Mapping the Distribution of Children's Digital Media Practices: Methodological Innovations and Challenges

Reed Stevens, Northwestern University, reed-stevens@northwestern.edu (chair)
Katie Headrick Taylor, Northwestern University, katie.h.taylor@northwestern.edu (organizer)
Lori Takeuchi, Joan Ganz Cooney Center, lori.takeuchi@sesame.org
Elisabeth Hayes, Arizona State University, erhayes2@asu.edu
Sinem Siyahhan, Arizona State University, sinem.siyahhan@asu.edu
Brigid Barron, Stanford Graduate School of Education, barronbj@stanford.edu
Amber Levinson, Stanford Graduate School of Education, amlevinson@stanford.edu
Rosalia Chavez Zarate, Stanford Graduate School of Education, rzarate@stanford.edu
Caitlin Kennedy Martin, Stanford Graduate School of Education, ckmartin@stanford.edu
June H. Lee, Sesame Workshop, june.lee@sesame.org
Ellen Wartella, Northwestern University, ellen-wartella@northwestern.edu
Alexis Lauricella, Northwestern University, Northwestern University, a-lauricella@northwestern.edu
William R. Penuel, University of Colorado, Boulder, william.penuel@colorado.edu (discussant)

Abstract: The papers gathered for this symposium draw from an interdisciplinary group, who are using a range of existing methods and developing new methods, to forge a new constellation of work in the learning sciences and allied disciplines with stakes in children's media practice. Across the group, we find different proportional commitments to the work of either filling in the map of how and where digital media practices travel, or documenting the lived practices of the inhabited territories such as homes, community centers, and neighborhood streets. Together we share a commitment that youth media practices need to be understood in terms of both senses of distribution. Bringing these sorts of approaches together is not without challenges, which will be a focus of our symposium presentations. Our synthetic work will be to explore what can be shared, where to locate tensions, and what new questions this new approach may yield.

Symposium Overview

An historical reading of the learning sciences first two decades as a named enterprise suggests an important and productive shift in leading conceptions of cognition and knowledge, from cognition and knowledge as understood as something exclusively *inside* individuals to *distributed across people, tools, and physical places.* This sense of distribution is very important. But it has perhaps occluded an equally important sense of distribution, in the way that ecologists and geographers use the term. If, for analogy's sake, we treat a practice as a species, how do they move across time and space? How do practices migrate? Where do they settle? How do they change as they migrate? What routes do they take? As practices move and bump into each, do they compete? Do they hybridize? These are new questions for a next generation of learning scientists.

A timely arena for taking a run at these questions is youth media practices. In just a few decades, media practices have become far more diverse and far more mobile than ever. Based on data from national surveys, young people spend much more time with media technologies than they do with schoolwork of any sort. Young people between 8 and 18 spend as much as 50% of their waking hours engaged with media (Rideout, Foehr & Roberts, 2010); they spend no more than 19% of their time during these years engaged in subject matter work in school (Stevens, Bransford & Stevens, 2005). Media practices and media 'content' are therefore arguably a far more important source of young people's "cultural curriculum" (Wineburg et al., 2007) than schools, not more important in the sense of preferable but in the sense of pervasive. Yet we know so little about youth media practice and its role in the organization of youth learning, sociality, and identity formation, either in or out of school. This is perhaps ironic for learning scientists, who have such deep commitments theoretically and as designers to new media technologies to support learning.

Moving forward we need to be able to combine both senses of distribution in the study of youth media practice and, by analogy, the study of cognitive and learning phenomena more broadly. We need to be able to capture and describe the moment-to-moment details of youth media practice but we also need to be able to step back and see how media practices move and settle among peoples, places, and times. We need maps of media rich places and media deserts. Combining these two senses of distribution is potentially a 'new look' in the learning sciences because it offers the synoptic power of the map, without falling prey to mistaking the map for the activities in the inhabited territories. It may offer the possibility that 'cognitive ecologists' (Hutchins, 2010) might productively intermingle with, inform, and learn from ecologists who study the movement and settling of birds and fish.

The papers gathered for this symposium draw from an interdisciplinary group, who are using a range of existing methods and developing new methods, to forge a new constellation of work in the learning sciences and allied disciplines with stakes in children's media practice, namely psychology and communication. Across the group, we find different proportional commitments to the work of either filling in the map or documenting the lived practices of the inhabited territories, but together we share the commitment that youth media practices need to be understood in terms of both senses of distribution. Bringing these sorts of approaches together is not without challenges, which will be a focus of our symposium presentations. Our synthetic work will be to explore what can be shared, where to locate tensions, and what new questions this new approach may yield.

Constructing the Daily Media Round of Children: Methodological Innovations and Issues

Katie Headrick Taylor, Northwestern University, katie.h.taylor@northwestern.edu
Lori Takeuchi, Joan Ganz Cooney Center, lori.takeuchi@sesame.org
Reed Stevens, Northwestern University, reed-stevens@northwestern.edu

Because many of the child-driven moments with media occur in informal, transitional periods of the day (Ito et al., 2009), very little is known about their content. Even less is known about how children's technology choices influence how they socially engage with others, both physically and virtually, and what they learn over the course of a day, week, or year from these interactions. In an era when video streams freely, "apps" marketplaces bulge with child-targeted content (Guernsey, Levine, Chiong, & Severns, 2012), and the shrinking sizes and wireless capabilities of media devices lend themselves to use in places beyond a parent's purview (Takeuchi, 2011), surveys of and even interviews with parents about their children's media use may be less reliable than they once were (Vandewater & Lee, 2009). New methods are needed to faithfully capture both child-elected and authority-sanctioned media use and its implications for engagement and learning in and outside of the home.

This research builds on the studies and goals of the LIFE Center and the Joan Ganz Cooney Center to understand how young people are learning and socially engaging with digital media within and between formal and informal educational settings. LIFE and Cooney Centers studies have documented the phenomena of joint media engagement (Stevens & Penuel, 2010; Takeuchi & Stevens, 2011) across a number of specific media contexts including television (Dugan, Stevens, & Mehus, 2010), e-books (Chiong, Ree, Takeuchi, & Erickson, 2012), video games (Stevens, Satwicz, & McCarthy, 2007), and creative technological expression (Barron, 2004). We also consider prominent national surveys that highlight the amount and kind of media experience young people have (e.g. from Common Sense Media, and the Kaiser Family Foundation). However, these studies have paid little attention to the ways that the ubiquity of mobile and networked media has affected the configuration of learning arrangements; "learning together" can occur across and between physical locations.

Our presentation focuses on the methodological innovations and issues associated with constructing the *daily media rounds* of young people. We use the "daily round" (Erickson, 2004; Taylor & Hall, 2013) to follow young people's digital media activity across various locations and times over the course of the day. Mapping this distribution as part of a case study methodology shows technology "hot spots" where young people are typically engaged in texting, checking email, watching television, editing movies, or playing video games, for instance. Constructing the daily media rounds of young study participants is a way of taking seriously the *mobility* of mobile devices and the ways in which an individual's digital activity can be extended across several different locations and times with co-participants. Not surprisingly, this extensibility influences family arrangements, dramatically altering the composition of joint media engagement (JME) involving parents, siblings, and peers within and around the home (Takeuchi & Stevens, 2011). This study focused on children 7 to 13 years old from a diverse range of family backgrounds.

To understand this dynamic and complex phenomenon of young people's daily media rounds, we have developed a study design that incorporates multiple methods of data capture. In the first stage of data collection, we interviewed the focal child and her parent about available technology in the home, parental regulations around media, and daily media routines in and around the home. In the second stage of research, we made detailed video recordings of naturally occurring activity during the hours after school, targeting times when focal participants are using media and technology (e.g., on the ride home from school, doing homework at the dining room table). Collecting video recordings also involved asking study participants to wear cameras so that we could see media content, especially if the child was "on the move." In the third stage of research, we conducted experience sampling over the phone for one week with focal children to better understand daily patterns and routines around technology. These conversations were audio recorded. The fourth stage of research was a "data sharing session" where focal children and the researcher mapped technology "hot spots" using a virtual geographic information program. This stage helped us understand how children's digital practices, sometimes with the same device (e.g., Mom's smartphone), extended across physical spaces, and if particular locations tended to elicit digital activity (e.g., sitting on the train to commute home). We then repeated stages

two through four and concluded the study with final parent-child interviews. Depending on scheduling with families and additional observations, the entire study lasted anywhere from six to ten weeks.

This study design has been replicated with children and their families in the Chicago and New York areas. Our only exclusion criteria were that focal children were between 7 and 13 years old and that they used media and/or technology during non-school times. We have collected data with families living in urban areas, suburban neighborhoods, single-parent homes, a home with five children, single-child homes, devoutly religious families, Black, White, Hispanic, and mixed-race families. As such, methodological challenges have been situated within participating families and the arrangements of those households. For instance, we studied a family with five children and only one smartphone in the home. Often, moments of joint media engagement involved the five of them crowding around the tiny screen of their mother's smartphone, sometimes to watch the YouTube video, "What Does the Fox Say?" In such instances, video recordings could only capture tops of heads and the audio barely emanating from the tiny phone speaker. This kind of record does not scratch the surface of the richness happening around the screen; the older children were mouthing the lyrics of the song, and the baby was bouncing up and down in rhythm on her sister's lap. The physical arrangement around the screen was constantly changing, although the child holding the device remained stationary. Furthermore, scheduling daily phone calls with two children to conduct experience sampling when there is only one phone between all of the family members is a major constraint for data collection. And finally, during observations, instances of JME are so frequent, so emergent, and so natural in the daily routines of families, that children rarely consider these as noteworthy or reportable to researchers during experience sampling and interviews.

At this point, findings and analysis are preliminary. However, our research team has been identifying and analyzing moments of JME from the video record. Preliminary findings suggest that the "mobility" of individual devices means that JME arrangements are much more fluid (as opposed to those taking place around a television). In some instances, the child with the device will initiate JME in one location, after which a participating or "following" child will take control of the device and move to another location. Perhaps surprisingly, sharing devices between family members has been less of an issue in this study for parents than the frequency of "distraction" from non-digital activities (e.g., piano lessons, eating, getting ready to go somewhere). Because digital media can be anywhere and everywhere now that mobile devices are prevalent, instances of JME often emerge during family routines that used to be "unplugged."

Conceptual and Methodological Issues in the Study of Young Children's Digital Gaming and Learning

Elisabeth Hayes, Arizona State University, erhayes2@asu.edu
Sinem Siyahhan, Arizona State University, sinem.siyahhan@asu.edu

This paper addresses conceptual and methodological issues involved in investigating the role of video gaming in young children's learning in the home. We use the term video gaming as an all-encompassed term that refers to games played on computers, game consoles, handheld gaming devices and mobile technologies of all sorts. Our discussion draws on our study of the gaming practices of primarily Mexican-American families with children between 4 to 6 years old. This is a particularly important age for children as learners and as gamers. This is the age when they enter kindergarten or the first grade of elementary school, and at this age there also is a significant increase in the time children spend on gaming (Rideout, 2013).

One conceptual challenge in research on video gaming is how to define and understand game play itself. While gaming might be understood quite narrowly as the interaction between a player (or players) and the "game-in-the-box," here we adopt a view of video game play in the home as a cultural practice, or more accurately, a set of practices that as Stevens, Satwicz, and McCarthy (2008) suggest are "quite tangled up with other cultural practices, which include relations with siblings and parents, patterns of learning at home and school, as well as imagined futures for oneself" (p. 43). This perspective suggests a need to understand the purposes that game play serves within the broader family setting, the meanings that game play has for family members, and how gaming might be viewed as an avenue for children's participation in family routines in ways that are desired – or not desired – within the home and family culture.

A second challenge is how to define and document learning. Through this work, we sought to understand how young children's participation in gaming-as-social practice reflected a broader enculturation into the shared beliefs, practices, values, and identities of their families and the larger social groups of which they were a part (Saxe, 1999; Tudge, Brown, & Freitas, 2011; Valsiner, 1986; Vygotsky, 1978). Video games themselves serve as agents of socialization as well as mediators of content acquisition and skill development. While we were interested in how children interacted with parents in ways that supported more obvious academic forms of learning (for example, the parent reading game-related texts with the child) we were also concerned with broader forms of learning, such as how family gaming practices contributed to a child's identity as a learner. Just as importantly, we did not wish to confine our investigation to the child's learning alone, and as

such we sought to understand how parents or older siblings might be participating simultaneously teachers and learners through out the gaming activities.

We explored these challenges in an ongoing study of the gaming experiences and practices of focal children ages 4 – 6 years old from primarily Mexican-American households. Our methodology included several phases of data collection through home visits over a period of approximately six months with each family. Structured interviews with parents and older siblings and inventories of digital technology in the home were used to construct a more general understanding of home media use and of gaming practices in particular. Family photo diaries, as a modified form of experience sampling, were used to document instances of game play over the course of the study. In addition to photo diaries, children's engagement with video gaming was documented through (a) loosely structured conversations with the child about games they play and household rules about games, (b) observations and "constructive interactions" (Benedikte, Jensen, & Skov, 2005) between the child and researchers during individual game play, and (c) observations of family game play sessions involving the child and other family members in the home. We also introduced the families to a small set of educational games and documented how these games were played and incorporated (or not) into the family game play routines.

In our discussion, we will first characterize the considerable diversity of family gaming practices as well as the ubiquity of gaming in most families' daily lives. In some cases it was literally impossible to separate gaming from other family routines. The rise of games on mobile devices has led to the incorporation of gaming into almost all places and spaces of family life, whether it be a 3ds game that keeps a child occupied during car trips or a tablet game that is passed around the kitchen table after dinner. However, this is just one example of the ubiquity of gaming as the ways that young children engage with gaming varies widely, range from less-structured, imaginative play with more open-ended games, in which the child is the primary driver of his or her actions and learning, to what might be described as legitimate peripheral participation in game play directed and scaffolded by others. The popularity of movement games for children of this age (using consoles like the Kinect and Wii) added an additional challenge to our investigation; the nature of a "constructive interaction" between a researcher and a child, breathless and hopping around the living room, needed to be rethought.

Results of this work include analyses of the learning opportunities afforded by these varied gaming practices. Initial findings suggest that young children's desire to participate in the gaming practices of parents and older siblings served as a particularly important driver for learning. Indeed, an important factor in children's learning through gaming is the extent to which older family members provide opportunities for them to observe and participate, albeit in limited ways, in games that are otherwise "over their heads." This is not a novel phenomenon; children's participation in everyday routines of the home as a form of learning has been well-documented by researchers such as Rogoff and her colleagues (2007). However, what is novel are observations of how adults and children negotiate what kind of participation is appropriate, and in doing so, create new gaming practices that in turn challenge both children and adults' ways of thinking and doing. Fathers proved to be particularly important in shaping young children's opportunities for gaming and learning. For example, in one family, the adults and older siblings regularly played multiplayer Halo (a popular shooter game involving slaughtering alien creatures) with extended family members who lived in different states. The father described how he had played Halo with his infant daughter dozing in his lap. In one of our observations, the daughter, now five, participated in family Halo game play by holding a controller and randomly firing away at aliens, giggling happily and cuddling with her mother, while also ignoring her mother's advice about how to play. This type of family gaming practice challenges dominant conceptions of what kinds of games and game play are appropriate for young children, as well as their roles as learners, by reframing the meaning of this game play in the context of family routines and history.

This paper contributes to our understanding of both the conceptual and methodological challenges of investigating video gaming practices and the learning of young children around games in the context of family life. The preliminary analysis of findings suggests that family video gaming practices can support the development of children's identities as gamers and learners through a learning process that extends across time and is distributed among family members, different gaming devices, and games.

Mapping Neighborhood Learning Resources for Families

Brigid Barron, Stanford Graduate School of Education, barronbj@stanford.edu
Amber Levinson, Stanford Graduate School of Education, amlevinson@stanford.edu
Rosalia Chavez Zarate, Stanford Graduate School of Education, rzarate@stanford.edu
Caitlin Kennedy Martin, Stanford Graduate School of Education, ckmartin@stanford.edu

This presentation focuses on results from a study that investigates publicly available community learning resources in order to inform the design of these resources to maximize benefit to underserved populations. Increasingly, learning opportunities are recognized as not contained within schools, but instead distributed across physical settings, virtual/online spaces, and across time. Schools, libraries, museums, and faith-based

centers all represent unique physical sites for learning. The digital world offers games, media, online communities, and informational sites. Research that follows learners across the settings and spaces they spend time in reveals the uniqueness of their learning ecologies as they pursue their particular interests and hobbies (Barron, 2006). Social networks are a core dimension of any learner's learning ecology and the expertise, interests, and depth of relationships among people shape the opportunities that arise. This social and relational variability can lead to substantial differences in how shared resources come to be utilized for learning. Our work is designed to contribute ideas for increasing the probability that families will access resources that can enrich their learning ecologies.

Research focused on institutions where learners spend time can offer important design-relevant and theoretical insights. For example, a recent study documented that for low-income families in particular, libraries are perceived as critical for providing access to the Internet, to reading material for their children, and to work related resources (Miller, Zickuhr, Rainie, & Purcell, 2013). When asked about new kinds of digital services that libraries might provide, Latino, African American, and poor parents were the most likely to report that they would find them useful (Zickuhr, Rainie, & Purcell, 2013). These ideas included providing access to devices that could be experimented with, access to library resources through mobile devices, access to media through kiosks located in the community, classes on how to use e-readers, and recommendations based on past library loans. At the same time, observational research has shown that parents' prior comfort level with technologies can influence the degree to which they jointly engage with their children around these public technological assets (Neuman & Celano, 2012). For example, research on library spaces is beginning to show the ways that learner's expertise and social partnering interacts with the physical, material, and symbolic resources to shape opportunities for learning (Neuman & Celano, 2012). We also know that even if a space is local, free, and open, barriers to access may exist that cause the resources to be underutilized. These barriers include lack of awareness of their availability, scheduling, and recent immigration (Castrechini & Ardoin, 2011). A better understanding of these dynamics is needed if we want to make the most of our public assets and support efforts to reimagine how libraries and other spaces might provide enjoyable and generative learning activities that can help all parents utilize digital media for family learning.

Our presentation will focus on findings related to two questions: 1) What types of community-based public resources for learning with and about technologies exist within three urban neighborhoods?; 2) How are community-based settings organized to support learning with and about technologies? Data collection sites include libraries, community centers, faith-based programs, Internet cafes, and schools that offer free computing-oriented learning resources for children and their families. We map these assets via visualizations with an in-depth look at libraries in particular. Dimensions catalogued include access to material computing resources (computers, printers, mobile devices, cameras), access to digital resources (Internet, software, games, and ebooks), access to social resources (mentors and librarians with expertise in computing), access to physical resources (space, tables, chairs), access to activities (organized programs like children's gaming or Internet scavenger hunt events).

Our methodology makes use of information visualization, a growing interdisciplinary area of research. We map public learning sites within a 1-2 mile radius of eight focal families homes that are part of Levinson's dissertation study. Our mapping displays locations and is based on a combination of Internet research, walking the neighborhoods, and informal interviews. Emphasis is given to a small number of focal sites. Interviews with representatives of each focal site provide data on material, digital, physical, social, and activity-based resources, and visualizations layered onto maps display summaries of these metrics. In a final phase, a smaller number of sites will be selected for observation. Twenty hours of observation across five sites document how resources are used. Time sampling and visual "sweep methods" (Given & Leckie, 2004) help us track activity in family oriented children's spaces. Our analysis focuses on describing activities, organized informal teaching & sharing practices, material resources, emergent interactional practices. We draw upon established surveys such as the National Center for Educational Statistics library and media instruments (e.g., http://nces.ed.gov/surveys/libraries/school.asp) in order to locate cases within national samples. Our goal is to begin to develop tools that can yield metrics and visualizations of the availability of free/low cost learning resources in a given community. These research tools include visualization ideas and inventories that might contribute to indices of the diversity and robustness of resources within particular neighborhoods. These in turn might serve as useful design/policy resources as well as open up new possibilities for research that tries to study connections between the density and quality of neighborhood learning opportunities and family and child learning.

Children's Media Engagement: Using Surveys to Complement and Inform Qualitative Research

June H. Lee, Sesame Workshop, june.lee@sesame.org
Ellen Wartella, Northwestern University, Ellen-wartella@northwestern.edu
Alexis Lauricella, Northwestern University, Northwestern University, a-lauricella@northwestern.edu

This paper focuses on ways in which surveys complement and inform qualitative studies examining children's media engagement. It provides a detailed explanation of the opportunities for survey research to inform and bolster qualitative research while providing an overview of the limitations. Finally, this paper discusses the need for mixed method approaches of capturing children's engagement with media and the future role of survey research in this area.

Media are now ubiquitous in American children's lives (Common Sense Media, 2013). With media technologies expanding and children's use of media increasing, researchers, educators, and scientists are eager to understand the complex nature and potential effects of children's media use. Using a range of methodologies, researchers are beginning to understand the ways in which children use and interact with media in the home and school environments, the complex ways in which children learn from media technologies, and the ways in which families engage and use media together. Throughout this research, survey instruments help to provide the backdrop and context in which media use is occurring more broadly. The information provided by large-scale surveys helps to inform the direction of both experimental and qualitative research.

Surveys can complement and inform qualitative research by providing initial overviews of the current state of media use. Organizations and research institutions that are engaged in this issue often release results from nationally representative surveys of children's media use (e.g., Common Sense Media, 2011; 2013; Rideout, Foehr, & Roberts, 2010; Wartella, Rideout, Lauricella, & Connell, 2013). These surveys have been useful and are widely cited among the community of scholars, policymakers, media producers, parents, and others. In addition, the academic community has used survey data to generate a substantial body of research on children and media.

Survey research continues to be important in understanding media in children's lives. In fact, much of what we understand about this issue has come from survey research. Studies continue to proliferate not in spite of the utility of surveys, but because of it. One of the major strengths of surveys is their potential for both breadth and depth. Surveys typically (though not always) draw from large samples—even nationally representative samples—and allow researchers to describe a media engagement at a scale that will simply require too much time, resources, and effort for qualitative study. Surveys do well in setting the stage for deeper inquiry by providing a "lay of the land" in terms of addressing questions of "how much," "what," "who," and "where" of children's media use. Surveys have been invaluable in describing national trends in the amount of time that children spend with media, demographic differences, changes over historical time (e.g., Common Sense Media, 2011; 2013; Rideout and Hamel, 2006; Rideout, Vandewater, & Wartella, 2003). Survey research has also highlighted children's changing media ecologies—the "what" and "where" of children's media use. Studies have documented families' access to and use of different media over time, and these data have served as the background against which to examine trends in media adoption, use, and engagement, and the ways in which they shape children's development. Importantly, surveys have also identified gaps that signal inequity in media access and use (e.g., Common Sense Media, 2013; Pew Hispanic Center, 2013), which has important implications for policymakers and educators in efforts to equalize children's opportunities to gain experience and cultivate important skills with technology.

Surveys do not only provide a broad demographic backdrop against which children's engagement with media is examined; they have been useful in describing complex phenomena such as the ways in which family dynamics may shape media use, or outcomes that arise from children's media use. Drawing from an ecological model (Bronfenbrenner, 1986), researchers have used large survey datasets to understand how family contexts and parental behavior are related to children's media use. They found, for instance, that the type of rules (time vs. content) that parents had about media differed by demographic factors such as income and education, and that parents' rules about television viewing predicted different patterns of use among young children (Vandewater, Park, Huang, & Wartella, 2005). Another study based on a national survey tested three competing hypotheses on the link between family conflict and children's consumption of violent content on television and video games; it found that family conflict was positively related to children's use of violent media content, lending support to the notion that children's media use could reflect the violence modeled in their family environment (Vandewater, Lee, & Shim, 2005).

Surveys can also offer rich data on the impact of children's media use, particularly as they pertain to cognitive or social outcomes. The body of evidence that surveys have provided has deepened scholars' understanding of the nature of these effects. Researchers have found moderately adverse effects of television viewing: Watching television at before age 3 was negatively related to measures of cognitive outcomes at ages 6-7 (Zimmerman & Christakis, 2005). Others, however, have demonstrated the importance of content in determining the link between media use and outcomes, and uncovered positive relations between viewing educational television programs such as *Sesame Street* to school readiness skills (Zill, 2001).

In addition to large-scale national surveys, smaller surveys can be used within smaller environments to ensure that that the experimental and qualitative research is being conducted with a sample that is similar to the population at large. Surveys can be included as a component in the more qualitative research to provide a

quantitative context and comparison for other researcher. For example, a group of researchers from Stanford, Northwestern University, University of Arizona, and the Cooney Center are working together to understand the ways in which families engage with media together. A principle component across each smaller research project is a survey. This survey will provide an overview media use and attitudes of all of the participants across the multiple sites of the project. Researchers have used mixed method practices like this for decades with great success (e.g., Barnhurst & Wartella, 1991)

It is important to acknowledge the limitations of using surveys when investigating children's media use. These limitations largely relate to the essential features of surveys: scale and the need for "quantifiability". Researchers usually field surveys on a relatively large scale and do not have the luxury of time or intimate knowledge of respondents. Surveys can take on an impersonal quality and tend to be quite brief (usually no more than 30 minutes) to reduce respondent burden. This can limit the depth and richness of data that researchers can gather. Further, the goal of survey research is to describe and understand phenomena *on aggregate*. Thus, behaviors, attitudes, motivations, and emotions—be they simple or complex—must be captured using measurable, pre-defined, quantifiable constructs. Surveys are therefore not adept at investigating complicated, nuanced, and multi-layered *processes*, including moment-by-moment interactions (between a parent and child around a digital game, for example), motivations, emotional responses, and the meaning that users make of and with media. This can often feel unsatisfying, as if the full range of complexity and richness around media use is diluted.

In modern life, where media use is increasingly untethered to a specific time and place, mobile, multi-platform, multi-sensory, and scattered throughout the day (in ever-briefer moments), conventional survey methodology is especially challenged in its ability to capture children's media engagement. Children and teens may also have greater difficulty reporting on their own media use under these conditions; the issue is also compounded with the reliance on parental report on media engagement for younger children.

Taken together, surveys have provided both breadth and depth in helping researchers understand the antecedents, contexts, and consequences of children's engagement with media. As with any research, mixed methods are needed to fully comprehend these relationships in nuanced and satisfying ways. In the era of new, digital, and mobile media, however, the need for innovative methods of capturing the full range of children's media experiences remains a challenge for large-scale surveys. When coupled with other methods such as ethnographies and in-depth interviews, surveys offer a powerful tool to arrive at this understanding.

References

Aplin, S. M. (2013). Using Technology to Connect Public Libraries and Teens. *SLIS Student Research Journal*, *2*(2), 7.

Barnhurst, K.G., & Wartella, E. (1991). Newspapers and citizenship: Young adults' subjective experience of newspapers. *Critical Studies in Mass Communication, 8*, 195-209.

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, *49*(4), 193-224.

Benedikte, S.A., Jensen, J.J. & Skov, M.B. (2005). Comparison of think-aloud and constructive interaction in usability testing with children. In *Proceedings of the 2005 conference on Interaction design and children* (IDC '05). ACM, New York, NY, USA, 9-16.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22,* 723–742.

Castrechini , S. Ardoin, N. M. (2011) Youth Resource Mapping: Partnering with Service Providers and Youth to Understand the Supply and Demand for Youth Services in a Local Context. *Perspectives on Urban Education*, 3-10.

Chiong, C., Ree, J., Takeuchi, L., & Erickson, I. (2012). Print books vs. e-books: Comparing parent-child co-reading on print, basic, and enhanced e-book platforms. New York: The Joan Ganz Cooney Center.

Common Sense Media. (2011). Zero to eight: Children's media use in America. San Francisco, CA: Common Sense Media.

Common Sense Media. (2013). Zero to eight: Children's media use in America 2013. San Francisco, CA: Common Sense Media.

Dugan, T. E., Stevens, R., & Mehus, S. (2010). *From show, to room, to world: A cross-context investigation of how children learn from media programming.* Paper presented at the 9th International Conference of the Learning Sciences, Chicago.

Erickson, F. (2004). *Talk and social theory: Ecologies of speaking and listening in everyday life* (pp. xi+-228). Cambridge: Polity Press.

Fisher, K. E., Saxton, M. L., Edwards, P. M., & Edwards, M. (1979). Seattle Public Library as Place: Reconceptualizing Space, Community, and Information at the Centrai Library1. *Urban Life*, *8*(1), 23-5.

Given, L. M., & Leckie, G. J. (2004). "Sweeping" the library: Mapping the social activity space of the public library. *Library & Information Science Research*, *25*(4), 365-385.

Guernsey, L., Levine, M., Chiong, C., & Severns, M. (2012). Pioneering literacy in the digital Wild West: Empowering parents and educators. Washington, DC: The New America Foundation and the Joan Ganz Cooney Center.

Hutchins, E. (2010). Cognitive Ecology. *Topics in Cognitive Science.* 705-715

Ito, M., Baumer, S., Bittanti, M., boyd, d., Cody, R., Herr-Stephenson, R., . . . Tripp, L. (2009). *Hanging out, messing around, geeking out: Living and learning with new media*. Cambridge: MIT Press.

May, F., & Black, F. (2010). The life of the space: Evidence from Nova Scotia public libraries. *Evidence Based Library and Information Practice*, *5*(2), 5-34.

Pew Hispanic Center. (2013). *Closing the digital divide: Latinos and technology adoption.* Retrieved from the Pew Hispanic Center website: http://www.pewhispanic.org/files/2013/03/Latinos_Social_Media_and_Mobile_Tech_03-2013_final.pdf

Rideout, V. (2013). *Zero to Eight: Children's Media Use in America 2013*. San Francisco: Commonsense Media. Available: http://www.commonsensemedia.org/research/zero-to-eight-childrens-media-use-in-america-2013.

Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M^2: Media in the lives of 8- to 18-year-olds.* Retrieved from the Kaiser Family Foundation website: http://kaiserfamilyfoundation.files.wordpress.com/2013/04/8010.pdf

Rideout, V. J., Vandewater, E. A., & Wartella, E. A. (2003). Zero to six: Electronic media in the lives of infants, toddlers, and preschoolers. Menlo, CA: A Kaiser Family Foundation Report.

Rogoff, B., Moore, L., Najafi, B., Dexter, A., Correa-Chávez, M., & Solís, J. (2007). Children's development of cultural repertoires through participation in everyday routines and practices. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization*. (pp. 490-515). NY: Guilford.

Saxe, G. B. (1999). Cognition, development, and cultural practices. In E. Turiel (Ed.), *Culture and development: New directions in child psychology* (pp. 19–36). San Francisco, CA: Jossey-Bass.

Stevens, R. Bransford, J. and Stevens, A. (2005). *The LIFE Center Lifelong and Lifewide Learning Diagram*. Creative Commons.

Stevens, R., & Penuel, W. R. (2010). *Studying and fostering learning through joint media engagement*. Paper presented at the Principal Investigators Meeting of the National Science Foundation's Science of Learning Centers, Arlington, VA.

Stevens, R., Satwicz, T., & McCarthy, L. (2008). In-game, in-room, in-world: Reconnecting video game play to the rest of kids' lives *The ecology of games: Connecting youth, games, and learning* (pp. 41-66): MIT Press.

Takeuchi, L. (2011). Families matter: Designing media for a digital age. New York: The Joan Ganz Cooney Center at Sesame Workshop.

Takeuchi, L., & Stevens, R. (Eds.). (2011). *The new coviewing: Designing for learning through joint media engagement*. New York: The Joan Ganz Cooney Center at Sesame Workshop.

Taylor, K. H., & Hall, R. (2013). Counter-mapping the neighborhood on bicycles: Mobilizing youth to reimagine the city. *Technology, Knowledge and Learning*, 1-29.

Tudge, J. R. H., Brown, J., & Freitas, L. B. L. (2011). The cultural ecology of play: Methodological considerations for studying play in its everyday contexts. In A. D. Pellegrini (Ed.), *The Oxford handbook of the development of play* (pp. 119-137). New York: Oxford University Press.

Valsiner, J. (1986). *Culture and the development of children's actions*. New York: Wiley.

Vandewater, E. A., & Lee, S. (2009). Measuring children's media use in the digital age: Issues and challenges. *American Journal of Behavioral Science, 52,* 1152-1176. doi: 10.1177/0002764209331539

Vandewater, E. A., Lee, J. H., & Shim, M. (2005). Family conflict and violent electronic media use among school-aged children. *Media Psychology, 7,* 73-86.

Vandewater, E. A., Park, S. E., Huang, X., & Wartella, E. A.(2005). "No--you can't watch that": Parental rules and young children's television use. *American Behavioral Scientist, 48,* 608-623.

Vygotsky, L. S. (1978). *Mind in society* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Cambridge, MA: Harvard University Press.

Wartella, E., Rideout, V., Lauricella, A. R., & Connell, S. L. (2013). *Parenting in the age of digital technology: A national survey.* Retrieved from Northwestern University, Center on Media and Human Development website:http://web5.soc.northwestern.edu/cmhd/wp-content/uploads/2013/05/Parenting-Report_FINAL.pdf

Wineburg, S., Mosborg, S., Porat, D, & Duncan, A. (2007). Common Belief and the Cultural Curriculum: An Intergenerational Study of Historical Consciousness. *American Educational Research Journal.* 44(1): 40-76.

Zickuhr, K., Rainie, H., & Purcell, K. (2013). *Library services in the digital age*. Pew Research Center's Internet & American Life Project.

Zickuhr, K., Rainie, L., Purcell, K., Madden, M., & Brenner, J. (2012). Libraries, patrons, and e-books. *Pew Research Center, Washington, DC, available at: http://libraries. pewinternet. org/2012/06/22/libraries-patrons-ande-books/(accessed 5 January 2013)*.

Zill, N. (2001). Does *Sesame Street* enhance school readiness?: Evidence from a national survey of children. In S. M. Fisch & R. T. Truglio (Eds.), *"G" is for growing: Thirty years of research on children and* Sesame Street (pp, 115-130). Mahwah, NJ: Lawrence Erlbaum.

Zimmerman, F. J., & Christakis, D. A. (2005). Children's television viewing and cognitive outcomes: A longtidunal analysis of national data. Archives of Pediatric Adolescent Medicine, 159 (7), 619-625. doi:10.1001/archpedi.159.7.619