some video games, as well as the risks of becoming addicted to gaming. On the other hand, participants pointed to popular games like Minecraft and Civilization and wondered if such games could support learning and development. Christodoulou pointed to a research study that explored the relationship between playing games and reading ability among elementary students (Franceschini et al., 2013). The researchers found that playing action games improved students’ reading ability, while playing non-action games had no effect, and linked this not to video-game playing per se, but rather to the training of the visual-attention system that supports reading. As mentioned above, there is also research demonstrating that playing first-person shooter games strengthens certain executive function skills, such as focused attention, task-switching, and cognitive flexibility (Green & Bavelier, 2006; Green et al., 2010). This body of research suggests that certain types of games have potential to support certain kinds of skill development (Granic, Lobel, & Engels, 2014). It also points to the need for considerably more research in this area, as the ratio of open questions to empirical evidence remains large.

With respect to the negative effects of video games, questions about whether video games are addictive or whether they promote violence are not as straightforward as one might think based on popular accounts in the media. For certain individuals growing up in certain environments, playing games may interact negatively with the already violent surroundings in which they find themselves. Similarly, while video game addiction is a real phenomenon, by no means is it the case that all children are similarly at risk. This point underscores the importance of recognizing that brains aren’t autonomous organs detached from bodies and environments. The impact of any technology on the brain’s processes will be mediated by a person’s interpersonal relationships and socio-cultural context.

Takeaways

Is technology rewiring our brains? This is a question that seems to fascinate our society. Participants in the Mind, Brain and Behavior breakout groups learned that the answer to this question is: Of course, but every experience we have rewires our brains to some extent and in certain ways. Therefore, the question becomes not whether technology rewires the brain but how and with what effect on our cognition and behavior. Though the field of neuroscience is making great strides in answering such questions, there is still a lot that neuroscience can’t tell us about the impact of technology on learning and development. In other words, the bridge linking neuroscience research to digital media and educational practice is not yet complete.
Social and Mobile Media

“Twitter is the site I consider most universal; you can connect to friends in real life, but also follow famous people, and people post links to Instagram or YouTube, so it’s probably most universal.”

(Digital Youth Seattle Think Tank Youth Panel Participants)

Overview

The discussions on social and mobile media were led by Dr. S. Craig Watkins, Professor in the Department of Radio-Television-Film at the University of Texas, Austin. Dr. Watkins’ research is focused on digital media, learning and mobile technologies, including the use of social media and mobile phones by young people. His work addresses social inequality in schools and in informal learning environments. Dr. Negin Dahya, Assistant Professor at the University of Washington iSchool co-led the session.

Social media platforms have become central to the way today’s digital youth conduct their interpersonal relationships. Increasingly, youth are accessing social media sites via mobile phones. According to the Pew Internet & American Life Project (Lenhart, 2015), roughly three-quarters of American young people own a cell phone or have access to one; ninety-one percent of teens go online at least occasionally using a mobile device. Of those who are considered ‘mobile teens’ the vast majority (ninety-four percent) use their mobile devices to go online daily. For youth aged 13–17, Facebook is the most popular site, followed by Instagram and Snapchat (Lenhart, 2015). Participants in this session considered the opportunities and challenges associated with youth’s social and mobile media. In particular, participants were interested to understand if and how social and mobile media can be used to increase access to libraries. Participants discussed research, identified areas for future
work, and explored ways to use these tools to support youth to build relationships and engage in learning activities.

The Social and Mobile Media breakout groups aimed to design conceptually effective ways to use social and mobile media to solve local community problems. Dr. Watkins opened the discussion with a brainstorming session about social and mobile media-related topics that impact young people, from the perspective of the educators, researchers, librarians and technology professionals in the group. The factors identified by participants as important included: how to engage parents in productive uses of social and mobile media; how to use social and mobile media for social activism and community engagement; and the role of social media in formal education. In addition, participants expressed an interest in better understanding youth behavior online, and learning how to create safer spaces in social media, as well as general concerns related to access and equity for young people in under-resourced schools and communities. The following summary points highlight the most salient aspects of these discussions and efforts to design social and mobile media-based initiatives.

**Themes**

**Challenging Ambivalence**

Participants expressed ambivalent perspectives on social and mobile media use by young people. They were unclear about the accuracy of statistics related to who is using which types of social media and how much, who has access to what kind of technology, and to what extent communication on social media platforms or other mobile applications impact, influence, and educate the young people who receive it. Participants in this session were focused on understanding positive and constructive uses for formal and informal learning. Many were surprised by the insights into uses of social and mobile media provided by the youth panel. Many of their comments were positive, showed self-awareness and self-regulation with social and mobile media, and were socially constructive. In effect, participants focused on how to maximize positive use of social and mobile media without getting lost in the wide avenue of possible negative engagements.

**Existing Applications of Social and Mobile Media**

Librarians and educators described the ways in which their organizations were using social media and access through mobile devices to communicate with young people. One librarian explained her use of a Facebook page to share updates about events and library initiatives with the community. She described her main challenge as one related to generating active responses from community members on that page to gauge their interests and needs. Rather, the Facebook page served as an efficient platform for outputting information, without clarity on the impact of those communications on community members. One of the school administrators explained her school’s use of social and mobile media as part of formal
education. In this example, the school used a social media for education platform (e.g., Twiducate, Wikispaces Classroom, Edmodo, Minecraft Edu) to engage students in schoolwork throughout their in-class and out-of-class time. Librarians and educators may need snapshot information about the effectiveness of outreach and social media sites for education in the classroom to make more informed decisions about their activities using these tools. In particular, librarians and educators may want to consider expanding beyond Facebook and its educational counterparts towards the more visually oriented platforms of Instagram and Snapchat as modes of communication with young people.

Bridging Formal and Informal Learning

One of the prevalent questions that emerged from these discussions asked about bridging formal and informal learning using social and mobile media. Participants were keen to understand the complexities and nuances of the informal and formal worlds of young people using these tools. Participants expressed concerns about young people ‘living in two dimensions’—the real world and the digital world. In this seemingly divided landscape, what kind of programming or initiatives bridge these worlds to enhance learning and engagement for young people?

Importantly, participants questioned how to use both social and mobile media freely without losing student attention to what they discussed as ‘useless content.’ More discussion about the subjectivity surrounding what might be ‘useless’ and what may serve an important social function for young people or adults is needed to reimagine the ‘bridge’ between formal and informal learning. In effect, more discussion about how to understand and overcome both real and imagined ‘divides’ between the physical and virtual worlds of young people (and arguably all digital technology users) is also needed.

In addition, participants considered the possibility of young people losing interest in social and mobile media platforms once they were formalized and used in school and libraries. The interest to spend time in these spaces—the informal learning that happens there (good and bad) was discussed as connected to the very reality that those spaces are not part of the formal schooling process. In this same vein, engaging parents and families in the use of social and mobile media for education, and encouraging them to also see these platforms and technologies as something more than distractions, was seen as pertinent to changing the landscape. This tension persisted throughout discussions about social and mobile media with regard to how such powerful tools can be harnessed for explicit, adult-oriented and educational purposes, without destroying the very qualities that make them interesting and engaging for young people.

Technologies: Messaging and Movements

As the session progressed, participants landed on a few key points as the focus for discussion and planning. The first related to the crafting of messages that would be suitable
for social media platforms and have real impact on the young people reading those messages. Here, the question became much more nuanced with regard to what kind of message was suitable for which platform. For example, participants recognized the relationship between form and content: different platforms and different devices carry cultural norms and practices; adults, parents, educators need to better understand these particularities in order to craft appropriate and effective messages and determine which platforms are appropriate for educational usage.

At the same time, participants recognized that the technology available and in use varies across communities (and sub-communities), and is constantly changing. In the end, the social and mobile media groups identified the need to ‘teach basic things about digital life’—to focus on root causes of problems and not get lost in the inconstant technologies in use. Rather, adults and youth together may need to focus on creating and supporting guidelines for kind, mindful, compassionate online engagements. A focal point of conversation was to teach young people problem solving skills to help circumvent the negative (e.g., time wasted online, bullying, harassment, etc.) and emphasize the positive possibilities and activities on social and mobile media. Finally, participants recognized the need to continue working on issues of poverty and inequality related to race, gender, sexuality, and ability with regard to access and participation in and with social and mobile media. No clear outcomes were identified with regard to using social and mobile media to mobilize young people towards educational content and informational communication.

**Takeaways**

The Social and Mobile Media sessions led to four key takeaways. First, social and mobile media and their related technological devices are used in different ways, to different degrees, across varied youth communities: there is no singular answer regarding ‘how to’ use social and mobile media for formal or informal learning. Second, technology is also changing rapidly. The focus of adult-educator energy and time might be better situated on core digital literacies and productive online citizenry rather than mastering any one (current) technology or platform.

Third, librarians are using and want to further harness the potential of social and mobile media to engage local youth communities. Adults who are constructing social media campaigns for libraries or using social media sites in school may want to co-design these initiatives with their target audience to ensure the appropriate tool is being used within their local social and cultural context. And finally, social and mobile mediascapes and ecologies necessarily include school, home, family, and friends as part of youth learning spaces and culture. The divide between school and the community—between formal and informal learning—is increasingly blurry. Engaging parents and families, libraries, and communities, in digital literacy and technological training programs may be crucial to the future of social and mobile media integration in education. Libraries can serve as a center point for such initiatives.
Information and Digital Policy

“We hear stories about cyberbullying leading to suicide and that doesn’t reach us, we didn’t experience that. Don’t just tell us the worst case scenario, tell us what cyberbullying is.”

(Digital Youth Seattle Think Tank Youth Panel Participant)

Overview

The Information and Digital Policy session was facilitated by Rane Johnson-Stempson, Principal Research Director and policy expert at Microsoft Research, where she engages with academics, government, industry and community worldwide, and identifies high-impact areas for research and development. Her current initiatives teach middle and high school girls coding and design, and focus on how technology can help eradicate human trafficking. Dr. Karen E. Fisher, Professor, University of Washington iSchool, co-led the session.

The Oxford Dictionaries (2015) define policy simply as “a course or principle of action adopted or proposed by a government, party, business, or individual,” the reality of policy-making, within any field, is a highly complex activity involving multiple stakeholders with sometimes unanticipated but long-ranging results.

In a pre-conference interview, Maura Marx, Acting Director, Institute of Museum and Library Services (IMLS), emphasized IMLS’s main policy focus of creating a nation of learners, of envisioning a democratic society where communities and individuals thrive with broad public access to knowledge, cultural heritage and lifelong learning. She shared the IMLS’s 2012-2016 Strategic Plan, Creating a Nation of Learners (IMLS, 2012), that identifies the agency’s mission to inspire libraries and museums to advance innovation, learning and civic
engagement by providing leadership through research and policy. With this strategic plan, the IMLS targets five strategic goals: learning, community, content, access, and model public agency that focus on achieving positive public outcomes for communities and individuals; supporting the unique role of museums and libraries in preserving and providing access to collections and content; and promoting library, museum, and information service policies that ensure access to information for all Americans and dedication to strengthening community. Given the IMLS focus on policy and trends reported in the literature for agencies to be keenly interested in outcomes, impact, and organization and stakeholder engagement; for legislation involving copyright and ownership; and for a plethora of other community, library, school, and familial cooperative-based questions, it was anticipated that the policy session would be busy.

However, commentary from the pre-conference interviews led Dr. Mike Eisenberg in his opening keynote to ask, “Why aren’t people more excited about policy?” Policy is driven by data, by research, by people’s behaviors, wants and needs. Policy drives decision-making and funding. Perhaps due to the richness of Digital Youth Seattle Think Tank topics and opportunity or maybe simply because policy is an area that people shy away from, the morning policy session was lowly attended, with no researchers present; the afternoon session drew ten activists, including researchers—after Rane Johnson-Stempson challenged all at the afternoon session kick-off to face their fears with policy, recognize its significance, and come participate.

The morning session comprised covering the nature of policy—how policy making occurs internally, within all types of organizations (government, industry, schools, NGOs) and at different levels of society (local, regional, state, national, international), and how it draws participation from multiple stakeholders. Referencing case studies, the session further covered how policy can be grassroots-driven or top-down, and how stakeholder participation models, from all stages of implementation, are needed to drive success. Discussion ensued about the factors that cause digital and information policy initiatives to fail and succeed. The afternoon policy session was highly hands-on with participants creating a policy agenda to promote digital literacy that emphasized youth safety and anti-bullying through the lens of vulnerable populations in schools.

**Themes**

The following themes emerged regarding information and digital policy throughout the Digital Youth Seattle Think Tank.

**Linking Stakeholders to Policy**

The primacy of policy in linking library research, the profession, industry, government, and other stakeholders was focal and deemed urgent. Calls were issued and red flags were waved for policy and policy-related terms and skills to be defined and taught across the field and for
researchers and associations (such as the American Library Association) to provide libraries with policy assets and tools that will enable their communication and impact on constituencies.

The Need for Policy Briefs

Along this line, participants urged for policy briefs, specifically: (1) policy briefs that provide libraries with official guidance—evidence-based, positioning statements that lead and inform practice, thus raising the profile of libraries and librarians; and (2) policy briefs that build a platform of research by integrating cognate briefs and creating new ones that inform broad audiences. In a pre-conference interview, Dr. June Abbas (University of Oklahoma) expressed the need for a clear understanding of policy work and a unified voice to influence results:

Policy initiative—so much that the White House is supporting with learning labs, maker-spaces and making programs is because they’re embracing the idea of formal versus informal learning and also the importance of digital literacies. But colleagues in libraries disagree: they say libraries were always maker-spaces and learning labs, that this isn’t new, it’s just now we’re getting recognition and funding to develop these programs even further. So, policy initiatives come and go, and they’re not always necessarily informed by research or by practice. So, I would love to see more policy brought in, more policy around how we can actually integrate these into our programs, rather than just developing projects all over. (...) It would be good to put people that have both of these enterprises together in a room so that they can crosspollinate their ideas. Getting the right people to actually talk to the policy makers would be very useful. But before we can get really involved in policy making, we have to understand ourselves, what it is we want to accomplish.

Inclusion and Connected Learning

The primary information and digital policy areas reflected interests in inclusion and connected learning—equity, access, community building, and the Common Core education standards. Participants repeatedly expressed such policy concerns as:

- How can we support all youth—ensure no swaths are left out?
- How can we tailor policy language to reflect most vulnerable families and non-mainstream, fringe communities?
- How can we reach youth via government, non-profits, and industry in key sectors, including education, health, labor and justice?
- How is access to Wi-Fi be a common cure? No one is creating nor managing it.
- How can libraries support information, digital, and other literacies of youth?
- How can libraries be part of youths’ connected learning, tie the library experience to youths’ other informal and formal learning?
Within these areas of inclusion and connected learning DYSTT participants focused further on what policies and policy work are necessary to move initiatives forward and asked

- How do we learn and translate policy?
- How does policy inform practice?
- How can we understand and learn from mistakes?

Participants identified privacy and social justice as policy areas that affect youth’s digital media activities—discussing the work of danah boyd, Mimi Ito, and others (e.g., boyd & Marwick, 2011; Dadlani, & Todd, 2016; Ito, et al., 2013; Marwick & boyd, 2014), and has deep impact on their social, moral, and academic development. Conflicting priorities and opportunities run strong, and privacy policy plays an important role in shaping young people’s online experiences.

The Annie E. Casey Foundation, the Aspen Institute, the Berkman Center for Internet & Society at Harvard University, the Bill and Melinda Gates Foundation, the Knight Foundation, the Pew Foundation, and the MacArthur Foundation have long-term interests in youth, privacy, social justice, and other related issues. Though certain policies, such as anti-cyberbullying laws, are important and valuable, others present distinct challenges to the way young people access and navigate online environments. For instance, many youth attending public school find that their use of digital media is highly curtailed by their school’s decision to block access to ‘harmful’ websites like Facebook, Twitter, and YouTube in order to do what they believe is necessary to qualify for funding from the federal E-Rate program. The Children’s Online Privacy Protection Act (COPPA), which was introduced to bar website operators from collecting personal information from children, has had the unintended consequence of encouraging many youth to lie about their age online in order to circumvent the age restrictions that sites put in place to comply with the federal law. Moreover, Dr. S. Craig Watkins (2011, 2012) has written that COPPA has had the effect of stymieing student learning, particularly in critical edge or fringe communities that comprise non-dominant youth.

Another policy touchstone pertained to the ethical components of research, beginning with such questions as, what are they and how do we address them? One identified approach included involving youth in designing policy-related activities, since they are the key stakeholders who have unique insight into the distinct challenges associated with their technology use. Several session members shared examples of research initiatives that include youth as co-participants, co-designers, and co-researchers (e.g., Fisher, Bishop, & Yefimova, 2016)—indicative of the increasing use of Design Thinking across libraries, facilitated by the recent
Design Thinking Toolkit developed by the Chicago Public Library, the Aarhus Public Library (Denmark), and the Bill and Melinda Gates Foundation Global Libraries Program.  

**Takeaways**

The key takeaway from the digital and information policy session is that major effort is needed across the field to establish a shared understanding of what policy comprises and to create both policy-related assets and norms for supporting the participation of stakeholders. Moreover, participants discussed how work that is policy-driven—research around harassment, intimidation, and cyberbullying—can be charged with implementing policy that is not well thought out. As Dr. Barry Fishman explained, what compounds the gap between policy and research is that the field needs to “figure out with funders what it means to do productive research: there’s a space for basic research, and there’s a space for application-oriented research, but there’s also space for (...) user-inspired research, which sort of overlaps the basic question, the implied question, and tried to contribute back to both.”

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2 For more information about the Design Thinking Toolkit, please see: [http://www.designthinkingforlibraries.com/](http://www.designthinkingforlibraries.com/)
Synthesis and Recommendations

In the area of digital youth, there are no simple answers to how or why young people use digital and social media, or its effects on their learning and development. One certainty further confirmed at the Digital Youth Seattle Think Tank is that literacy and learning are no longer confined to the walls of classrooms and the restrictions of the school day. Young people engage with each other and gather information online that relates directly and indirectly to learning and literacy. They are aware of the complexities of the digital media landscape and cognizant of the social (and anti-social) implications of being connected ‘24/7.’ These insights from the youth who participated in this event are an important reminder to engage young people in conversation about digital literacies, media education, and the role of technology in their lives. Doing so may reveal complex and nuanced differences within and across what are distinct digital and social media platforms, and for different communities of young people.

Indeed, while girls and boys from both an affluent private school and those from an under-resourced public school all indicated the importance of technology in their lives, the nature of this importance was distinctly different for each group and across in-school and out-of-school contexts. Though in-school usage of technology for the young people in the under-served area of Seattle was minimal, after-school use was important in unexpected social ways. For these students, whose parents and guardians worked nights, whose family members lived in other countries, and for whom English was not a first language, participation in online spaces using mobile devices contributed to maintaining communities and supporting learning.

For those young people in well-resourced environments, the particulars of different social media platforms and their informal rules was especially interesting. Their uncertainty about the advantages (or ‘overload’) of devices in school to enhance learning is worthy of attention. Good practices for integrating technology into teaching and learning are still needed to create meaningful educational engagements for students in schools. Students with access to technology do participate in a range of social media and use a variety of digital apps out-of-school already. Exploring the possibilities for leveraging these engagements for more deliberate educational intentions is at the forefront of researcher and practitioner agendas (Ito et al., 2013).

Considering that day-to-day experiences and uses of digital and social media shape and alter our brains all the time, understanding the role and particular tools in young people’s lives may help us understand how to improve education to meet them where they are. Given the changing scope of contemporary attentional economies (de Castell & Jenson, 2004), of where young people put their energy and focus, understanding the qualities of Twitter versus Facebook versus Instagram may matter more than only understanding social engagement and entertainment.
‘Edutainment’ in the form of educational digital games, social media platforms for education, and the integration of commercial games for formal learning all complicate the lines between what is in-school and what is out-of-school learning. Importantly, as these lines blur, adults also need to consider how to respect the privacy and independent spaces young people need to grow. Teaching responsible citizenry, online privacy and security, and balanced, critical, and self-aware participation in social and digital media are core competencies in the 21st century (James, 2014). Ensuring these broad and transferable skills are a part of teaching and learning in and out of school matters immensely.

Identifying how to use digital and social media for any particular information or learning requires depth of knowledge about the local and target community. It also means that adults do not necessarily need to infringe on the social spaces of young people, but may certainly want to ensure they/we understand them. Historically, schooling meant that generation after generation of people went to school, had recess and lunch on the playground, participated in sports, arts, and other activities, and endured social isolation or thrived as young leaders in the social and political microcosm that was ‘school.’ Generation after generation knew more or less what school entailed. Today, those walls are porous and rapidly filling with digital content and communities. Empathizing with and supporting young people through the current digital world may involve adult participation in the making of and playing games, using Twitter, becoming digitally literate, and identifying how and why these tools and their social spaces matter so much in the lives of young people. Adults do not need to infiltrate (or monitor) young people’s lives to better understand them; rather, they can focus on better engagement with young people that emphasizes responsible digital citizenry.

Although libraries were not widely discussed by the youth panel who participated in this event, we believe that libraries as institutions remain in a position to play a meaningful role in young people’s lives online and off (Braun et al., 2014). This gap may serve as a starting point for increasing library-based programs that enhance and enable formal and informal education using social and digital media. Social networks are powerful components of everyone’s lives, young and old. Tapping into the gatekeepers among youth communities and building programs with them to identify when and what types of information would be appropriate for the platforms they use might better ensure that those initiatives are meaningful and have impact. This might include a range of exploratory areas of research and practice, including:

- Examining the role of digital badges to recognize and connect young people’s achievements across formal and informal learning environments (Davis & Fullerton, 2016; Davis & Klein, 2015; Davis & Singh, 2015; Klein & Davis, 2016);
- Creating opportunities for co-designing with young people to create products and enact pedagogies that work for them (Yip et al., 2013; 2014; 2016);
- Understanding the role of young people, particularly ethnic minority and immigrant and refugees, as information mediaries, and their use of visual media to redefine the nature of information work (Bishop & Fisher, 2015; Fisher, Bishop, Magassa & Fawcett, 2014; Fisher, Bishop, & Yefimova, 2016); and,
• Unraveling the complex layers of ‘information,’ ‘representation,’ and ‘learning’ that are embedded in the digital visual worlds young people view and create (Dahya, 2016, in press; Dahya & Jenson, 2015).

Professionals at all levels of education and librarianship require additional technical training and also in that technical training opportunities to learn and think about socio-technical conditions. Socio-technical approaches recognize the mutually shaping effects of society and technology, and might serve to enrich ‘skills’ and ‘digital literacies’ with a view to core questions about how, what and why various digital media forms matter in the social world. These are core literacies needed for adults and young people alike in the midst of fast-changing technologies. Additionally, adults and young people within local institutions (like schools and libraries) can work together to create mutually agreed upon policy briefs that reflect the affordances and constraints of digital and social media. Doing so locally may help build regional policies that reflect community-based needs. Alternatively, given the changing scope of digital media, local policy briefs that are regularly updated may support more flexible approaches to how and when particular digital and social media forms are incorporated into formal and informal teaching and learning.
Bibliography


Appendices

DYSTT Videos

The DYSTT planning team contracted with Introvid Media to produce a short video with interviews from key Think Tank participants.

The full 9-minute video can be viewed on the Digital Youth Seattle Think Tank website at: http://dystt.ischool.uw.edu/

The playlist of short interview video clips can be viewed at: https://www.youtube.com/playlist?list=PLPnZfvKID1Siwu_j4wzwmznfx2sfiGi_Q

Video Participants

The following individuals graciously agreed to be recorded for our video:

- Katie Bessiere, Nickelodeon
- Dr. Harry Bruce, University of Washington
- Dr. Katie Davis, University of Washington
- Dr. Negin Dahya, University of Washington
- Dr. Allison Druin, University of Maryland
- Dr. Mike Eisenberg, University of Washington
- Dr. Henry Jenkins, University of Southern California
- Maura Marx, Institute of Museum and Library Services
- Catalina Naranjo-Bock, Google
- Dr. Kurt Squire, University of Wisconsin
- Rane Johnson Stems, Microsoft Research
- Dr. S. Craig Watkins, University of Texas
- Youth panel participants
Pre-Conference Interviews

Pre-Conference Interview Protocol

Thank you for taking the time to talk with me today. We will be publishing a white paper at the conclusion of the Think Tank event and so we are asking each interviewee for the permission to record these interviews. So before I start the recording, do we have your permission to record this interview? Now I am starting the recording. Once more for the recording, would you please confirm that you give consent for this interview to be recorded? Thank you!

So to get started…

1. Based on your responses to the survey, you indicated your area/interests as being [X]. What is the primary focus of your work/your institution’s work? What are the initiatives you’re currently working on/have worked on in the last few years?
2. What are some of the key milestones/benchmarks/insights/successes to date (in your work and the field)?
3. Where are the gaps/issues that remain that you think need continued emphasis?
4. What work is needed going forward for the field and where/how do you see yourself contributing to that?
5. These are the 6 areas of focus for the Think Tank:
   - Digital and Information Literacies
   - Formal and Informal Learning
   - Games and Learning
   - Mind, Brain and Behavior
   - Social and Mobile Media
   - Information and Digital Policy
5. Which topic interests you the most, even if it’s not the particular focus of your work? What about this topic would you hope we focus on in our breakout conversations (key questions you hope we address)?
7. One of the things we intend to explore in this Think Tank is the role of libraries in meeting the needs and interests of digital youth, as well as the implications for libraries of research, policy, and practice relating to digital youth. Do you see a relationship between your work and the role of libraries?

Thank you again for taking the time to speak with me today. I greatly appreciate you sharing your work and insights with us and I look forward to seeing you in October! Have a great rest of your day.
**Pre-Conference Interview Summary**

The pre-event interviews seeded background issues, concerns, and questions on information and digital literacies including:

- Recognizing the impact of different classroom practices on information literacy;
- Engaging students actively in a participatory learning and design approach;
- Emphasizing new ways of student expression through expanding capabilities of digital media production;
- Being able to provide more comprehensive ways in K-12 schools and beyond for students to gain digital literacies;
- Finding new ways to facilitate new media learning and;
- Understanding the major roles that libraries and librarians play, beyond offering instruction or facilities.

A strong point that arose during the pre-event interviews was the fact that the term ‘digital natives’ is not quite correct—these are learned behaviors for children, they’re not born knowing how to use technology, nor how to use it responsibly. However, every generation is born into a society with a certain set of available, baseline technology capabilities and tools. As humanity has progressed over thousands of years, so have the technologies, knowledge, skills, and tools. The innovations of one generation become the baseline for the next. Work in digital literacy learning involves:

- Identifying key technologies, knowledge, skills, and tools;
- Studying the nature, scope, and impact of these technologies, knowledge, and skills;
- Establishing goals for learning valued technologies, knowledge, skills, and tools; and,
- Designing, developing, and evaluating means for youth to gain knowledge and skills.

The interviews raised the anticipated questions about the nature and scope of information and digital literacies. This was also a hot topic in the breakout session discussions. But, the interviewees also raised issues concerning how we, as adults, are preparing youth for the kind of creation opportunities open to them. For example, not all teens are quick or able to adopt digital devices for reading; how do we support all teens and their choices?

This also led to questions about the roles of libraries and librarians. Some libraries are teaching youth how to evaluate their sources and upload their content safely. But how extensive is this among libraries and how many young people are learning these skills—through libraries or otherwise? Interviewees reported that there are maker-spaces and video production centers and STEM labs going at libraries and museums around the country. These are excellent examples of that intersection between formal and informal learning. Many respondents also raised concerns about equity and access and how libraries offer youth the opportunity to have access to technology and to learn these important skills no matter their background and means.
Pre-Conference Interview Themes and Word Clouds

Digital and Information Literacies

- New media production and youth
- Impact of different classroom practices on information literacy
- Dialogue around student engagement
- Discussion of different genres of producing information
- Offer digital literacies in K-12 in more comprehensive ways
- Need research on reading in digital formats
- Understand literacy from participatory approach
- Search online, assess, support, share work
- Administrators need to protect, foster, and facilitate new media learning
- How to teach searching and assessing credible information
- Design literacy teaching moments
- How to leverage trend of library as whole, leverage beyond existing library space

Formal and Informal Learning

- Information overload faced by families with respect to technology
- How to attract young people into these spaces, and despite varying levels of engagement allow them to have agency in learning and creating
- Challenge among formal educators of trying to address issues of equity
- How formal and informal learning spaces are able to work together
- Digital badges to identify the skills and competencies gained in informal learning
- Role of libraries for children and families, librarians as media mentors, site of informal learning
- What does learning look like? What about learning is important to us
- Big challenge for libraries: how to define themselves, learning and fun?
- What makes us important to lives of children and families
- How libraries implement a whole library approach at an everyday level, formally integrate connected learning
- People learning all the time—the binary nature of formal/informal might devalue learning that’s not formal. Identify learning across settings for people
Games and Learning

- Social aspects of game play and overlap with formal and informal learning, how kids learn with games
- Tech can bring people together, social aspects of technology design
- How to have positive impact on learning through educational technology
- Education involves youth, parents, policymakers
- Connected learning: what it means to be connected/engaged
- Need more work across integrated systems thinking, design-based approaches
- Learn from games to apply in learning design
- Gamification of books for kids, struggling readers versus sacrificing something, tension between fun and commercial
- Move beyond structured experience, exploratory practice, games and play with respect to learning. Narrow constructs of what constitutes a game
- What are the best devices for kids, the ones with the best security, the toughest, the most interactive? How do you find reviews?
- How to move beyond American Academy of Pediatrics (AAP) guidelines, have a balance, let parents make the choice and give them the tools to make the choice
- Understand the digital behaviors of youth

Mind, Brain and Behavior Research

- Gain greater understanding about how changes in tech might be compatible with how learning works?
- Different way of interacting with environment, development. How to translate in 20 years when tech is completely different
- How technology is affecting children: benefits, drawbacks, what we can do to mitigate.
- How does tech change the way people learn? How does this fit in with other aspects of education
- Need guidelines: need to better understand how children develop, design tech that grows with them
- Kids: doing a shallow dive, not engaging content
- How much tech is too much
- This connects to digital information literacy
- Interested in how mind/brain affects play, education, thinking, design
Digital and Information Policy

- Equity: how do we support, make sure we’re not leaving behind huge groups of people? Education, labor and employment, nonprofit: access to Wi-Fi
- Libraries need official guidance, position statement that can guide practice and be informed by research, an opportunity to raise the profile of libraries and librarians
- Literacies, acquisition. How can the work we do support this, be part of the network. How can we tie to formal learning
- Need policy brief
- How to build platform of research, work with policy briefs
- What policies lead to community building?
- Translate information policy
- Understand what we’ve done wrong in the past to change the future

Social and Mobile Media

- How to address equity gap?
- How to design, to better connect mind/brain
- Ethical components of research
- Explore culture of social and mobile media, use for more formal learning support, Facebook being used for online learning, Twitter in developing formal content.
- Formal and informal uses of social media, connectivity for mobile tech: what does this mean, potential use?
- Community management and building in social and mobile media
- What are other researchers doing in this area?
- What is the relationship between online and offline behavior in families?
- Digital world represents something different for youth who are surrounded by digital world
- How to address the disengagement in families with kids and devices
- How can libraries help with furthering family engagement?
- What are the game-changing tech platforms?
- Look at this through a different lens: real opportunities to help young people look at tech as powerful tools, be social innovators, take tools and make the world better
Featured Speakers

Joanna A. Christodoulou, MGH Institute of Health Professions

Joanna Christodoulou, EdD, is an Assistant Professor at the MGH Institute of Health Professions and is affiliated with the Massachusetts Institute of Technology and the Harvard Graduate School of Education. She studies the brain-behavior relationship underlying typical and atypical reading development and their implications for education and clinical practice.

Allison Druin, University of Maryland, College Park

Allison Druin is Chief Futurist for the University of Maryland’s Division of Research and is a Professor in the iSchool and a researcher in the Human-Computer Interaction Lab. As the University’s first Chief Futurist, she works with faculty throughout campus on research strategic planning and partnership development. In her own research, for over 17 years, she has led design teams of children, computer scientists, educators and more to develop new educational technologies for children with co-design methods. Her work has included developing new mobile technologies for storytelling, new digital libraries for cultural tolerance, and new robotic toys for active learning. Her co-design team has partnered with numerous organizations over the years which have included, the U.S. National Park Service, UNICEF, National Geographic, and Nickelodeon (where they won an Emmy for their shared design, ‘the do not touch’ button).

Henry Jenkins, University of Southern California

Henry Jenkins is the Provost’s Professor of Communication Journalism and Cinematic Arts at USC’s Annenberg School for Communication and Journalism. Henry Jenkins joined USC from the Massachusetts Institute of Technology, where he was Peter de Florez Professor in the Humanities. He directed MIT’s Comparative Media Studies graduate degree program from 1993–2009, setting an innovative research agenda during a time of fundamental change in communication, journalism and entertainment. As one of the first media scholars to chart the changing role of the audience in an environment of increasingly pervasive digital content, Jenkins has been at the forefront of understanding the effects of participatory media on society, politics and culture. His research gives key insights to the success of social-networking web sites, networked computer games, online fan communities and other advocacy organizations, and emerging news media outlets. Jenkins has also played a central role in demonstrating the importance of new media technologies in educational settings. He has worked closely with the John D. and Catherine T. MacArthur Foundation to shape a media literacy program designed to explore the effects of participatory media on young people, and reveal potential new pathways for education through emerging digital media. He is Principal Investigator on the Media Activism Participatory Politics project. His most recent books include Reading in a Participatory Culture: Remixing Moby-Dick in the Literature Classroom (with Wyn Kelley, Katie Clinton, Jenna McWilliams, Ricardo Pitts-Wiley, and Erin
Reilly) and *Spreadable Media: Creating Meaning and Value in a Networked Society* (with Sam Ford and Joshua Green).

**Kurt Squire, Games + Learning + Society team, University of Wisconsin-Madison**

Kurt Squire is a professor at the University of Wisconsin-Madison in the Educational Communications and Technology division of Curriculum and Instruction and a research scientist at the Academic Advanced Distributed Learning Co-Lab. Squire is also a co-founder and current director of the Games, Learning, & Society Initiative, a group of over 50 faculty and students investigating game-based learning. Squire’s research investigates the potential of video game-based technologies for systemic change in education. Squire’s work integrates research and theory on digital media (particularly games) with theories of situated cognition in order to understand how to design educational environments in a digital age. Squire earned his doctorate in Instructional Systems Technology from Indiana University and is a former Montessori and primary school teacher. Before coming to Wisconsin, Squire was the Research Manager of the Games-to-Teach Project at MIT, the Co-Director of the Education Arcade, a columnist for Computer Games magazine, and a co-founder of Joystick101.org. In addition to writing over 50 scholarly articles and book chapters, he has given dozens invited addresses in North America, Europe, and Asia.

**Rane Johnson-Stempson, Principal Research Director, Microsoft Research Outreach**

Rane Johnson-Stempson is a Principal Research Director at Microsoft Research Outreach, where she engages with academics worldwide and identifies high-impact areas for research investigations. She is currently working on projects that use technology to transform how we learn, how we teach middle school girls programming, and how we eradicate human trafficking. Rane is also the lead for growing, attracting, and retaining women in research, science, and engineering. Rane is very passionate about education and technology with eighteen years of experience. She has served as the Executive Director of California Skills USA-VICA, IT Project Manager for Guidant Corporation, Middle School Math and Science Teacher and IT Director for the San Francisco Unified School District. She has sat on the boards of top education non-profits, on legislative committees and task forces. Rane spends a lot of her free time and energy focused on working with young women and students of color to help them reach their full potential in careers in STEM fields. She also volunteers to help the entrepreneurship community in Bend, Oregon. Her research interests lie in technology implications in reaching education for all, technology and the interplay of public-private partnerships in solving our greatest social problems, and technology innovations required to engage student learning.

**S. Craig Watkins, University of Texas at Austin**

S. Craig Watkins is a Professor in the Moody College of Communication and the College of Liberal Arts at the University of Texas at Austin. He is the author of three books including,
The Young and the Digital: What the Migration to Social Network Sites, Games, and Anytime, Anywhere Media Means for Our Future (Beacon, 2009), which explores young people’s dynamic engagement with social media, games, and mobile platforms. His forthcoming book is based on an ethnographic inquiry into the evolving worlds of digital media, education, and social inequality in the U.S. The book takes on some of the established ideas and notions related to the rise of STEM learning and the complex role of technology in our schools, and the media practices of black and Latino youth. Craig is a recent recipient of an innovation award from the IC² Institute, an Austin technology incubator that supports innovation and economic development and is a member of the MacArthur Foundation’s Connected Learning Research Network. Currently he is working on two fronts. First, he is collaborating with a team of graduate student researchers and creatives to explore how young people are leveraging digital media, local assets, and social networks to build dynamic innovation ecologies that are remaking how we think about learning, work, social mobility, and the future of opportunity. His second initiative is aligning with several partners including The Moody College of Communication, the Chief Information Officer from the City of Austin, and designers to create a social studio that connects young people’s engagement with technology to design challenges that encourage real world problem-solving.
List of Participants

<table>
<thead>
<tr>
<th>Name</th>
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Report Authors

Karen E. Fisher, Professor

Dr. Karen E. Fisher, a boundary-pusher, boundary-spanner, and Professor in the University of Washington Information School and Adjunct Professor of Communication. Her obsession is how people experience information as part of everyday life, particularly in informal social settings (aka, Information Grounds). Her current work ([infoMe.uw.edu](http://infoMe.uw.edu), [syria.ischool.uw.edu](http://syria.ischool.uw.edu)) asks how underprivileged youth, especially ethnic minority and immigrant youth help other people through information, and how they can be supported through co-designing technology, services and policy. InfoMe has been presented at conferences in cognate fields, including: the American Library Association, iConference, European Council on Information Literacy, ACM SIGCHI Interaction Design & Children (IDC), ACM SIGCHI Information and Communication Technologies and Development (ICTD), and the MacArthur Digital Media and Learning. Co-author of the ASIS&T top monograph, *Theories of Information Behavior*, Karen was twice awarded the ALA Jesse H. Shera Award for her research with youth and libraries. Supporters of her work include the IMLS, Google/YouTube, the LEGO Foundation, Microsoft, the Bill and Melinda Gates Foundation, and the National Science Foundation. She holds a Post-doc from the University of Michigan; a PhD and MLIS from the University of Western Ontario; and a BA from the Memorial University of Newfoundland.
Katie Davis, Assistant Professor

Katie Davis is an Assistant Professor at The University of Washington Information School, where she studies the role of networked technologies in teens’ lives. Some of her current projects include investigating identity development in informal learning spaces; using digital badges to recognize anytime, anywhere learning; building public librarians’ capacity to incorporate digital media into their work with youth; and the causes and consequences of cyberbullying. Davis is the co-author with Howard Gardner of *The App Generation: How Today’s Youth Navigate Identity, Intimacy, and Imagination in a Digital World* (2013, Yale University Press). She holds two master’s degrees and a doctorate in Human Development and Education from Harvard Graduate School of Education. In addition to publishing and presenting her research in scholarly venues, Davis regularly shares her work with parents, teachers, and librarians in an effort to build connections between educational research and practice.

Jason Yip, Assistant Professor

Dr. Yip’s research focuses on how digital media and new technologies support participatory cultures in youth and their families. First, he examines how digital media and new technologies can support bridging STEM learning for children between different learning domains (e.g., homes, schools, afterschool, libraries). Second, Dr. Yip examines how children and families participate together with researchers in the co-design (participatory design) of new technologies for other youth. At the University of Washington, Dr. Yip leads an intergenerational team of children (ages 7–11) and designers to examine how participation together in design supports learning for youth. Finally, as a Senior Research Fellow at the Joan Ganz Cooney Center at Sesame Workshop, Dr. Yip examines how Hispanic-Latino heritage families and children use digital media together and how culture, family, environmental factors, and technological design can support active participation in learning.

Negin Dahya, Assistant Professor

Dr. Negin Dahya is an Assistant Professor at the University of Washington Information School, specializing in the area of Digital Youth. Her research is grounded in anti-oppressive education for ethnoracial minority groups, with a focus on girls and women using technology. Specifically, Dr. Dahya’s work explores the following research areas: sociocultural context of digital media production and technology use in under-served schools and communities; transnational teaching/learning through digital technologies for refugees living in refugee camps in Kenya; and, studies focused on ‘serious play,’ ranging from examinations of social and political content in educational videogames to girls’ videogame development for teaching/learning STEM in schools.
J. Elizabeth Mills, PhD Candidate

J. Elizabeth Mills is a PhD Candidate, with an MLIS degree from the University of Washington Information School. She is interested in the looking at how public library storytimes can be equitable, social, and cultural environments for young children. She is a published children’s author and former children’s book editor.

Mike Eisenberg, Professor and Dean Emeritus

Dr. Mike Eisenberg is the founding dean of the Information School at the University of Washington, serving from 1998 to 2006. Known as an innovator and entrepreneur, Mike approached the iSchool as a startup—transforming the school into a broad-based information school with academic programs on all levels (bachelors through doctorate), increasing enrollment 400%, generating millions in funded research, and making a difference in industry, the public sector, and education on all levels. Mike’s current work focuses on information & technology literacy, virtual worlds, and library information and technology programs, K–20. Mike is co-author of the Big6 Approach to Information Problem-solving—the most widely used information literacy program in the world. Mike is a prolific author (nine books and dozens of articles and papers) and has worked with thousands of students—pre-K through higher education—as well as people in business, government, and communities to improve individual and organizational information and technology access and use. Mike particularly enjoys working with undergraduate students, introducing them to the opportunities and challenges of the information field.
Acknowledgements

Tremendous thanks to the teens who participated in our youth panel and inspired the DYSTT intellectualism. You are exceptional and you are our future. We’re in!!

Thank you manifold to our sponsors for envisioning and enabling the DYSTT: The Institute of Museum and Library Services, Facebook, King County Library System, Microsoft Research, and Seattle Public Library—outstanding champions of youth everywhere.

We thank especially our featured speakers: Drs. Joanna Christodoulou, Allison Druin, Henry Jenkins, Kurt Squire, Rane Johnson-Stempson, and S. Craig Watkins—the most brilliant, giving and strongest advocates of youth.

Our gratitude to the DYSTT participants: thank you for generously sharing your creativity, energy and commitment, for creating pathways to understand, ideate and support today’s youth.

We dedicate the DYSTT to Dr. Eliza T. Dresang, the UW iSchool Beverly Cleary Professor of Children’s and Youth Services. Together with Drs. Fisher and Davis, she was a key organizer of the DYSTT as part of her dedication to serving digital youth. Her theory of Radical Change was a primary framework for the DYSTT. Eliza is greatly missed.

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