



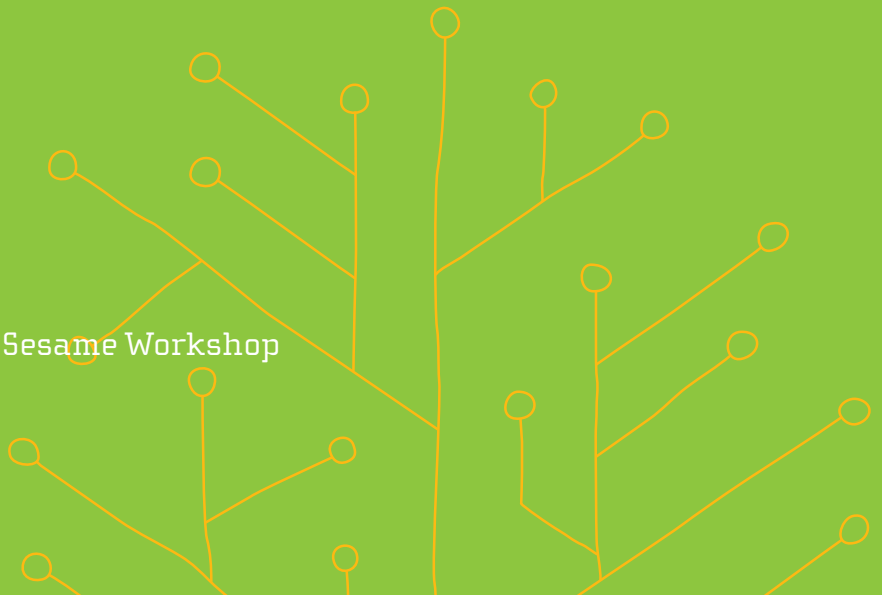
**The  
Families  
and Media  
Project**

# Connecting to learn:

promoting digital equity for  
america's hispanic families

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## introduction

Between 2006 and 2011, the number of U.S. children growing up in low-income families climbed to 45%, with almost half of these children (22% of all U.S. children) growing up in poor households<sup>1</sup> (Addy, Engelhardt, & Skinner, 2013). Children growing up in U.S. Hispanic families are disproportionately likely to be in this socio-economic category. In 2011, two-thirds (66%) of Hispanic<sup>2</sup> children were living in low-income families, with half of those families living below the federal poverty line (34% as compared with 39% of Black, 13% of white, and 14% of Asian children) (Child Trends, 2012).

The share of U.S. children who are of Hispanic descent more than doubled—to 24%—between 1980 and 2010 (Passel, Livingstone, & Cohn, 2012). Today, Hispanic families with young children are the fastest growing demographic in the U.S. (Passel et al., 2012). Given that the relationships between economic hardship and educational disparities are well-established (Brooks-Gunn & Duncan, 1997; Portes & Fernández-Kelly, 2008), innovative efforts to address the needs of these U.S. families are increasingly urgent concerns.

<sup>1</sup> The American Community Survey conducted annually by the U.S. Census Bureau defines a family as poor if they are living below the federal poverty line, which was \$22,350 for a family of four in 2011. Low-income is defined as living below 200% of the federal poverty line (Addy, Engelhardt, & Skinner, 2011).

<sup>2</sup> In this paper, we use the term “Hispanic” for consistency, although we note that the Pew Hispanic Center has indicated that neither “Hispanic” nor “Latino” is universally embraced by the communities the terms are meant to identify (Taylor, Lopez, Martinez, & Velasco, 2012).

Technology's increasing presence in homes and schools is framed by proponents as a personalized learning equity driver, but by skeptics as a costly, unproven job killer (Rotman, 2013). For policymakers, digital equity issues have largely been confined to infrastructure and safety concerns—broadband access, advertising regulation, data mining, and maintaining a “neutral” playing field are all issues that have been elevated in the national debate. One key issue has often been overlooked: the potential for digital media investments to support a learning pathway beginning in the early years, especially for children in our nation's increasingly diverse, low-income families.

A growing body of evidence confirms that accelerated technological innovation and adoption rates have roiled family routines across the economic spectrum—and also, that the opportunities associated with these technologies have not been evenly distributed across the population. New technologies have contributed to new equity gaps between higher- and lower- income families, and their meaningful participation in a knowledge-based economy is further constrained by limited local efforts to support parents, educators and other community stakeholders in taking advantage of them (Neuman & Celano, 2012).

In this policy brief, we consider a digital equity policy approach based on recent research with low-income, Hispanic families in the U.S. Our approach is based on an ecological understanding of the inextricable ties between learning and developmental influences at the family, community and macro-systems levels (Bronfenbrenner, 1979). Engaging this framework, we recommend solutions for building effective digital connections for all families—by leveraging low-income families' strengths to support their meaningful digital participation (Katz, 2014; Fuller, 2015).

As national policymakers, governors, school leaders, and investors consider efficient ways to close achievement gaps, it is instructive to review the persistent gaps in our nation's technological infrastructure as well. As of 2012:

- 100 million households in the U.S. still lacked high-speed Internet access.
- Almost *half* of the poorest households in the U.S. did not own a computer, as compared with 4% of the richest households in the U.S.—households that can adopt new, expensive, and increasingly versatile devices as soon as they become available.
- U.S. minority groups had significantly lower rates of home-based Internet access than whites.
- The U.S. rate of broadband Internet penetration ranked 14th worldwide. (Alexander, 2012).

But constraints on access are just one set of considerations in developing policies with the potential to make robust early learning pathways a universal possibility. This brief raises four issues for further consideration by program developers and policymakers:

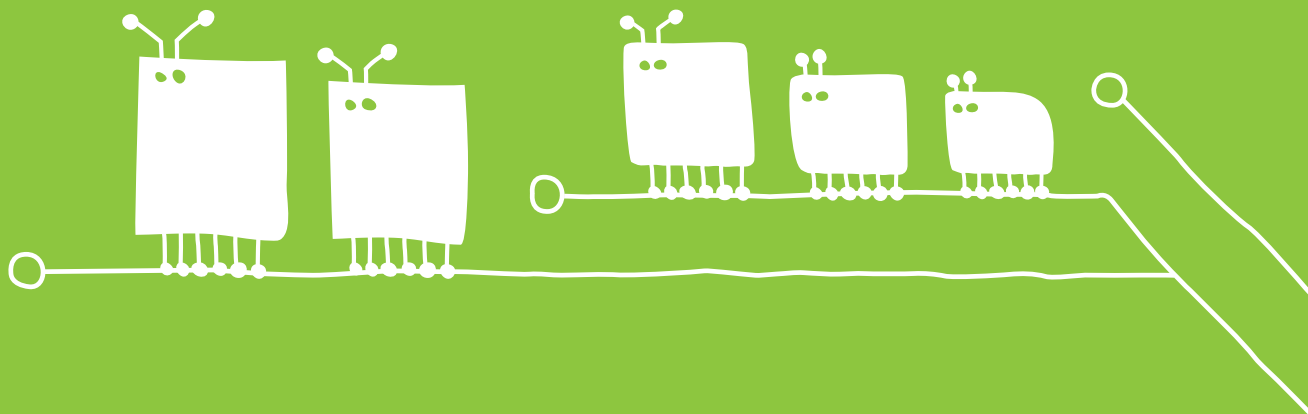
- 1) How should fast, affordable access to digital learning assets be made available to every family in America? How can we best provide access to families with young children so that high quality content facilitates engagement with digital technologies right from the start?

- 2) Which family, school, and community factors matter most for developing effective programs for digital equity and pathways to learning? Increasing population diversity requires new frames for learning and development, and new ways that professionals can help support them.
- 3) How can we deploy new technologies in culturally sensitive ways that promote low-income families' capabilities to close gaps between themselves and peers, using their own assets and strengths to do so? How can school districts and community organizations provide effective parent engagement and educator training on digital opportunities to benefit low-income families?
- 4) Which forms of public-private partnerships are most effective for scaling digital equity opportunities? Which key stakeholders are vital in formulating the next generation of program innovations in this field?

In the pages that follow, we apply new research on how the surge of media technologies is affecting families. We begin with the arc of research conducted in this area, and how it has evolved. On this foundation, we offer an ecological perspective on digital media technologies and their influence on children's learning and development. We share key findings from the first qualitative study of the national Connect2Compete (C2C) digital equity program, implemented by the Federal Communications Commission and private industry partners. We examine how local factors have affected the rollout and adoption of broadband and related technologies intended to enhance linkages between school and home for low-income families. We also summarize key findings from the first national survey of educational media experiences among parents with young children (Rideout, 2014; Lee & Barron, 2015). Based on these findings, we conclude with policy suggestions for how to leverage the assets of under-served communities and families to address digital inequality. In short, we intend to highlight how a more nuanced, asset-building approach can improve future policy design and practice in this area.

# from a digital divide to meaningful connections: research on digital equity concerns

The term “digital divide” came into vogue during the Clinton administration<sup>3</sup>, when computers and the Internet were broadly popularized. It refers to the gap between those who do and do not have access to digital technologies and the Internet. Policymakers quickly realized that access to technology was not equally distributed across the population: Those most likely to be on the “wrong” side of the digital divide were also more likely to be experiencing social inequalities more broadly—related to income, education, and geographic location, for example. The fear was that the digital divide would worsen existing social inequalities. The hope was that access to technology could foster opportunities for lower-income children and adults that helped address some of these broader social disparities.



<sup>3</sup> The term digital divide was popularized in Falling through the Net reports that were released by the National Telecommunications and Information Association (NTIA) in 1995, 1996, and 1999.

We have these same hopes and concerns today, but the technology landscape has changed so much since the 1990s. Our understanding of what digital inequality is, and how programs and policies can best address these issues, need to change too. But talk of a digital divide persists. The simplicity of a divide is part of the appeal. Its simplicity is also part of the problem. Dividing Americans into “haves” and “have-nots” suggests that large numbers of Americans have *no* access to technology, when the data clearly establish that almost all have at least *some* access to technology. Indeed, lower-income Hispanics and African Americans have adopted mobile devices more quickly than higher-income groups and are most likely to be mobile-only households (Lopez, Gonzalez-Barrera, & Patten, 2013).

Access to a particular device is also only one dimension of understanding digital inequality; not all devices and Internet connections are equally capable. Our research reveals, for example, that lower-income households often retain older computers and devices, even if they only work slowly or intermittently—and these same families often make sacrifices in order to purchase smartphones and tablets. So, like all families, lower-income households will have a blend of older and newer technologies that family members use, but the mix of devices may differ from those in higher-income households, where older devices are more easily and rapidly replaced.

Even if all devices were created equal, individuals’ capabilities with these technologies vary tremendously. Researchers have moved away from the duality of the digital divide and toward considering how productive, broad, and intensive—that is, how meaningful—people’s online connections are, as gradations along a spectrum (Kim et al., 2004). Some scholars are concerned with addressing gaps in online participation resulting from social and cultural differences, not from differences in access to devices themselves (Jenkins, 2006). Others emphasize that higher-income children are advantaged by being able to more easily connect learning they do on- and offline, and at school and in other locations, than their lower-income counterparts (Barron, 2006; 2010; Ito et al., 2010; Watkins, 2010). This focus

emphasizes the importance of access to learning opportunities that position children and adults to use technologies for interest driven learning (Barron, Gomez, Pinkard, & Martin, 2014). Research conducted in the UK and across Europe offers important lessons as well: Livingstone and Helsper (2007) argue for considering digital inclusion and exclusion as a continuum, with age, gender, and socio-economic status as important factors for understanding where individuals’ experiences are placed on that spectrum.

We build on the work of these researchers here, by considering factors that can limit low-income Hispanic parents’ and children’s capabilities or confidence in going online or using new technologies. Recent data from the Pew Hispanic Center suggests that gaps in access to devices between Hispanics and other ethnicities are narrowing (Lopez et al., 2013). In many respects, Hispanics are as connected as other groups; they are just as likely to own a smartphone, use social networking sites, and go online via a mobile device as white and African Americans. Hispanics, however, are less likely to own a computer or access the Internet than whites.

The differences in technology adoption *within* the Hispanic population are perhaps more marked. Higher education and income levels, being U.S.-born, and being English-dominant or bilingual are consistently related to higher rates of Internet use, mobile Internet use, and ownership of cellphones, smartphones, and computers (Lopez et al., 2013). A recent national survey of parents with children ages 8 and under (Wartella, Kirkpatrick, Rideout, Lauricella, & Connell, 2014) revealed that Hispanic families in the sample had considerable access to mobile technologies, with 68% owning at least one mobile device. The authors also noted significant disparities in smartphone and tablet ownership among Hispanic respondents based on language, income, and education (Wartella et al., 2014).

Scholars have stressed the importance of accounting for diversity among Hispanic families if we want to better support learning through digital or traditional media (Katz, 2013, Valdés & Constakis, 2013). Hispanic families in the United



States vary widely in terms of their countries of origin, tenure in the U.S., levels of formal education, languages spoken at home, and income. Researchers examining these variations in relation to school performance have found that children living in Spanish-dominant homes score lower on standardized reading and math assessments administered in English in U.S. schools (Reardon & Galinda, 2006). Prior research suggests that parents' levels of education, primary language, income, and experiences of discrimination all influence children's early learning (Valdés, 1996; Yoshikawa, 2011). As we consider how to enable family engagement with new technologies, we need to understand and account for this diversity.

We believe it is crucial to emphasize these families' strengths—not just their constraints. As we detail below, individuals and families develop innovative strategies to address such challenges as they make decisions about adopting broadband and digital technologies, and about incorporating them into their everyday activities. Ethnographic studies are beginning to document the resourceful practices that Hispanic families in the U.S. develop and share as they use digital tools to learn information, translate English materials, stay connected with family and friends, help their children with schoolwork, and support family-based interests (Levinson, 2014; Schwartz & Gutierrez, 2013).

Our research points to three levels of variation in these activities that are important for developing digital equity programs responsive to the needs and tastes of low-income Hispanic families, and how local support and conditions affect their decisions and activities:

- **Family-level** differences in how parents and children utilize technology—or not—for their own purposes. These include which devices individual members choose to use and what personal goals they seek to address by doing so. We are equally concerned with how family members engage technology to develop skills and learn together, and how they collaborate to make decisions about tech purchases. Family-level differences also include where

devices are placed in the home, what rules guide their use, and how they are integrated into new and existing family routines.

- **School-level** variations, including forms of outreach that are made to families about the opportunities that technology adoption can offer the whole family, as well as efforts to identify and address fears or misconceptions they may have about technology. These differences also include outreach to engage families in developing programs and efforts to support parents with skills training.
- **Community-level** variations that can make a difference, including local resources like Wi-Fi availability in public spaces, businesses, and libraries, well-trained professionals who understand cultural variation, and well-designed programs to support skills building. We also assess constraints within a community that can influence whether families see participating in digital equity programs as a threat or an opportunity.

In the following sections, we explore these levels of variation in relation to two new data sources focused on technology adoption and usage among U.S. Hispanic families. Both of these studies are concerned with how families engage a broad range of devices and platforms for formal and informal learning activities that not only benefit children, but also parents and families as a whole. Our goal is to demonstrate how research that accounts for multi-level variation among families with regard to their technology usage can provide critical insights into how digital equity initiatives can be made optimally relevant and useful to the American families that they are designed to serve.

# national policy, local solutions: family responses to connect2compete

In 2013, Vikki Katz began a multi-site study, funded by the Bill & Melinda Gates Foundation, to examine how a nationally deployed digital equity initiative plays out in different local environments. Connect2Compete is currently the only national effort to increase broadband access at home for families with school-age children<sup>4</sup>. The program emerged from the United States' 2010 National Broadband Plan with the goal of providing home-based broadband for \$9.95 per month, a discounted refurbished computer, and free local skills training, to families with children receiving free- or reduced-cost lunch at school. To roll out the initiative at scale, Connect2Compete was organized as a public-private partnership, meaning that local telecommunications companies provide discounted broadband access directly to families in school districts across the country, and in some locations, offer reduced-cost computers and skills training as well.



<sup>4</sup> For more details, see [www.everyoneon.org/about/c2c](http://www.everyoneon.org/about/c2c)

The goal of the research was to explore how different versions of the Connect2Compete program were being rolled out in three school districts. The study identifies key variations among families, schools, and communities that influence (1) decisions about adopting broadband and related technologies, and (2) how these technologies are integrated (or not) into a broad range of family routines and activities. Lessons learned from talking with families and educators can help guide future efforts to tailor digital equity initiatives to the needs, interests, and concerns of low-income parents and children.

The three school districts where the study was conducted—located in Southern California, Arizona, and Colorado—share important characteristics. All three districts serve high-poverty, predominantly Mexican-origin student populations, and all are working to encourage home-school connections through a variety of technology initiatives, with the Connect2Compete program as a component of

their efforts. The research focused on Mexican-heritage families, whose children account for 16% of all U.S. children (Child Trends, 2012). These families, particularly those with foreign-born parents, also experience greater social disparities than other Hispanic groups in the U.S. (Brown & Patten, 2013). Children of Mexican immigrants are more likely to grow up in poverty than any other children in the U.S., to have parents who have not completed high school, and who report difficulties speaking English (Child Trends, 2012; Johnson et al., 2005; Lopez & Velasco, 2011). These families therefore stand to gain the most from digital equity initiatives like Connect2Compete.

In each field site, Katz and her research team conducted in-depth interviews with parents, children, school principals, teachers, and district administrators. In two K-8 schools in each district that have high proportions of Mexican-heritage students on free or reduced-cost lunch, families were randomly selected and contacted by school



**Table 1: Demographic information for families interviewed in California and Arizona**

	California		Arizona	
	Parents	Kids	Parents	Kids
<b>Number of interviews</b>	52	48	58	58
<b>Age (median)</b>	34	9	36	11
<b>Interview in English (%)</b>	25	70	40	98
<b>Education: Parent without HS diploma (%) Child's current grade (median)</b>	50	4	32	5
<b>Household size (median)</b>	5		5	
<b>Parent married (%)</b>	65		60	
<b>Years living in U.S. (immigrants only, median)</b>	13		20	
<b>Years living in study site (all parents, median)</b>	8		8	

staff to participate in in-depth interviews. The research team conducted separate interviews with parents and their focal child, in their preferred location (i.e., at school or at home) and language (i.e., Spanish or English), for approximately an hour each. Parents and children answered complementary, mainly open-ended questions about how they make decisions about technology adoption, how connectivity affects their family communication and activities, and how these new technologies are integrated into their media environments.

In just over two weeks at each site, the team conducted interviews with 52 families in California (100 total interviews, in August 2013), 58 families in Arizona (116 total interviews, in March 2014), and 60 families (120 total interviews, in September 2014) in Colorado. Since analysis of the Colorado dataset has just begun, the following summary focuses on findings from the first two field sites.

Interviews with 216 parents and children in California and Arizona underscore how important it is to address digital equity issues for families as a whole. Home-based broadband and digital technology ownership enables family learning pathways—and not only for learning directly related to children’s academic development. For families with immigrant parents in particular, programs that promote broadband and technology adoption offer ways for all members to learn about their adopted community and country, and to identify both opportunities and threats in their environments. What follows is a summary of findings at the intersection of digital technology adoption and family learning.

### **Opportunities offered by technology adoption: Parents’ and children’s perspectives**

In California and Arizona, parents’ decisions to purchase technology or adopt broadband were primarily motivated by desires to support their children’s development and academic attainment. Children increasingly made requests for Internet access and technology as they progressed through elementary grades. Parents had clearly internalized the message that digital literacy is crucial to

success in school. Interviewed parents were willing to make considerable sacrifices to provide technology for their children, and sometimes even \$9.95 per month broadband meant that families were shuffling money around to afford it. Parents often mentioned forgoing items that they desired, and prioritizing technology purchases with tax return proceeds or as Christmas gifts for their children. For example, many children described how their families had given up cable television in order to afford broadband, even though low-income and immigrant parents often find television programming more accessible and enjoyable than online content (see also Clark, 2013; Katz, 2014; Tripp, 2011).

“Sometimes it’s difficult, but I would rather not pay for other things so they can have the Internet for their homework. They used to cut off our service for three months at a time until I could pay for it again.”

—Mother of a 6-year old daughter in Arizona

While Connect2Compete was designed to help previously unconnected families, only two of the 110 interviewed families were getting online for the first time through the program. Rather, families appreciated C2C as an opportunity to further enrich what were often already rather rich media environments. U.S.-born or raised parents in the sample were more likely to describe long histories with the Internet and technology than immigrant parents, even if their connections had been intermittent and they couldn’t necessarily afford the full range of digital technologies they desired. Children’s interviews began by asking them to map out the technology in each room of their home, including stationary media devices (e.g., televisions, computers, DVD players, landline phones, video game consoles), the usual locations of mobile media (e.g., cell phones, smartphones, laptops,

“My son chose not to get a Christmas present in order to have the Internet because we couldn’t buy Christmas presents if we were going to have the Internet. [My children] made that choice.”

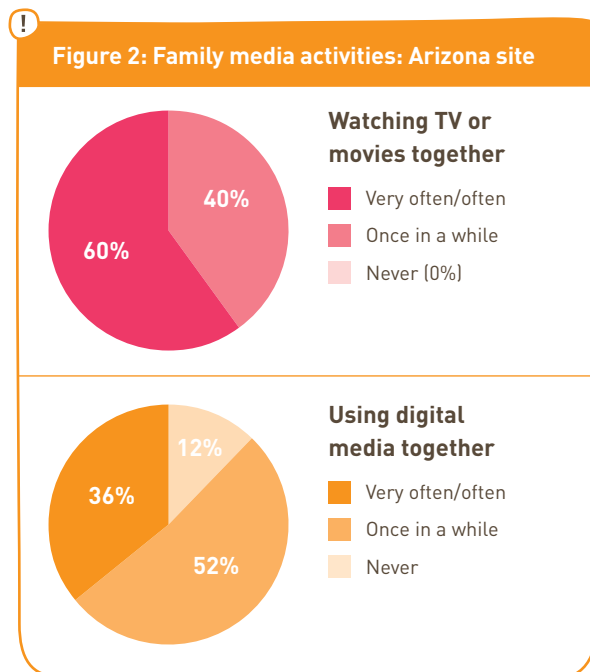
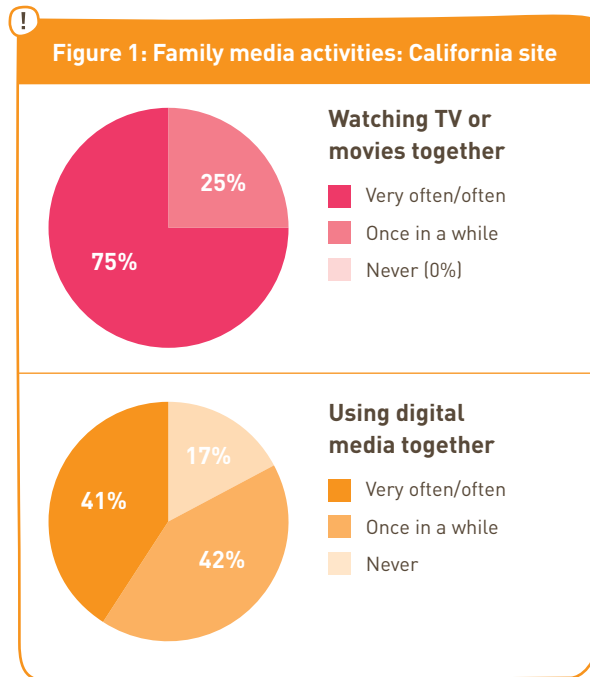
—Mother of a 10-year-old son in Arizona

e-readers), and non-digital media (e.g., books, magazines, newspapers, board games). It was clear from children’s maps that their homes were more media-rich than would generally be presumed for families on the “wrong side” of the digital divide; even district administrators were surprised by these findings.

### Technology for learning at home: Opportunities and constraints

While families in our study were generally open to adopting broadband and new devices, there were important variations between families’ activities with these technologies. Our findings indicated that joint media engagement—which occurs when two or more people use media together in ways that support learning and shared sense-making (Stevens & Penuel, 2010)—was limited with regard to parents and children using broadband and digital technology, as compared with how often they watch TV or movies as a family (see figures 1 and 2).

There are a number of reasons why joint media engagement with digital media was less common than with television. Parents were generally more comfortable using smartphones than laptops or computers, which is consistent with national data showing that low-income Hispanic adults use mobile Internet more than most other social groups (Lopez et al., 2013). Even though schools facilitated families purchasing a low-cost computer (in California) and sent home a school laptop with students (in Arizona), parents used these devices infrequently, either alone or with their children. Generally, parents viewed C2C computers as being “for school,” and they were usually used by children alone, or occasionally, with their siblings. Since immigrant parents (more so than U.S.-born parents) had limited formal education,



they often felt that they had limited capabilities to assist with homework. These feelings were amplified when homework had to be completed in unfamiliar online formats. Since complex tasks, like research projects, are easiest to complete on a computer (as compared with a smartphone), children generally experienced online schoolwork as a solo activity, rather than a collaborative one.

“Pues, yo la verdad no la uso. La que la usa es mi niña. La mas beneficio es de ella ...Ella tiene en su cuarto su computadora pero igual tiene sus horas para poder usarla.”

“To be honest, I don't use [the computer]. My daughter is the one who uses it. She benefits the most from it...she has her computer in her room but there are specific hours she can use it.”

—Mother of a 8 year-old daughter in California

This matters because joint media engagement does not only support learning; such activities are also often pleasurable for both parents and children. Parents and children frequently watched television and movies together, and many used smartphones and tablets to keep in touch with family members living in other parts of the U.S. or in Mexico, via Skype or Facebook. Since most families spent time together with media for entertainment or to maintain family ties, the implicit lesson many children learned was that using computers for schoolwork is a solitary effort. These findings suggest a digital parallel to prior, offline research findings that children of immigrants come to view academic success in the U.S. as a lonely pursuit that distances them from their families (Katz,

“I don't use [the computer] because I don't know how to handle it. But we got it for the children... for their homework. And so that my husband can communicate with his family in Mexico and Honduras.”

—Mother of a 9-year old son in Arizona

2014; Reese, 2001; Stanton-Salazar, 2001). These perceptions are associated with lowered motivation for academic success (Valdés, 1996; Valenzuela 1999). Our research indicates that digital equity initiatives have potential to unintentionally compartmentalize education-related activities in ways that constrain students' enjoyment and adults' capabilities to help guide school-related learning, rather than encourage it.

### Place matters: Differences between schools and communities

While the California and Arizona sites were demographically similar, key differences at community and school levels revealed how important local-level differences are to understanding how families respond to digital equity programs.

The stark distinctions between the political climates in Arizona and California appeared to infuse families' relationships with their communities and their decisions about technology adoption and use. Arizona's recent legislation has cracked down on unauthorized immigration, creating an environment that not only affects undocumented immigrants, but also U.S. citizen children and adults with undocumented immigrants in their families, as well as U.S. citizens who fear being profiled by law enforcement (Aranda, Menjivar, & Donato, 2014).

We interviewed a number of parents and children whose lives had been directly or indirectly affected

by spouses and other relatives being deported (see also Dreby, 2012). Whereas families in California reported using broadband at home and in other local libraries, businesses, and other WiFi-enabled areas, many children in Arizona said that their families no longer used broadband in local spaces once they had it at home. Families in Arizona also reported spending much of their free time at home or near home, and the research team conducted more interviews at home (as opposed to at school) in Arizona than in California or in Denver. Taken together, these findings suggest that families in our Arizona site spent less time in community spaces than families in our California site, which may indicate lower overall comfort in their community.

Decisions about how to use broadband and school technologies at home were also different. In California, the Connect2Compete broadband offer was coupled with either free or reduced-cost desktop computers, depending on the school. In Arizona, the C2C offer was limited to broadband only, because the school district had a 1-to-1 laptop program for students who were in fourth grade and above. One of the key selling points of this program was that families would also benefit from this technology being in the house. However, parents had to sign an agreement at the beginning of the year that informed them that these devices were being monitored by the schools for inappropriate usage. Many parents

and children we interviewed interpreted schools' messages about surveillance of students' activities as a potential threat to family privacy and security. Others viewed it as a nuisance because they could not visit preferred websites, like Facebook. For these reasons, children reported that they generally used school laptops to do and submit homework and then placed them in their cases to return to school in the morning. Most families had a secondary device—be it a laptop, tablet, or cell phone—that parents and children used for a broader range of activities.

These patterns are important for three reasons. First, they highlight the unintended consequences of a well-intentioned district policy designed to maintain the integrity of valuable equipment and to protect students online. By stressing schools' surveillance capabilities in an environment already made tense by the state's immigration legislation, administrators reinforced distance between families and the schools, rather than engaging technology to reduce it. Second, these district policies essentially ensured that the subsidized laptops did not meet their full potential to connect families to online resources. Finally, the divide between schoolwork and other family media activities was further deepened in these families, as compared with those in California, who did not live with the same sense of threat and felt freer to engage with their children's schools and the community at large.

“I got a desktop computer in February for me and for them... because sometimes...they tell me that they cannot get onto certain programs on their school computers. Now they're using their home computer instead of using the school computer.”

—Mother of 12-year-old daughter in Arizona

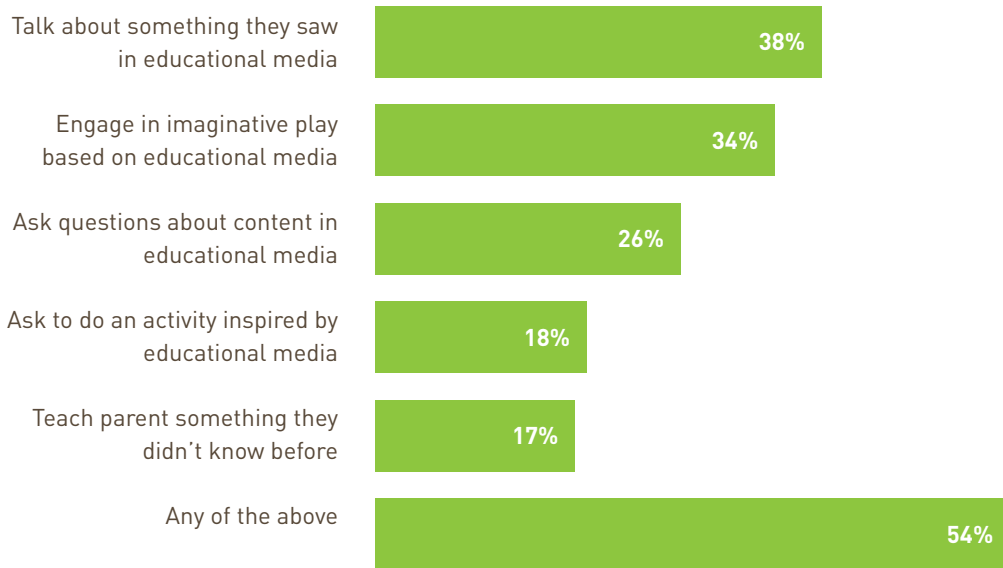
## a national perspective on media and family engagement: the learning at home study

Since learning with digital technologies begins at home for families with young children from all socioeconomic and cultural backgrounds, we turn now to research on deploying educational media in the home, more broadly. In a recent national survey of 1,577 parents with children ages 2 to 10 (of whom 682 were Hispanic), conducted by the Joan Ganz Cooney Center at Sesame Workshop, the importance of home-based media use as an educational opportunity for most families was clearly defined. For example, eight in 10 parents reported that their child engaged with educational media at least weekly, and nearly six in 10 said that their child had “learned a lot” from educational media—ranging from subject domain knowledge, to general skills. Among all surveyed parents of 2- to 10-year-olds who reported that their child uses educational media weekly, the following percentages indicated that their child “often” takes the following actions in response to something they saw or did with educational media, as noted in figure 3.





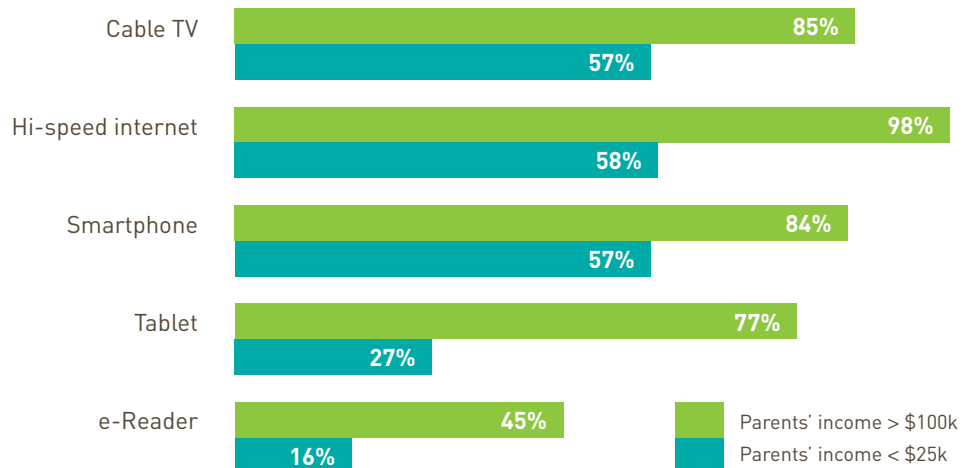
**Figure 3: Actions children take after connecting with educational media**



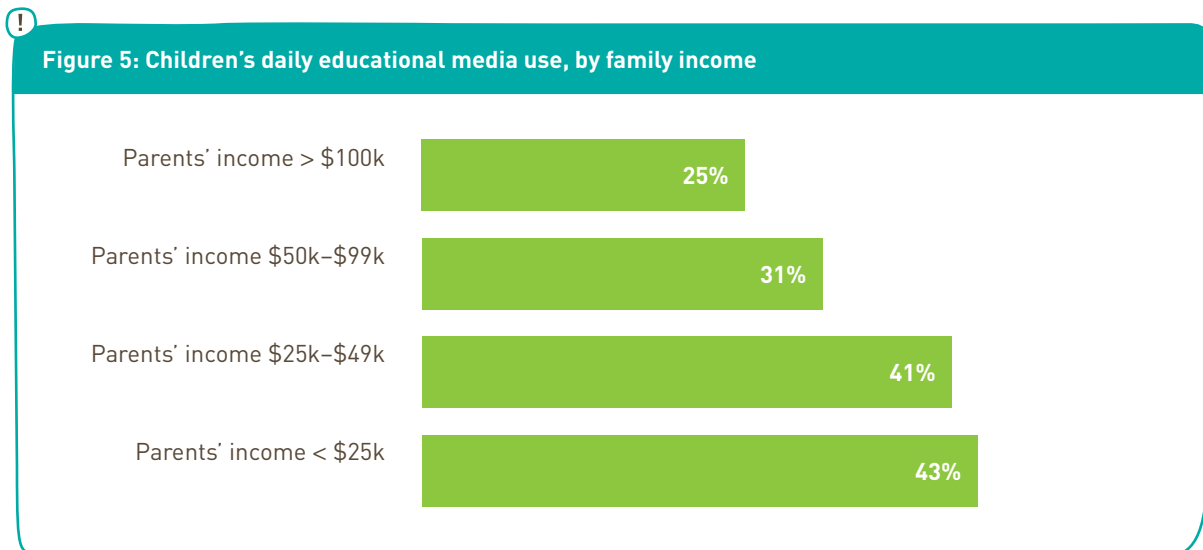
Survey findings reveal some interesting trends for policy makers concerned about providing equitable opportunities for children to learn. Lower-income families owned less media platforms, as seen in figure 4:



**Figure 4: Media platform ownership, by family income**



However, despite owning less devices, children in low-income families use educational media more frequently than higher income ones; figure 5 shows the proportion of parents who report their child uses educational media daily, by income.



These data are especially important for the subsample of 682 Hispanic families who were surveyed, and for whom a special report entitled *Aprendiendo en casa* has been released by the Cooney Center and the LIFE Center this year (Lee & Barron, 2015). These data also provide important context for relevant research on how media access and parental involvement influence children's learning pathways.

In *Aprendiendo en casa*, Lee and Barron report that the majority of Latino families see their children's engagement and interest in media reflected in asking questions, requests to do projects, conversations, and in their imaginative play. Many report that children are learning English and early academic skills from their educational media use. Additionally, some parents report that their child has taught them something based on what they have learned from media. They conclude: "These findings are critically important to better understand and highlight the potential of well-designed media to serve as a catalyst for deeper learning" (Lee & Barron, 2015, p. 8).

Hispanic families have varied access to media and digital technology, which in turn may shape their children's access to educational content on different platforms. Hispanic families most commonly access educational content through television rather than the computer, video games, or mobile devices. Mobile devices have become increasingly important as a conduit to the Internet, but, Lee and Barron found that access differs by language, with Spanish-dominant families experiencing far less access to digital technologies than other families. This points to the need to continue creating strong educational television content for this audience, while developing more mobile content (in Spanish and English) that serves their needs.

Survey findings also indicate that most Hispanic parents whose children use educational media see academic skills gained from these media, particularly in reading and/or vocabulary. Most bilingual and Spanish-dominant families report that their children learn English from educational media, suggesting that many families can benefit

from content that supports English language learning for both children and parents (Lee & Barron, 2015).

Media access also has implications for parents' own learning. Parents' regular use of digital tools was closely associated with access to a high-speed Internet connection at home. Parents who often used digital technology for learning had children who used educational media more often, highlighting an important association between parents' and children's media use. This suggests that an intergenerational approach can be especially useful for media design and deployment to Hispanic families.

Educational media often catalyzed other interesting learning opportunities for children, such as dialogue, imaginative play, and asking questions. For parents from Spanish-dominant homes, educational media also enabled their child to teach them something new. These activities occurred more often among children who used educational media frequently. For surveyed parents, there is great value in media content that serves as a springboard for conversation and activities, as well as content that promotes joint media engagement. Such content is sorely needed, according to this research, across all platforms (Lee & Barron, 2015).

Finally, Hispanic parents—especially those who primarily speak Spanish at home—want more information about media for their young children. Community resources have a special role to play in providing families with such information in both digital and non-digital formats (such as video or print), which are still important channels for reaching lower-income and Spanish-dominant families. A dearth of Spanish-language resources also hampers parents' efforts to learn more about how best to monitor or mediate media for their children. Lee and Barron note: "More parent resources in Spanish and greater awareness of where those resources might be available will help support parents in their efforts to use media to foment their child's learning" (Lee & Barron, 2015, p. 5).



## meaningful connections: recommendations for policymakers

The prior sections summarize recent research on Hispanic families' engagement with technology at home. Important patterns emerge across these studies that are instructive for policy makers, designers, educators and other stakeholders concerned about digital equity for families. Both studies emphasize that lower-income Hispanic families deeply value technology's educational potential. *Aprendiendo en casa* reveals that the lowest income families used the technology that they could access more frequently for educational purposes, as compared with higher-income families. Television content is central to families in both studies and educational content can be a powerful catalyst for learning English and other skills—not only for children, but also for parents. Both studies also suggest that the current digital equity programs and available media content do not fully address these families' needs and desires for meaningful engagement and learning.



Equitable and effective digital media policy development for families will require both fresh thinking and thoughtful adjustments to the current mix of programs and policies. Our findings clearly demonstrate the need for programs like Connect2Compete that focus on digital equity for families as a collective unit. Our results also suggest ways for expanding and adapting C2C that address the challenges of rolling it out in different localities. Some of these changes we recommend will require new investments—especially in professional development; research and development on scalable programs; meaningful incentives for purposeful learning in schools and other settings; and basic technology access. But many of our suggestions can be acted on right now, with the resources that already exist in communities and their educational institutions.

Below, we lay out **five digital technology equity goals and recommendations** for policymakers, state and school district leaders, philanthropy, and public media and program designers to consider. Each places value on key assets that have promising but untapped potential. Each would promote a practical, sustainable balance between individual and family responsibility, while mobilizing needed reforms at the community, state, and national levels.

### **Goal 1: Create new incentives for maximum digital participation**

Our research reveals learning assets in low-income families that are not being fully supported by current technology policies. Low-income Hispanic families with young children are early adopters of mobile technologies with strong traditions of educational media use and established patterns of close family communication and support. And yet, their needs are consistently shortchanged. For example, the LEAD Commission's analyses of the effectiveness of national programs like E-Rate (financed through universal service fees mandated by the FCC), show that low-income school districts with high concentrations of Hispanic and African-American families are still well behind wealthier districts when it comes to high-speed and mobile access to broadband

(Horrigan, 2014). But Hispanic families in the U.S. are clearly catching up with, and even exceeding, other low-income groups in their use of smartphones, tablets, and social networking sites at home (Lopez et al., 2013). This trend implies that family-oriented, two-generation approaches to rolling out technologies are crucial to the success of such efforts.

Financing culturally competent programming through public media providers and technology access through public-private partnerships, can accelerate meaningful participation by reaching low-income families with needed, low-cost educational content. Access to technology is essential, of course, but should be seen only as a first step. Digital equity programs geared toward low-income families should ensure that broadband access is as unrestricted as possible, so that parents and children have the same opportunities to devise their own creative uses for these technologies as higher-income families do. These elements are all essential to creating opportunities for media design and production activities that can promote robust learning and cultural knowledge for families (Schwartz & Gutierrez, 2013).

To help incentivize maximum digital access and participation in learning right from the start, we recommend an experiment with **digital promise coupons** for low-income families and qualified neighborhood libraries, museums, and early learning programs. Building on a proposal by Andrew Rotherham for afterschool coupons (2008); on the “expanded learning” movement championed by foundations including MacArthur, Mozilla, Grable and Mott; and policymakers such as former California Governor Arnold Schwarzenegger, these coupons would allow families and providers of educational services to choose the digital equity services that they feel best serve their needs. A menu of eligible services might include high-speed broadband and educational media programs in local public and charter schools, family support centers, and libraries. Coupons could also offer opportunities for competency-based badges for skill-building and support programs that low-income parents and children can do together. The goal is to extend the strong traditions of joint media engagement already evident in these

homes. Coupons could be financed by universal service fees, seed grants from foundations, capital financing, or social impact bonds from partnerships like those pioneered by Goldman Sachs, the Pritzker Children's Initiative, LISC and the Enterprise Foundation. Focusing on digital equity in redesigned public-private partnerships such as Digital Promise, YOUmedia, and ConnectEd should also build on existing family assets, from the ground up.

We also recommend **refocusing public service media** to include much more robust outreach and aggressive programming goals to successfully engage low-income families, especially Hispanics. The erosion in TV ratings in reaching low-income families in general and Hispanic families in particular is a great concern for public broadcasters. Thus, part of any retooling efforts must help define a useful, relevant framework for parents to make decisions about content that benefits their children, and to help parents understand how digital technologies are valuable across different contexts and child development periods.

Finally, **new community and expert-led rating systems** and curation tools, based on scientific research standards and tied to developmental stages, are now emerging to help parents and caregivers select media content, including those organized by Common Sense Media, the National Association for the Education of Young Children, and the Fred Rogers Center. Making these guidelines available to lower-income and non-English-speaking parents and their children's teachers will require more than translation. These families' concerns should be central to how these recommendations for parent-child interaction, joint media engagement, and connecting media experiences across the home and school environments are presented to and encouraged in these families and communities.

## **Goal 2: Establish a digital learning place in every community**

As children progress through elementary school, they increasingly crave engaging experiences with new technologies. The skills they develop

often outstrip those of adults around them, but they still need help with evaluating information available online and putting their tech skills to a broad range of uses. Kids' enthusiasm for digital activities presents a great "hook" for teaching, but if schools place constraints on what children can do with school-provided technologies, the full range of digital possibilities are effectively reserved for more privileged students and families.

Despite billions of dollars invested in infrastructure programs such as E-Rate and expanded community afterschool programs, most low-income and minority children have no or little access to the best technology-assisted learning available today. Importantly, they lack appropriate guidance and attention from adults on how best to use and leverage the technology. Building on innovative models developed by corporations such as Intel (i.e., Computer Clubhouses), national informal education leaders such as the Boys and Girls Clubs of America, and the federally supported Community Learning Centers, it is time to **create a place in every community** where children can confidently gain interactive technology skills. These centers should expose children across a broad age range to high-quality, engaging digital tools that integrate language and literacy development with deep content learning.

With the goal of creating an expanded digital learning environment in every community, each of the nation's 21st Century Community Learning Centers should undertake its own **digital learning inventory** to determine what is currently being done to advance digital learning in local after-school and summer programs. These inventories should identify currently available funds, the barriers to introducing new resources for digital learning in these programs, and the capacities of local partners to contribute tools needed for technology-based innovations. Program developers should ensure that production- and design-oriented software and hardware are available as children develop increasingly sophisticated skills. For example, in over 3,000 Club Tech centers operated by the Boys and Girls Clubs, and in numerous "maker spaces" supported by foundations and the Institute for Museum and Library Services, available software supports

computer programming, game design, graphic design, and audio and video production. All of our children—not just those with considerable financial capital—need access to these modern tools for creative expression and 21st century learning.

### **Goal 3: Build community capacity: Integrate media use into professional practice**

What happens at home with all learning media—and especially with new digital technologies—will undoubtedly affect behaviors and interactions at school. Studies of parent involvement in early learning and its influence on school performance indicate that alignment between home and school experiences are critical to later success (Henderson & Mapp, 2002). However, formal learning environments have not yet adapted to the types of digital media innovation that would support optimal learning and child development (Levine & Santo, 2013). As our review of recent research findings shows, young children are exposed to digital media both early and frequently. Additionally, a recent survey found that 76% of U.S. K-12 teachers are using digital media in their classroom; the same was true for only 33% of pre-K teachers (PBS and Grunwald Associates, 2010). These findings suggest that training early educators is both urgently needed and potentially very powerful for setting low-income parents and children on a trajectory for confident engagement with digital technologies right from the start.

Administrators, policymakers, and curriculum developers would be well advised to explore ways to support teachers and their digital practices. And as more early childhood teachers begin using digital media, developing innovative curricula that integrate digital pedagogical practices to address the needs of diverse students are critical. To do so, experts have called for **modernizing existing teacher training programs and introducing new digital teaching techniques** in preschools and the primary grades (Barron, Cayton-Hodges, Copple, & Levine, 2011). To help address these issues, Levine and Gee (2012) have proposed a scheme to deploy and effectively combine

educators' talents across settings (e.g., schools, libraries) with a new **digital teacher corps** whose goal would be to use new technologies and teaching techniques to address the wholly preventable reading crisis in America.

### **Goal 4: Catalyze new public-private, federal-state digital equity partnerships**

New state and federal investments, combined with a coherent policy strategy, is imperative to gaining real momentum in using digital media to address learning gaps. As a first step toward developing a national commitment for effective digital innovations in education, we recommend holding **national and state summits on digital learning and opportunity**, focused on forming new public-private partnerships for digital equity and innovation. The Digital Promise initiative, a small-scale partnership effort launched in 2011, can serve as a model for these efforts. That initiative is now focused on engaging networks of innovative schools to scale up best practices that integrate research-based digital learning. It should be expanded to have a laser focus on opportunities for low-income families.

To launch this new emphasis, a series of high level convenings, organized as “innovation clusters” by governors, education chiefs, and economic development leaders, could be organized to assess existing evidence of successful programs and to map new investments in digital technologies for children’s learning. In preparation for national, regional, and state summits, we recommend that the President’s Chief Technology Officer, the Education Secretary, and state education agencies each conduct a funding and program audit to determine how mobile and other digital learning research and development initiatives are currently being handled. Industry leaders should be challenged to announce their own new research and development initiatives to help stimulate creativity in the learning enterprise. Finally, the President should enhance his plan for expanding technology diffusion in under-served schools through a revised National Technology Plan (Levine & Gee, 2011).

## **Goal 5: Empower families to achieve digital equity**

While concerns about digital equity inevitably focus on students and their schools, it is critical that these conversations also consider families' homes as critical sites for children's learning. Efforts to wire under served schools or community institutions will not close opportunity gaps without doing the same for the homes where children live. It is telling that while there are myriad programs currently in place to increase technology adoption and engagement in under-served schools, Connect2Compete and EveryoneOn is the only national initiative working to do the same for low-income families at home. The findings we have presented in this paper underscore the importance of considering students as part of families, and for making families meaningful partners for developing new digital pathways to learning and school success.

Putting families first will avoid pitfalls that can make digital equity programs less successful. For example, our findings reveal that devices that are framed as being "for school" can alienate parents with limited formal education, constraining the fruitful forms of joint media engagement with these devices that occur so frequently around television and other platforms. Even well-funded programs to reduce gaps between lower- and higher-income students are unlikely to realize their goals if they fail to bring parents along with their children. For example, school and district-wide shifts to digital curricula should only be done at a pace that allows parents to keep up with the changes to how their children learn and do homework.

**The next generation of digital equity programs should engage parents in every stage of the process, work to develop parents' familiarity with the platforms, and increase their confidence in using them alongside their children.** Rapid, uncritical adoption of technological innovation is very likely to leave parents behind, reduce their capabilities to help with their children's schoolwork, and exacerbate inter-generational differences that ultimately disadvantage their children's academic advancement, instead of enhancing it.

We recommend that program designers seriously consider what technologies provided through schools and other local outlets can offer low-income parents as well. It is time to develop new **"two-generation" digital learning models.** For low-income parents, the benefits of retooling or developing skills that qualify them for work in new and emerging fields have been well established in the aftermath of the Great Recession (Greenstone & Looney, 2011). Having digital technologies in their homes is the first step to increasing their comfort with these devices and to realizing their promise as tools for lifelong learning which benefit all family members.

Coupled with local career development opportunities, home-based access may increase parents' economic security, which directly advantages their children. Finally, when parents proactively take advantage of new opportunities, enduring lessons on the power of learning are transmitted to the next generation as well.



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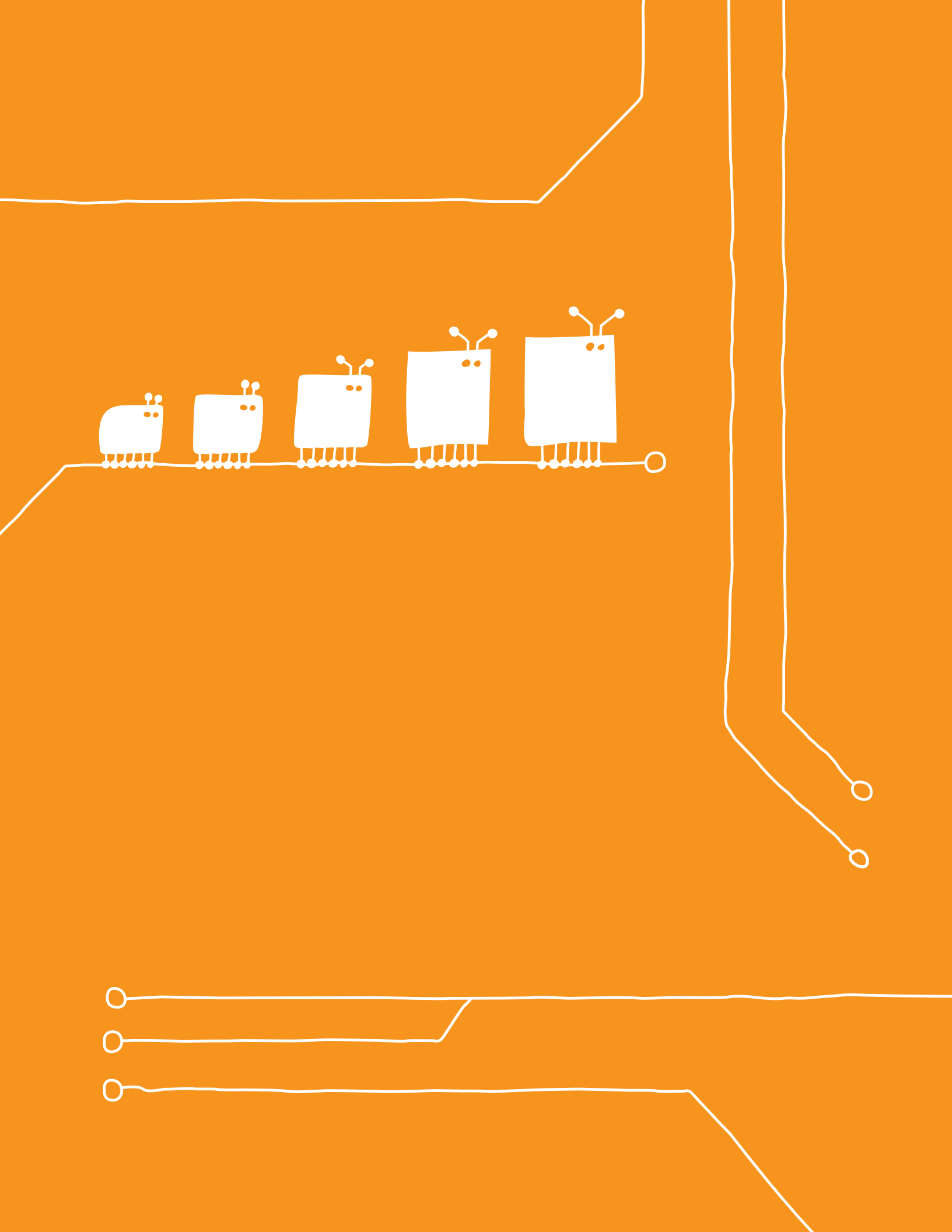
**About the Families and Media Project**

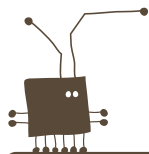
The Families and Media (FAM) Project aims to unearth the potential that media may have for enriching family learning and routines. To accomplish these aims, members of the FAM Research Consortium are conducting a series of studies that link large-scale data with in-depth illustrations. The goals of this research are to stimulate the national conversation around the ways families use digital media together; inform policy on digital equity, family engagement, healthy development and education reform; inspire design of media and media-based interventions and curricula; and create resources for parents and educators to increase the amount and quality of interactions around media.

**The Families and Media Research Consortium**

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The LIFE Center  
Northwestern School of Communications  
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