Digital media and latino families
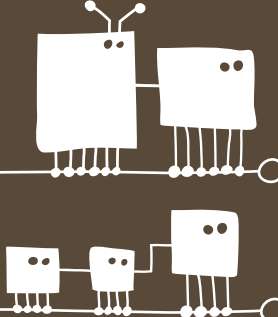
New channels for learning, parenting, and local organizing

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Contents

Executive Summary

This review takes stock of how Latino children and families utilize a variety of electronic devices to access a colorful array of content. This is not a new trend: television and video games have long shaped the nature of play and entertainment in American households. But the fast spread of personal computers and mobile devices hosts a breathtaking range of games, educational programs, and countless apps that aim to engage youngsters and their parents. The potential benefits for children's learning are vast, as are the risks of dumbing-down what passes for meaningful knowledge or weakening the socialization of our offspring.

This revolution for Latino families may be jarring in how information, norms, and passive messaging, along with social ties now mediated by digital tools, take root in the household. Many Latino parents already struggle to raise their children in a foreign, even threatening context. But are such concerns warranted? Do digital platforms and content wield telling effects? We broke down these big issues into four specific questions, then set about gathering evidence on what's being learned about each:

- Which Latino adults and children—across this vast and diverse population—utilize what kinds of digital devices and for what purposes?

- Who produces digital content aimed at children and parents, and how do these for-profit and nonprofit organizations conceive of Latino customers and clients? How do curators of digital content help separate educational apps and programs from relatively mindless entertainment?

- What's known about the effects of digital tools on the learning and wider socialization of Latino children and youths? Do these electronic devices and the content they deliver hold spillover effects on the cohesion and vitality of Latino families?

- How do community organizations deploy digital tools to lift children and families, or to spur civic action?

This review of evidence is arranged in four sections that correspond to these motivating questions. We emphasize throughout how there is so much more to learn about the benefits and risks of this explosion in digital communication, especially when it comes to the conditions and cultural tenets of many Latino parents. That said, here's what we found:

Plugging-in: SECTION 1 details how Latino households increasingly purchase and utilize a mix of digital devices. Television remains the dominant electronic tool in the lives of children, including but not limited to Latino youngsters. The increasing use of smart phones as the primary portal to the Internet is shared by Latino children and their parents nationwide.

Rightful worry over a "digital divide" may ease as Latino parents approach middle-class whites in their propensity to purchase and use mobile devices, including smart phones and tablets. Yet ethnic and class disparities persist in how these tools are used in the home, with low-income parents reporting less frequent use of computers, smartphones, or tablets for educational or school-related purposes.

A digital blizzard. SECTION 2 delves into the interests of digital producers—pursuing both market and educational agendas—as they attempt to engage children and youths. The border between education and entertaining content has long been blurry, especially as game designers help to shape engaging learning packages, apps, and networking sites. The massive volume and range of digital content available to children and families has sparked the creation of curation services, now offered by big for-profit companies as well as more discerning nonprofit organizations.

Major Latino outlets, such as *La Opinion* and *Univision*, now experiment with various platforms to broadcast news, speak directly to parents, and even mount pro-education campaigns. Few other producers in for-profit or nonprofit sectors have created games, programs, or apps tailored to diverse segments of the Latino market. We detail how Latino-serving community organizations think carefully about which digital platforms best connect with what slices of this diverse population. We also review inventive educational games that encourage collaborative learning between children and parents, which fit well with the pro-family values of many Latino families.

Hazy evidence on learning gains and family risks. Our review of the empirical literature finds very few studies that examine even short-term learning effects of digital media for Latino children and families. Old-fashioned learning theory, which focuses on the individual child's cognitive stimulation and processing, tends to constrain how we conceive of learning and socialization within the family or among young peers.

Overall, an unsettling irony emerges from this review. We know that digital tools increasingly shape the daily activities, learning, and upbringing of Latino children from toddlerhood forward. Yet we know little about the benefits and risks of online activities, games, and networking platforms. We have little evidence on the cognitive growth or social norms acquired by the individual child. Nor do we understand how the child's or teen's relations with family and kin may be altered.

We sketch an analytic framework that recognizes how many Latino children grow up in thick social contexts and daily activities, which lend order and routine to life inside the household and with peers. This requires understanding learning effects on the individual child, as well as how digital knowledge and social norms may upset (or strengthen) authority and expertise among parents and children. That is, the rise of digital communication and networks likely holds social, not only individual-level, effects inside Latino households. Early research also points to differing effects based on the child's gender and age, along with the family's social class and language.

Future research might be grounded in clearer theory about the Latino child's everyday social contexts, the kinds of digital tools taken-up, and the facets of learning and socialization that we hope to strengthen. Earlier work on the motivating mechanisms and effects of video games did yield important findings on the psychological and social rewards experienced by children and teens. These foundations are too narrow, however, to fully capture the socialization agendas of diverse Latino parents, the *a priori* forms of authority and social ties that operate, and the kaleidoscopic range of digital material coming at families.

This report aims to inform the producers of digital material, those who hope to engage Latino children and parents, along with the growing range of nonprofits, schools, and funders that hold faith in digital technologies. Despite these high hopes, we continue to work in empirical darkness. Digital tools obviously engage—even rearrange—the everyday activities and ties enjoyed by Latino children and teens. Yet we have much to learn about the long-term effects of these versatile tools on the learning of individual children and the vitality of their families.

1 Aims of the Review: How Digital Media May Lift Latino Children and Families

We know that a variety of Latino families—especially their children and teens—plug into a breathtaking array of digital media. A panoply of producers transmits a widening range of messages, hoping to enrich the learning of, or simply entertain, children and youths. Equally diverse community organizations now employ digital tools to engage and mobilize Latino families, whether to advance early learning, ready high schoolers for college, or spur civic action. The once worrisome "digital divide" is steadily closing.

However, it is not clear what benefits or risks this onslaught of digital information entails for the early growth and school achievement of Latino children and what effects it is having on the authority and efficacy of Latino parents. Many worry about the coarser elements of popular culture and the mediating role of digital media. The penetration of video games, iPads, and mobile phones into children's daily activities—on top of TV time—presents challenges and novel options for all families. For Latino parents, many already struggling with foreign social norms, the digital blitz may subvert their everyday authority and recast traditional roles inside the home.

This report takes stock of how Latinos utilize a variety of electronic platforms, the expanding array of producers and curators of digital content, and how these novel media are deployed by local and national organizations, aiming to strengthen Latino families or the local institutions that serve them.

Review: The Social Processes and Organizations that Mediate Children's Learning

Our findings are presented in five parts. SECTION 2 reviews the growing evidence on

how diverse Latino children and families *utilize digital media*. We are learning about which Latino communities are using what devices and for what purposes. The so-called "digital divide" has received ample attention in civic debates. But this gulf is narrowing as millions of Latino youngsters and parents plug into affordable smart phones or mobile devices that serve as hubs, streaming novel information, facilitating wider social ties.

SECTION 3 turns to what is being learned about the numerous and varied *producers* of digital knowledge and entertainment aiming to influence Latino children and families. The uneven market of kaleidoscopic content—transmitted from startups, national media outlets, and social media sites or nonprofit firms—now spurs the growing subfield of curation. Families and teachers, overwhelmed by options, increasingly rely on *curators* or consultants to sift through apps and programs that claim to be educational. Yet curation services, advanced by for-profit firms and pro-social groups, display uneven quality as well, especially in their capacity to discern what digital material truly advances learning for Latino children and youths.

SECTION 4 then turns to *what's known about the influence of digital media* on learning and socialization inside the home and its role in mobilizing civic action among Latino families locally. Empirical work on the motivational mechanisms that animate Latino children and likely affect parenting practices remains quite thin. Existing studies typically focus on the influence of electronic media on the individual child's knowledge or cognitive skills, ignoring the social effects inside families or peer groups.

We detail how recent research has begun to focus on the social dynamics and home

activities that form the context in which digital engagement takes place. This perspective is directly relevant to many Latino households, given a heritage that stresses firm parental authority and the primacy of the family's collective wellbeing rather than the individual child's interests. Still, culture is not static. Families steadily adapt to novel surroundings. How digital media attempts to alter learning and socialization must be examined within particular contexts, distinguished by the family's cultural commitments and social class.

SECTION 4 *summarizes our findings* and delineates a future *research agenda*. Various broadcasters reach out to diverse Latino audiences. Yet beyond counting who's tuning in, private firms and NGOs display little interest in assessing whether they are lifting learning or influencing the behavior of children, teenagers, or parents in positive ways. This is an area in which foundations and government might invest in research. We articulate pressing empirical questions and describe how thicker evidence could benefit broadcasters, educators, and policy makers. Each of these groups will continue to spend heavily on digital media. It is crucial that we learn which approaches enrich learning and parenting and where effects remain fleeting or even damaging to families and children's development.

## Bounding this Review's Scope in a Boundless Field

Figure 1 sketches the organizational field of digital producers, curators, and end-users. We detail recent evidence on the electronic platforms used by diverse Latino families and the purposes to which these platforms are put. This leads to a discussion of the varied producers of digital media and their motivations. We will focus on designers of mobile apps, which are becoming the main portal for access to digital content. We describe the for-profit and nonprofit curators that have

recently emerged to help guide parents and educators through the thicket of educational games, programs, and apps that target children and youths.

We emphasize how the diverse backgrounds of Latino families condition the regularity of access to digital media, the platforms used, and the extent to which learning or socialization fits into parents' explicit agenda. America's Latino families are far from uniform, differing in their home language, parental education, and acculturation levels, and these differences shape their roles as "end users."

One report cannot detail all aspects of this kaleidoscopic field. We chose not to consider digital messaging that pertains solely to selling products or socializing with friends and family. Everyday conversations over digital channels include news, entertainment, novel ideas or behavior, and social connections, all of which may shape the acculturation and acquisition of social norms by Latino children and youths. For example, when Latino teens share information about college applications, informal chatter may tacitly spur higher aspirations.

Figure 1. Organizational Field:
Who Designs, Destributes, and Uses Digital Media
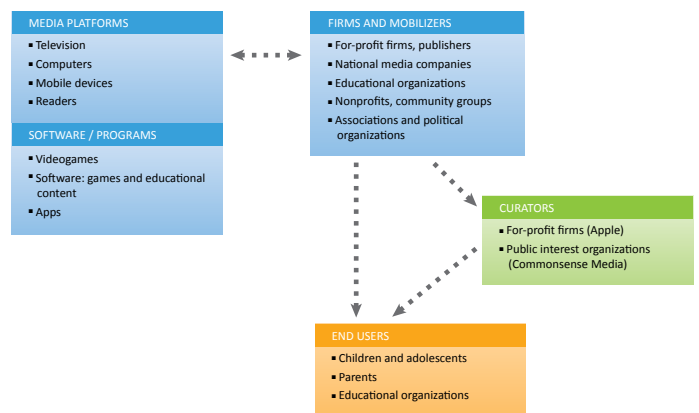
Some digital broadcasters, such as Univison, now blend various platforms to win customers and build their market share,

and they host broadcasts aiming to enrich parenting practices and lift children's learning. Distilling the educational or socializing elements of media normally used for passive entertainment requires careful analysis. In short, the lines between educational programs, entertainment, and social networks are hazy at best. This complex area is worthy of further research. One major takeaway from this review is that very little is known about what Latino children and youths are learning from digital engagements and with whom.

This review also excludes the software and media now proliferating in many public schools, including laptops and mobile devices, as well as the digitally delivered curricula and instructional materials that youngsters encounter in classrooms with rising regularity. This is a huge and growing subsector but is beyond the scope of this report.[1] Instead, we focus on less formal settings in which digital media speak directly to children and families inside homes or peer groups. We pay close attention to how digital tools mediate novel information, norms, and behaviors or structure social interaction among children or between children and adults in the household. Digital and face-to-face dialogue have become quite interwoven, as we will discover for children and parents alike.

2 Plugging-in: Diverse Latinos Engage Digital Media

We are learning much about how a colorful spectrum of Latino children and families now engage a variety of platforms and digital content to advance differing goals. These users often pursue some form of learning or novel information. Even when the purpose of these engagements is entertainment, they may convey fresh ideas or social norms that hold appeal for young Latinos. And the much-discussed "digital divide" is narrowing overall, with more complex disparities now surfacing than simple access. Findings on the utilization of digital media, along with the past half-century of research on family practices among Latino populations, require that we disaggregate subgroups as we consider the incursion of digital media into the everyday activities of children and youths.

A Narrowing Digital Divide

Results from national surveys now challenge earlier worries over Latino access to digital media and the types of technologies used. The notion of a "digital divide" between Latino and white Americans does not recognize the rapid rate at which Latino children and families now access a variety of media through mobile devices, including smart phones. Rates of access and how digital technologies are put to use appear to vary based on immigrant generation, country of origin, residency status, literacy level, and social class (Katz, Ang, & Suro, 2012). The emerging disparity centers on how parents deploy digital tools to advance children's early learning, or not (Katz & Levine, 2015).

Latinos' ownership of digital devices, especially cell phones and smart phones, lags only slightly behind that of middle-class whites. However, a significant gap in the use of laptops and tablet devices persists. This suggests that the uses and forms of media accessed by Latino parents and children may differ from, and perhaps be less educational than, the uses and forms of media accessed by middle-class whites. And wide differences in ownership and uses of digital technology persist, associated with family income, immigrant status, and home language among Latino communities (Common Sense Media, 2013; Lopez, Gonzalez-Barrera, & Patten, 2013; Wartella, Kirkpatrick, Rideout, Lauricella, & Connell, 2013).

Let's unpack these recent findings. One national survey recently found that 72% percent of Latino adults reported owning a desktop or laptop computer, compared to 83% of white families (Lopez, Gonzalez-Barrera, & Patten, 2013). Yet almost nine in 10 Latinos (86%) reported owning a cell phone, a proportion statistically equal to the 84% reported by white families. Similarly, 49% of Latino adults owned smart phones compared to 46% of white adults surveyed. Latino respondents did lag behind their white peers in owning a personal computer or tablet. Still, the digital divide appears to be narrowing in terms of owning a mobile device that offers access to a variety of Web-based portals. Widening access to cell phones may be driven by declining costs and the versatility of mobile devices for accessing a variety of websites.

The same survey found that the use of mobile devices is distributed unevenly across ethnic groups (Figure 2). From 2009 to 2012, the share of Latino adults who said they go online via any platform increased from 64% to 78%. Internet use increased seven percentage points among white families, from 80% in 2009 to 87% in 2012. These figures suggest that Latinos have caught up quite recently—a trend driven mostly by native-born and English-speaking Latinos as we detail below.
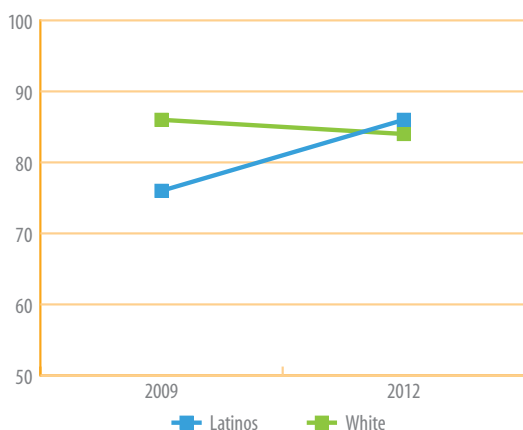
Figure 2. Internet Use by Ethnic Group
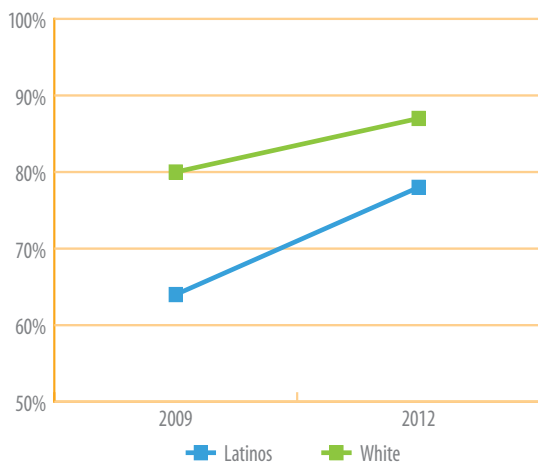
Percentage of ownership reported in 2009 and 2012. Data from Lopez, Gonzalez-Barrera, and Patten (2013).

The proportion of Latinos who said they owned a cell phone rose to 76% between 2009 and 2012, while the proportion of whites possessing a cell phone remained steady during the same period (Figure 3). Gaps still persist for lower-income Latinos, especially those with limited English proficiency. The 2013 Pew survey found that fully 95% of Latino adults with annual incomes of $50,000 or more at least owned a desktop or laptop computer. Similarly, 97% of members of this group also owned a cell phone, while 76% own smart phones. But among Latino adults with yearly incomes below $30,000, 63% reported owning a computer, and just 40% owned a smart phone, while 83% owned a cell phone.

Figure 3. Cell Phone Ownership by Ethnic Group

Percentage of ownership reported in 2009 and 2012. Data from Lopez, Gonzalez-Barrera, and Patten (2013).

Cell phone ownership remains lowest among Spanish-dominant Latinos (78%), compared with English-dominant Latinos (93%, Figure 4). Just 29% of Spanish-dominant Latinos owned a smart phone in 2012, while 59% of English-dominant Latinos owned such a device. Similarly, 59% of Spanish-speaking households owned a computer, relative to the 82% of English-speaking Latino households that owned either a desktop or a laptop.
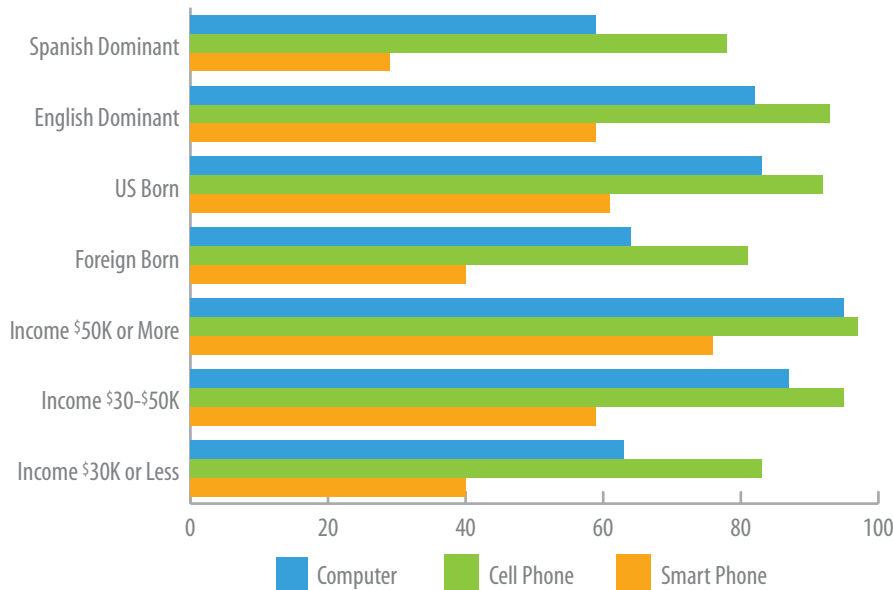
The Pew survey similarly revealed that native-born Latinos were more likely to own certain digital devices when compared to foreign-born counterparts. Rates of cell phone ownership are high overall: 92% of native-born and 81% of foreign-born Latinos report owning one. Smart phones are now owned by 61% of native-born and 40% of foreign-born Latinos. And 83% of native-born Latinos report having a personal computer at home, relative to 64% of foreign-born Latinos. Fully 41% of Latinos report residing in "cell phone only" homes with no access to a landline telephone.

Latinos still lag slightly behind whites in the ownership of tablets and e-readers: 25% of white adults own these devices, compared with 20% of Latino adults in 2012 (Lopez, Gonzalez-Barrera, & Patten, 2013). Yet a more recent national survey from Northwestern University found that a rising share of Latinos are adding iPads and Android tablets to their digital repertoires, catching up on this front as well (Wartella et al., 2013).

Differing Uses of Digital Media and the Internet

Variation in the ownership of digital devices tends to mirror differences in how these tools are utilized by parents or children. The most recent Pew survey finds that almost all families with annual income of $50,000 or more (95%) use the Internet, reporting at least occasional access. But "regular" use of the Web ranges much lower for low-income households, including among Latinos. And

Figure 4. Device Ownership in Diverse Latino Households

Legend: Computer | Cell Phone | Smart Phone

Categories (top to bottom): Spanish Dominant, English Dominant, US Born, Foreign Born, Income $50K or More, Income $30-$50K, Income $30K or Less

X-axis: 0 to 100

subgroup differences are stark. Of Latinos who report *never* using the Internet, just 21% are native born, while 79% are foreign born. Among regular Latino Internet users, 72% are either English dominant or bilingual.

The presence of children in Latino households is clearly tied to going online. Half (52%) of Latino Internet users report having a dependent child under age 18 in the home. Among Latinos who report never accessing the Web, just one-third (35%) have a dependent child resident in their household.

Social networking represents a basic—though not traditionally educational—use of digital media. Pew surveys reveal that among Latino Web users, about two-thirds report using Facebook, Twitter, or another networking site. This compares with 58% of all adults in 2012. Fully 84% of Latino Internet users, age 18 to 29, report engaging in social networking, the highest rate among any Latino age group.

Just over half (54%) of Latinos who use social media are native-born Americans, whereas 57% of Latinos who report never using social networking sites are foreign born. Similarly,

among Latinos using social networking sites, 60% say they communicate online mostly or only in English, versus just 29% who report composing mainly in Spanish.

How Children and Parents Engage Digital Media

We are beginning to learn about the prevalence of educational activities as Latino families take up a range of digital devices. Latino parents, like other mothers and fathers, deploy digital tools as electronic babysitters or to reward desired behavior. Whether this encourages learning or beneficial social ties remains an open question. With mobile technology in particular, the practice of "passing back" a device to a child in order to entertain them while the parent conducts other activities, such as driving, cooking, or cleaning, has become more prevalent across all families (Chiong & Shuler, 2010). While Latino parents also "pass back" digital devices, they still use television as the primary tool to occupy children, deploying mobile devices, handheld games, and computers less frequently for that purpose (Wartella et al., 2013).

Another question is whether "joint media engagement" between parent and child frequently occurs among Latino families. Previous studies have extolled the virtues of parents who collaborate with their children in reading, watching educational television, or playing games, backed by findings demonstrating that these media can advance learning (Chiong & Shuler, 2010; Takeuchi & Stevens, 2011). During such interactions, parents play a key role in curating and helping to animate content for the young child. This joint engagement in Latino (often Spanish-dominant) households is sometimes bi-directional and results in cooperative learning between the child and the parent. We report below on how many Latino organizations, utilizing digital tools, see the child or adolescent as the primary agent of innovative action. Here the role of the more knowledgeable actor may switch between parent and child.

How Media Alter Family Roles

As Latino children become digital experts, new media are placing them in authoritative roles vis-à-vis parents and other kin. Latino families acquire digital tools for a variety of household activities, not only to create learning opportunities for their children. Parents rely on their children's digital savvy to help them with shopping, finding locations, quick entertainment, and making a multitude of social connections. Vikki Katz (2014) details how these varied uses place even young children in the role of broker between the outside world—including with doctors, banks, and landlords—and Spanish-speaking parents or kin. Katz's evidence suggests that children's brokering can strengthen family relationships and children's own skills.

Katz shows how the physical layout of homes and who exercises authority or autonomy help to shape children's use of digital media. The uneven literacy of many Latino parents may constrain how digital media are used

by children. Katz argues that by increasing access and media skills, families will be able to utilize digital media in ways that educate and connect youngsters to their immediate community and beyond. Her research further suggests that the brokering of media can deepen ties within the family and facilitate collaborative learning. While children may have stronger technological know-how, parents offer authority, behavioral norms, and cultural practices to guide their development.

We soon turn to how producers of digital content and platforms consider the collaborative role played by many Latino children in advising their parents and older kin members.

Personalizing Media for Diverse Latinos

Digital producers transmit messages and educational content to a diverse range of Latino children and parents. We detail below, for example, the digital work of nonprofit and for-profit producers in Chicago firms that aim to prepare Latino teens for college, organize young Latina professionals or parents of preschoolers, advertise upcoming parades and cultural events, or mobilize political action. Messages and platforms are tailored for differing ages, language preferences, and social-classes. As various producers consider how to reach differing segments of rapidly growing Latino communities, they must consider localized concerns and their firm's own niche in a competitive marketplace of digital producers.

Considering the variety of Latino groups, Constantakis and Valdés (2013) suggest that strategies must (a) transmit messages that are relevant and important to the parent; (b) go beyond merely translating a message from mainstream English and provide information that's culturally relevant and pertains to parents' everyday concerns, including how children are raised; and (c) consider how

Latino families vary. But does the widening range of digital producers consider diverse Latino users in such discerning ways?

Let's examine how the variety of digital producers and electronic platforms aim to entertain or advance the learning of children and their parents. We focus on the rapid spread of educational apps, given the growing prevalence of mobile devices as ready portals into various content. The rapid spread of digital content aimed at children and teens has also sparked so-called curation services to help parents sort the wheat from chaff. We turn next to these topics.

3 What's Educational? Producing and Curating Digital Content for Children and Families

Producers may consider learning aims, children's social ties, or even Latino cultural forms as they craft digital content and platforms. But market competition among producers and the thirst for quick entertainment among viewers, while not always in conflict with learning, spurs creation of a variety of material that's unrelated to education or the vitality of families. Still, the vibrant and inventive character of this producer market must be taken into account, as children, parents, and educators sift through the kaleidoscopic array of online material. This section focuses on the spread of digital applications (apps) aimed at children and families as well as the growth of curation services that serve parents and schools.

The use of mobile apps is expanding rapidly across families. In 2013, 75% of children 0-8 years of age had access to some type of mobile device, as reported by their parents, a figure that stood at 52% just two years earlier (Common Sense Media, 2013). Sixty-three percent of children in this age range played games, while half engaged other kinds of apps, including educational programs. Forty-seven percent (47%) reportedly watched videos; only 30% read books on mobile devices.

Growth of Mobile Platforms and App Producers

The burgeoning app market is spurred by the spread of smart phones, tablets, and the software that runs on them. This market—preceded by video games and computer-based software—emerged in 2007 with the introduction of the Apple iPhone, followed by the iPad in 2010. Following on Apple's heels, Google introduced an operating system called Android, now used by hundreds of device manufacturers. In just seven years Apple has

sold over 600 million devices, while Google Android sales currently total one billion devices worldwide (D'Orazio, 2013). Americans own about 70 million tablets (Orr, 2013) and 177 million smart phones (Smith, 2013; U.S. Census Bureau, 2014).

These same market studies indicate that Apple's App Store and Google Play each offer about 1 million apps pegged to their respective devices. Each online store lists over 20 categories of apps that may serve Latino children and families, sorted under headings like "Education," "Medical," and "Finance." Developers of mobile apps designate their own categories and labels, presumably based on some notion of how families conceive of activities or domains.

The purpose and quality of mobile apps vary tremendously. Many aimed at children or families have little to do with learning, or at least have no specific educational goal. One review organization found that just 5% of apps pegged for children or youths received the highest rating for educational potential (Pai, 2014). Apple applies some standards to assess the quality of apps before accepting them into their App Store to "ensure they are reliable, perform as expected, and are free of offensive material" (Apple, 2014). Google Play has a more liberal acceptance policy for Android apps but regularly removes apps that are of very low quality or violate its developer program policies (Google, 2014).

Curation of Apps for Families and Educators

The remarkable growth of mobile apps easily accessed by children and families has spurred the birth of curation services, efforts that operate independently of producers to identify

age-appropriate educational content for young children through older teens (Figure 5). Consumers of course help to drive demand for educational content. But producers may devise new apps or packages based on ambiguous demand signals, especially when aiming to connect with Latino segments of the market.

In this rapidly expanding arena, the vast majority of producers are small businesses with inventive verve but limited resources for reading the market and promoting their apps. They must also weigh whether to market widely to children and families or seek a niche that speaks more directly to particular kinds of households or educators. So families face a barrage of apps, only a fraction of which manifests educational value, advancing cognitive, linguistic, or social skills with utility in schools and formal organizations. Parents seeking digital material for their children may have little time for finding apps, let alone sufficient expertise to evaluate their quality. This results in demand for independent curators with expertise in learning and child development, which can link app producers and consumers in meaningful ways.

Curation services have emerged from various locations, including from producers and more objective agencies with stronger knowledge of child development and learning. While the consumer version of Google Play does little to assess apps beyond tags such as "recommended" or "favorites," Apple iTunes is expanding its use of curated "collections" targeted at specific users and their interests. This screening procedure includes an "education" category that directs users to subcategories such as "preschool and kindergarten" and to specific topics such as math, literacy, and early science; art and music; health and daily life; family time; and books. The criteria employed by Apple staff to select certain apps over others remain unavailable. It appears that Apple values apps that share their visual design and particular aesthetic in addition to (or rather than) educational quality.

Google recently launched a service for schools called Google Play for Education, which curates apps with a seal indicating approval by unnamed educators. Google, like Apple, does not publish its criteria for selecting certain apps or digital content over other packages.

Figure 5. Curation Services Connect App Producers with Consumers
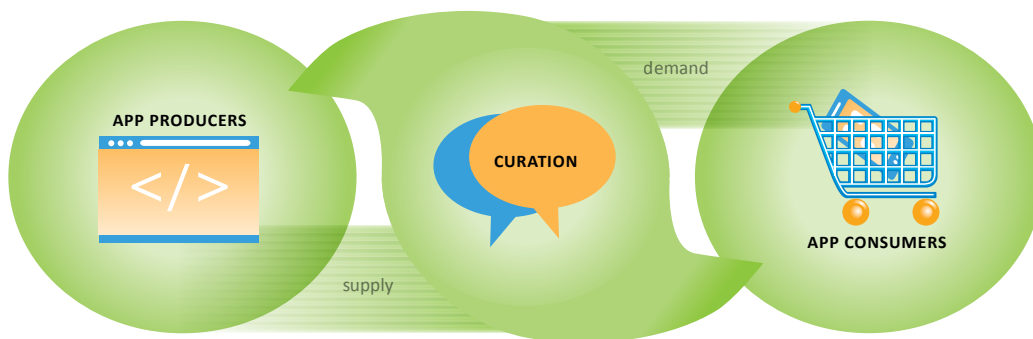
Both companies reap earnings from apps that sell. It's difficult to assume that their curation services are truly independent of business interests.

Independent curation services publicly report structured criteria for assessing the quality of recommended apps. Common Sense Media, for example, is a nonprofit organization based in San Francisco that rates and reviews apps, video games, education programs, and movies, gauging developmental appropriateness and learning potential. Their curation is available free of charge for children, parents, and educators accessible online and via their mobile app, Kids Media. Staff at Common Sense Media conduct content analyses of academic and extra-curricular subjects such as math, literacy, and children's arts. They cover a host of more general skill areas with an emphasis on what "kids need to think, live, work and succeed in the world of tomorrow." These topics or skills include critical thinking, collaboration, and creativity; other social and emotional skills; technological proficiencies; and health and physical exercise.

This nonprofit firm employs a multi-dimensional rubric to rate each product for learning potential, taking into account the child's active engagement, the program's pedagogical approach, whether the program supports multiple types of learners, and supplemental learning activities conducted off-screen. In this way, the curator advances the user's understanding of how social relationships may be nurtured rather than assuming that individual-level cognition or learning alone is the primary aim of digital activities. Little is known about the extent to which Latino children or parents employ curation services. The Common Sense site easily switches between English and Spanish, but it does not account for the specific learning or socialization aims of Latino or non-mainstream parents.

Common Sense Media runs a separate curation service for preschool and K-12 teachers called

Graphite (www.graphite.org). This service uses rating criteria similar to those of the parent–consumer site but includes additional information such as teacher ratings, "field notes" from teachers with implementation tips, and evaluation of the programs' relevance to Common Core State (curriculum) Standards. Reviews of digital media are available for learning in "small groups" along with content that may aid English-language learners. Other than the ability to search for apps in English or Spanish, Graphite does not currently include services tailored to Latino students, parents, or educators.

A second nonprofit curator, Children's Technology Review, offers fairly rigorous reviews and ratings of children's digital media. A handful of for-profit curators have sprouted in recent years as well, which vary in the depth of their analysis, details provided to users, and the transparency of their review criteria. Three of these curators—Kindertown, YogiPlay, and Appolicious—offer no tailoring for the learning or socialization aims of Latino families, perhaps unaware of culturally situated parenting practices. While such for-profit firms hope to thrive in a competitive market, it remains unclear whether curation can be sustained solely through fees or advertising revenues.

How curators can effectively help educators who serve Latino children, remains a wide open question. We know that inventive schools are integrating digital platforms and content into classrooms and wider learning environments (e.g., community projects). This takes place in charter schools; so-called "flipped classrooms," which involve Web-based lectures at home; and digital content imported into home schooling (Fuller, Dauter, & Waite, in press). As rising counts of teachers and parents employ apps and digital content, a de facto curation service is evolving, and teacher-oriented curation services like Graphite or Google Play for Education may have an indirect influence on families. But we can find no

evidence on whether and how social networks linking educators, students, and parents reach Latino families in ways that lift the quality of educational content. And little is known about how Latino parents or kids select apps and what learning results from this colorful range of content.

How Families Search for and Use Apps

One recent study suggests that most parents do not use curation services. The vast majority of parents discover educational media while browsing or on the recommendation of teachers or friends (Rideout, 2014). However, this research found that Latino parents were more likely than white or black parents to want more information from experts on how to find high-quality educational media. Almost three-fourths (74%) of Latino parents said that they "strongly agree" or "agree" with the statement, "I would like more information from experts about how to find good TV shows, games, and websites that can support my child's learning" (Rideout, 2014:26, 50). Parents with lower school attainment and income expressed stronger demand for help in finding educationally rich content. While this survey question did not ask specifically about apps, it seems reasonable to infer that similar patterns hold for advice about high-quality educational apps.

Learning About the Latino Market

Within this vibrant marketplace, what forms of apps hold the most promise for enriching the learning and socialization of Latino children and youths? We begin to address this question by discussing the types of pro-education apps that aim to advance the individual child's cognitive or social development. Next, we move to the potential of digital media to strengthen social ties and peer relations, including cooperative play or action inside the family. This takes us to the wider arena of how digital media are being deployed to improve parenting practices and mobilize families in ways that are culturally situated.

Two sets of apps may best lift the learning and socialization of Latino children. These include digital content that focuses on English language learning and emerging apps that offer adaptive learning activities, which respond to a wide range of learners (with varying language proficiency). A search for "English language learning apps" reveals dozens of reasonable quality tailored for the Latino market. Pedagogies range from traditional approaches translated to app format, to innovative learning designs. One company, Voxy, helps Spanish speakers learn English by personalizing content taken from local events, news stories, and favorite music lyrics. Using geographic data and other advanced features of smart phones, this firm steadily updates a stream of content tailored to the user's everyday activities, creating a motivating learning experience.

Adaptive learning programs also customize learning paths through a curriculum, based on formative assessment data that reveal how to best scaffold the learner's progress, advancing new information that's contingent on prior knowledge. These systems are emerging primarily for the school market, but some products, such as Dream Box Learning for early math, are well suited to home use. The adaptive learning approach could be used to address culturally specific needs of Latino children by tailoring the mix of Spanish and English instructional materials for individual students. Latino learners might also benefit from high-quality apps that meet the educational needs of students more generally. This latter category is receiving intense interest among start-up firms and educational publishers.

Strengthening Social Ties and Family Relationships

A subset of apps may encourage cooperative action with peers and family members, moving beyond learning experienced by the lone child. This holds great potential in many Latino

households where pro-family commitments remain strong and parents worry about the risks of unfettered digital material. Apps can be designed to advance social ties, whether reinforcing traditional forms of parental authority or spurring role reversals in which children teach parents. These apps enhance the child's brokering role by contributing novel information and resources.

Novel apps can emphasize the knowledge and experience of parents or Latino forbearers, encouraging literacy skills and family-wide collaboration. Historypin lets users attach a digital copy of an old photo to its original location, linking to Google Maps. The user then shares stories of the past and pursues historical angles from a personal, locally tailored perspective. Parents or teachers employ this digital device to examine facets of cultural heritage, kin, and language that originate from various locations within the U.S. or the family's country of origin.

Another example is a preschool-level app called Alien Assignment. This collaborative game invites parents to assess the quality of photographs taken by their child. Children first view a story about little green aliens that crash into earth in their flying saucer. The stranded family asks young players to help fix the spacecraft by taking photographs of objects related to specific problems. To help repair the wheels, for instance, their assignment is to take a picture of "something that rolls." The app then prompts children to show the photo to their parents, who assess its accuracy by touching a "thumbs up" or "thumbs down" button. Parent–child interactions encourage discussion of topics prompted by the images. When all assignments are completed, the family blasts off, returning to its home planet.

This kind of digital content, which fosters a fun and easy form of cooperation, may appeal to Latino parents who seek shared activities that advance pro-family socialization priorities. Other apps encourage children and parents to draw on local knowledge, personal interests, and family activities. Still others teach even young children math concepts by inquiring about objects in their household or consulting with parents, who consider household budgets and practical applications. As they share newfound skills, children and youths may gain confidence and maturity as they proceed through school.

This familiarity with a variety of apps also spills over to the brokering role played by many Latino children and adolescents, bridging their Spanish-speaking parents and kin members with the English-speaking world. A child with effective online search skills, for example, can locate potentially valuable resources in the community regarding health care, school options, legal advice, or college aid. This brokering role, as noted earlier, may disrupt traditional hierarchies within Latino families while yielding deeper analytic and communication skills for the child.

Overall, app developers hold the potential to advance three facets of children's learning and development: advancing school-related knowledge and cognitive skills, offering tools that spur interaction within families, and linking children and parents to community resources. Yet this requires that apps and digital content carefully address the learning and socialization goals of Latino parents and educators. This niche could prove profitable in a competitive marketplace, and efforts by foundations and nonprofits may increase the availability of pro-learning apps. But whether these design efforts can go to scale and thrive in this evolving market remains an open question.

Human-Centered Design

The design of linguistically and culturally appropriate digital material that aims to advance learning may be spurred by the field of human computer interaction (HCI). The core concept of HCI is that designers work closely

with members of a particular user group from the start of the development process, testing and refining prototypes through multiple iterations. The result of this process is rapid development of tools tailored to the specific learning priorities of specific communities. Ongoing feedback from Latino users could advance the creation of apps that speak to socialization and learning aims.

We examined organizations in Chicago that already mount iterative attempts to engage viewers, gain feedback, and adjust digital platforms and content to be more engaging. The firm New Futuro, for example, works with educators and Latino students to lift more graduates into college (see the appendix). New Futuro offers high school teachers and counselors print and online material related to college readiness. Adolescents then join New Futuro to gain access to a steady stream of reminders and additional information. Students and sponsoring teachers are steadily engaged through Web-based connections via personal computers, Facebook postings, and a versatile website. This for-profit social enterprise is moving toward a simple mobile app as the nexus from which students and teachers can branch into various channels of information and create social ties with college-bound teens.

Other start-up companies or associations dedicated to reaching Latino users are beginning to surface, including *StartUp Weekend* and the annual *Latin@s in Tech* conference, sponsored by the Kapor Center in Oakland. How nonprofits, pro-learning curators, and educators enter this market to enrich digital content for Latino children and families is another emerging question. Curation remains pivotal in separating the high quality wheat of educational content from the chaff of pure entertainment. Many of the most educational software packages incorporate elements of gaming. Parents and educators also shape the market by expressing demand for digital content that speaks to their aims for learning

and socialization.

This brings us to the question of how digital media may enhance or disrupt the childrearing agendas of Latino parents and how this varies across subgroups and individual families. New media already alter the knowledge, authority, and cultural mores that offspring exercise within their families. What are we discovering about individual cognitive and wider social effects as children spend more time engaged with electronic devices? What's changing about children's learning and socialization within Latino families? And what are the implications for parents and educators who try to sustain their own authority and efficacy, often exercised in dissonant settings and even conducted in separate languages? Let's turn next to these questions.

4   Thin Evidence of Digital Benefits: Children's Learning in Family Contexts

We know much about the digital tools wielded by Latino children and parents inside the home and with peers. We also have reviewed how market experts and scholars describe the widening range of games, software, and apps that producers—whether carefully focused on children's learning or not—bring to this robust marketplace. Yet we remain in the empirical dark regarding two key questions. What do Latino children and adolescents actually learn—including knowledge, social skills, and behavioral norms—as they engage a variety of digital platforms and content? And how does this learning or socialization, in turn, affect children's social ties with peers, parents, and family?

The digital revolution is powered in part by a shared desire for entertainment and novel information. Deeper learning may unfold as the child experiences new stimuli, social norms, and cognitive challenges via digital media. But what share of time online actually involves activities that advance language skills, cognitive processing, or behavioral agility? And how might these forms of learning contribute to the child's success in school?

This section first describes key features of the *family environment* that may condition individual learning and social effects inside households, given the reordering of everyday activities by electronic media ever since the 1950s rise of television. We draw conceptually on the idea of *social ecology*, a framework introduced by cultural scholars a half-century ago. The ecological metaphor emphasizes how families try to settle into community niches that are economically sustainable and aligned with preferred child-rearing practices. The household provides a *developmental niche* in which the child is cared for and socialized. Youngsters, in turn, learn how to become members of this social collective, competently behaving and communicating in ways that are consonant with the family's norms, economic situation, and cultural practices (Kagitcibasi & Berry, 1989; Super & Harkness, 1986). The social-ecology frame helps us understand how cultural or linguistic groups reproduce home practices in accord with their heritage while adapting to novel social norms, tools, and learning from the outside.

We then sketch three learning theories that speak to the child's direct experience with learning tools or the everyday activities (in the home or with peers) in which digital and other tools are employed by the child or parent. These contrasting frameworks offer differing ways to map the effects of digital media on children's learning and socialization within the family context. Causal reasoning remains thin in early studies of how digital media may shape learning situated in Latino households or peer groups.

This section also reviews how digital media act to *motivate* the individual child or teen to engage digital tools. Culturally patterned forms of parenting and home activities likely impact children's opportunities to log on. But beyond that, how do different platforms and content spur children to engage and, ideally, pursue educational activities? Early research into children's motivation to engage video games still frames how scholars conceive of individual and social effects of digital media inside families.

Finally, we summarize the small body of literature that finds *benefits or risks* to Latino children or their families. This work continues

to center on the individual child, stopping short of gauging effects on peers, siblings, or the family's cohesion and vitality. We emphasize theoretical frameworks that place the child and parent within a social context where certain tools are valued, either for learning and socialization or simply to occupy the child while other family members attend to other tasks (similar to Takeuchi and Levine's [2013] theoretical approach). We suggest that careful thinking about causality, social mechanisms, and family-level effects could inform the design of future research.

Hofferth (2010) has advanced four theoretical frames that help to categorize prior lines of research. These include studies that emphasize the (passive) *social learning* of children watching television; those that focus on *cultivation* (socialization), such as acquisition of norms about gender roles or tolerable violence from video games and other media; those that highlight the match between the *function* of media (learning, entertainment, social networking) and the child's developmental readiness; and those that advance *displacement theory*, which suggests that time spent with digital media reduces social engagement or healthy physical activity. (The latter framework, in contrast to others, does relate to the child's surrounding context, especially the array of social activities that characterize households.) These categories help to inform our map of earlier research on the child's motivation to engage digital media and downstream effects of these media on learning.

The Family's Social Ecology: Filled with Media, Old and New

Different theories of learning posit differing series of causal steps that represent how the child is motivated to engage in an activity and how resulting learning (individually or with others) is mediated by tools and social or virtual interaction. These pathways are likely conditioned by the deeper structure of activities and social norms in which the youngster is embedded at home or with peers. We argue that the child's expected role in the family and participation in household activities provides a structure that conditions the uses and effects of digital media. Seeing the family and child as situated in a social ecology that sustains cultural forms and adapts to novel surroundings allows us to understand how this backdrop of activities, behavioral norms, and parental expectations influence children's engagement with digital media.

Tools for learning in family context. Central to the social-ecology framework is the postulate that the family must adapt to its surrounding social ecology, the immediate environs that host differing kinds of jobs, varying levels of economic security, and normative assumptions about how to raise one's child (Bronfenbrenner, 1986; Vygotsky, 1980). Parents then raise their child within a *developmental niche* that offers a reprieve from external exigencies while preparing youngsters for the economic demands and dominating social forms that await them (Kagitcibasi & Berry, 1989). The linguistic conventions, forms of social authority, and tools for learning that parents incorporate into how they socialize their children tend to become taken for granted within particular ethnic groups and social classes (Hess & Shipman, 1962; Lareau, 2003).

The economic and social environs to which parents must adapt, of course, vary widely and typically change over time. This leads to two competing dynamics, according to ecocultural theorists who focus on child rearing practices.

First, *culturally embedded practices persist inside the family*. Many Latino parents, for example, focus on proper behavior and comportment, along with respect for adult authority, as they nurture young children (Fuller & García Coll, 2010; Valdes, 1998). At parent–teacher meetings, for instance, Latino parents often

ask, "*como se comporte mi hijo?*" ("How is my child behaving?"), while failing to inquire about their youngster's performance on academic tasks. We know that Latino children start school with strong social skills and positive behavior relative to white middle-class peers, despite large gaps in preliteracy skills (Crosnoe, 2007; Galindo & Fuller, 2010; Guerrero et al., 2013). This emphasis on social maturity, cooperative skills, and compliance with adult authority may be adaptive yet insufficient when it comes to achieving in school and eventually the labor force.

At the same time, *novel social forms and tools for learning* often intrude into the child's developmental niche even as parents reproduce familiar home practices. The protective bounds of this niche may filter these outside influences but cannot fully deflect them (Weisner, 2005). Young Latino children, especially those in home-based childcare arrangements, often watch several hours of television each day, which can include programming in both Spanish and English (Bridges et al., in press). This passive form of media introduces all kinds of middle-class values, ranging from individual expression and humor to violence, novel gender roles, and sarcasm—social norms that may run counter to traditional Latino notions of adult authority, proper language, and family cohesion.

Takeuchi and Levine (2014) pick up the story here—asking how the intrusion of new and multiple devices affect what they are learning and how. A related question pertains to how these new tools may alter family roles and yield novel resources via peers and formal institutions. As noted previously, bilingual children often broker the social relations of parents or grandparents when they visit the doctor, school, or post office (Katz, 2014). Digital media likely contribute to this radical shift in social authority, giving children access to the information necessary for the parent or grandparent to operate outside the family.[2] This interplay between persisting and traditional parenting practices likely depends upon the Latino family's nativity, home language, and social-class position.

Overall, the social-ecology frame emphasizes the household context as the first site in which digital tools are wielded and in which cognitive proficiencies and social relations first develop. Video games, personal computers, or tablets all introduce novel information and foreign social norms. But siblings and adults inside the home (or peers outside it) mediate how these tools are deployed, the time children spend with these devices, and how images and novel behavior are interpreted. Digital media can advance intentional forms of child rearing, serving as tools for nurturing cognitive skills, language growth, and peer relations. Or, children may plug into these devices with little guidance and scarce discussion of what is being learned and what behaviors are modeled. How we theorize about the specific pathways through which digital media shape children's growth and family cohesion must take the household's social organization into account.

Widening presence of media in the home. Electronic media and the messages they convey have long shaped everyday activities inside the family. Television remains the most prevalent device to which children have access, but video games, personal computers, tablets, and smart phones are now being added to the mix of children's activities. Two-fifths of the nation's children under eight years of age have a television in their bedroom, according to one survey (Common Sense, 2013). Overall, Latino children under eleven years old watch about one hour of television each day, but this level doubles for Latino teens and is even higher for those with English-speaking parents (Thompson, Sibinga, Jennings, Bair-Merritt, & Christakis, 2010).

Among low-income Latino families in New York surveyed in 2002, the average 4-year-old watched television over 2.5 hours per day, and half of children that age had televisions in their bedrooms (Dennison, Erb, & Jenkins, 2002). A

more recent survey found that Latino families are more likely to own a high-definition TV and stream more video content online than non-Latinos (Pardo & Dreas, 2011). About one-third of Latino families report that the television is on for at least four hours each day.

Television hosts a colorful spectrum of channels, and over the past quarter century it became the dominant medium for video games. The personal computer later delivered a fresh variety of online games, educational content, and networking tools. One national survey found that "moderate media-using" *parents* spend just over four and a half hours looking at a screen of some kind each day (Wartella et al., 2013). This includes over two hours of television, one and a half hours on a computer, and another half hour on a smart phone. Even preschool-age children in poor families enjoy regular access to various media. Among families utilizing Head Start preschools nationally, 57% of parents said their young child had a television in his or her bedroom and over one-third used a personal computer or other digital device each day (Fletcher, Whitaker, Marino, & Anderson, 2013).

The expanding use of smart phones, tablets, and other portable devices has contributed to the kaleidoscopic array of content now being viewed. Focusing on the family context, households with at least one child, age 4 to 14 years, currently own 11 electronic communication devices on average (NPD Group, 2009). Latino users of mobile phones complete more calls daily, 13 on average, than members of any other ethnic group, and they send or receive over 900 text messages per month (a rate due in part to the youthful nature of the nation's Latino population; Nielsen Company, 2012).

We emphasize this diversifying range of digital *platforms* for two reasons. First, the medium is not simply the message: it also distributes *social authority* and information among youngsters and parents in new ways. When

a child retreats to her room and accesses the Internet, she enters an infinite world of messages, ways of behaving, and social networking options about which the parent has little knowledge. On the other hand, when a parent, scurrying about the house, decides to occupy his toddler with a tablet or smart phone, he exercises the authority to allocate electronic tools and thus manipulate the child's activities. These dynamics may have distinct implications for Latino families, which tend to emphasize social authority and mutual obligations among family members, perhaps contrasting the individualistic or autonomous notions of children's activities more prevalent within white or middle-class households.

Second, the widening range of devices within the home likely alters the everyday *structure of activities*. One can imagine a young Latino family in which children watch *Sesame Street* or *Dora the Explorer* on television or retreat to their bedrooms to play on a PC or tablet while the parents are busy texting and checking their smart phones. All this may feel educational and certainly engaging. Yet it interferes with direct interaction, enjoying meals together, and the assumption that parents hold expertise and authority, which once characterized household activities. So as we map causal linkages between digital media and learning, we should distinguish between *individual-level* effects (e.g., effects on cognitive learning, social ties, and physical health) and *social* effects related to relationships, including changes in the vitality and norms of social organizations such as families, classrooms, and peer groups. This social arena includes changes in the coherence of civic life and benefits gained or lost in public spaces.

Digital media may alter or enrich parenting practices. A small-scale experiment by the Ounce of Prevention in Chicago, for example, sends text messages to low-income mothers containing simple activities to engage in with their young children (see Appendix). This use of digital media may attempt to

alter prior beliefs or behavior, leading to normative questions—toward what ends are we socializing children—which become interwoven with empirical questions pertaining to the effects of digital tools on normatively defined outcomes. Producers of digital content—be they entertainment or education-oriented firms—often advance forms of learning or social behavior that the producer believes are valid. Yet these producers may work from little information about the aims and practices advanced by parents and how families conceive of the developmental niche in which they raise their children.

Researchers differ on how families are organized to advance children's learning and social development. This includes differing assumptions about the degrees to which conscious or tacit practices (rooted in cultural or class-based heritage) come to pattern everyday activities and home practices. The individual child or parent may be unaware of how messages or novel social ties come to alter their earlier held social norms or knowledge. Indeed, it's the novelty of information—now at our fingertips—that draws us into digital media.

Three theories of how the child learns or how the family arranges child rearing and socialization have direct implications for how we conceive of digital media's effects on children and families.

Learning Theory 1: Intentional Parenting with Resources or Developmental Risks

How we conceive of the family's influence on young children's learning and socialization continues to be framed by *developmental-risk theory*. We have long known that middle-class parents intentionally engage in learning activities more frequently and utilize print materials, "richer" language, and educational tools with greater intensity than low-income parents (e.g., Duncan, Morris, & Rodrigues, 2011; Hess, Holloway, Dickson, & Price, 1984; McLoyd, 1990). These volitional, purposefully structured activities lead to a variety of cognitive and social-developmental benefits for children, across ethnic and linguistic groups. But their prevalence and content—now including the use of digital tools—differ systematically across social classes according to this theoretical frame (Bradley, Corwyn, McAdoo, & García Coll, 2001; Crosnoe, 2007).

In this light, concerns about the "digital divide"—the unequal availability of digital tools and their unequal utilization by children and parents—are well warranted. While the availability of cell phones and other mobile devices continues to grow, Latino users report less frequent use of these devices to advance discrete learning goals (as opposed to chatting and social networking), compared with middle-class and affluent white families (Wartella et al., 2013). This highlights the importance of understanding prior family dynamics and learning agendas before theorizing the pathways by which digital engagement affects the household.

Yet this focus on developmental risks and their alleged association with the family's social position has been criticized from two perspectives. First, the theory is founded upon the assumption that economically poor parents necessarily exercise poor parenting, compared to the normatively endorsed forms of child rearing exercised by white middle-class families. This stems in part from the theoretical hangover of the "culture of poverty" perspective, which assumed that material poverty leads to a variety of intertwined risk factors (for review, Fuller & García Coll, 2010). It turns out that many Latino parents, even those who are economically disadvantaged, socialize their children in robust ways, leading to strong social skills and task engagement as they enter kindergarten (Galindo & Fuller, 2010).

Research into the so-called *immigrant paradox* details how first-generation Latino parents

often give birth to healthy infants and nurture young children in tight-knit families and that these children then outperform those of similarly poor, yet native-born, parents (García Coll & Marks, 2012). Similar findings for first- and later-generation Asian parents and their young children have surfaced over the past decade as well. These results suggest that social class and the family's economic resources may differentially shape the child's preliteracy skills and social development—at least for Latino and Asian immigrants. In considering the role of digital tools we must distinguish among parenting practices and home activities that may differentially advance cognitive, linguistic, and social-behavioral growth.

Learning Theory 2: Learning and Socialization as Culturally Situated

Studies of child-rearing and parenting practices among differing ethnic or linguistic groups gave rise to a second framework over a half-century ago. This perspective begins not by focusing on lone cognitive stimulation but instead on the desire to belong and become competent within a social setting. As Herder (1966:195) postulated, "to be a member of a group is to think and act in a certain way, in light of particular goals, values, pictures of the world." Latino parents often emphasize socialization goals and forms of parental authority and social behavior that differ from those emphasized by middle-class and affluent parents of white Anglo heritage. This line of work prompts the second criticism of developmental-risk theory.

Qualitative observations help to illuminate the core features of child-rearing practices and socialization found in many Latino households. These practices aim to nurture young children who display proper comportment (*bien educado*), subordination of individual interests to the family's collective well-being (*familismo*), early maturation and care for siblings, and respect and affection

for kin members (*con respeto y cariño*; Fuller & García Coll, 2010; Harkness & Super, 1996; Halgunseth, Ispa, & Rudy, 2006).

How the process of children's learning is tacitly held or actively discussed by parents, along with the tools deployed to advance socialization, are necessarily situated within these culturally nested scripts and goals. For example, one study found that Latino parents endorsed children's use of cell phones but feared that personal computers and the Internet isolated their youngsters, promoting individualistic values and lax personal discipline (Leonardi, 2003). Similarly, Tripp's (2011) long-term work inside the homes of middle-school students found that Latino parents limited online access more strictly, arguing that the computer should be used only for homework, compared with white parents who liberally allowed self-directed use by their youngsters. The very meaning and function of digital tools was thus socially constructed. A further distinction was noted by Ahn (2011), who found that Latino adolescents are about 25 percent less likely to maintain profiles on social networking sites than their white peers.

The social organization of Latino families, of course, varies among social-class and linguistic groups (just as it does among white populations). As discussed above, families also operate within an economic and social ecology that constantly advances novel economic demands and social norms. That is, home practices may remain rooted in cultural heritage but must also adapt to evolving contextual demands, which confront parents and children alike (Weisner, 2005; Tudge, 2008). It is these external demands or norms that condition how digital media shape individual learning and social relations inside the family, according to this theoretical perspective.

Tablets or smart phones may be deployed by white middle-class parents to advance language and literacy skills or to host educational games seen as cognitively

stimulating. In contrast, low-income Latino parents, who may lack literacy skills and not fully grasp the potential of digital tools, may focus on the proper and robust socialization of their young children. They may assume that it is the school and professional teacher that impart literacy skills. It is such tacitly held (culturally embedded) social understandings that structure children's everyday activities, social obligations, and tools for learning—or perhaps lead to autonomous action by children or youths when parenting practices feel too distant from external norms.

The developmental-risk perspective assumes that certain kinds of home activities are necessary to advance children's early cognitive growth—household tasks that may not be natural or customary in non-white families. Reading together is a prime example, perhaps the most dominant indicator of positive parenting in the eyes of developmental-risk adherents. A close second is lateral communication with children and explaining the reasons behind misbehavior (versus "authoritarian" parenting). Both social forms are more common in middle-class white households. But it is not clear whether these practices directly yield stronger developmental gains for children or whether they are proxies for deeper social relations. Reading together, for example, may simply be one manifestation of close nurturance. We don't know whether the desirable effects of these parenting practices are universal, applying equally in non-white cultural contexts (Livas-Dlott et al., 2010).

Rogoff (2003) emphasizes that cognitive action occurs in interactions with tools or other individuals, a process she and others label *social cognition*. Her work demonstrates how children in some Latino groups learn by observing adults or peers performing household tasks, from diapering a younger sibling to cooking or plucking a chicken. A series of empirical studies show how young children acquire knowledge and attain

membership in the family by watching an adult explain a task to a sibling or another child rather than through structured or didactic instruction (e.g., López, Correa-Chávez, Rogoff, & Gutiérrez, 2010).

This has direct implications for how we situate digital tools within socialization activities inside the home, whether "guided" by the parent or the child. What is being learned and through what mentoring or didactic processes is likely conditioned by these cultural routines. But given the dominance of individual-centered psychological notions of learning and cognition, we can be distracted from how digital tools fit into cultural patterns and everyday activities in the home.

Learning Theory 3: Learning Embedded in Home Activities

One branch of scholars, descendants of the social-ecology tradition, focuses on the structure of core *activities* that animate everyday life inside the home. It is the activity, rather than the individual child, that becomes the key unit of analysis. Such scholars tend to focus in particular on how children and adults acquire new information or behaviors when engaged in household chores, meals, hosting visitors, television viewing, or engaging digital tools (Tudge, 2008). This emphasis stems from Vygotsky's focus on how the economic conditions in which the family is situated drove the structure of activities in which children were engaged almost a century ago (Wertsch, 1985). With the arrival of economic security for many families, who no longer had to labor in fields or factories, expected activities became tied to institutional goals, such as achieving in school or acquiring the necessary cultural knowledge to enter the labor force in a favorable position. The key point is that the child's learning and socialization occur within bounded activities and that these tasks are motivated by the immediate social environs, including expectations pressed by parents or peers (Cole, Engeström, & Vasquez, 1997).

Digital tools can be seen as situated within these everyday activities of working, playing, and virtual interaction, which may tie the individual child to siblings, friends, or parents. Our own study of activity structures inside first and second-generation Mexican-American homes revealed that preschool-age children spend considerable time cooking with their mothers or helping around the house. But they also spent several hours each day watching television or playing video games, absent much social interaction with any adult (Bridges et al., in press). This is consistent with other work showing that while activity structures stem from persisting cultural routines, activities that predominate the wider society, shaped by media firms and electronic programs, come to pattern daily life inside the homes of acculturating immigrant groups (Hardway & Fuligni, 2006; Tudge, 2008).

The child's profile of everyday activities may vary based on the family's cultural heritage or social position, along with the child's age and peer group. Yet to map the causal pathways by which digital tools shape children's learning and social relations, we must understand how these tools are situated in routinized activity structures. Contemporary digital tools may be deployed and engaged in ways that resemble television. Young children may retreat to their rooms to play video games or log onto the Internet while busy parents attend to other tasks or younger siblings. Parents may hand their child a mobile device to simply keep them busy. It is the persisting structure of such activities that helps to explain whether and what kind of learning is expected. On the other hand, the mere amount of time that Latino children and youths now spend with a digital device, along with parents' uneven capacity to monitor use, may be altering the distribution of household activities as well. This remains a huge empirical question about which little is known.

Motivating Children's Engagement with Digital Tools?

Early research on how digital technologies motivate the individual child and what's being learned evolved independently of these more recent conceptions of how the child is embedded in everyday activities and cultural norms. Still, we must learn more about what motivates the child, dyad, or peer group to engage a digital device. Producers and scholars now spend considerable time and resources trying to uncover these motivations.

We can think of motivated engagement in terms of the *individual*'s psychological experience or how *social groups* define digital tools as normatively attractive, yielding intrinsic rewards through interaction and networking. The latter focus seems obvious when one considers the sense of belonging or affiliation tied to children's widening use of social media and mobile devices. The earlier psychological focus on individual learning falls short when it comes to identifying the social motivators of digital engagement and how situations with multiple actors facilitate certain kinds of learning or socialization. Let's take stock of earlier lines of thinking about the individual and social sources of motivated engagement.

Individual-level motivation. Early research on the motivating hooks embedded in video games still dominates the literature. This work identifies differing elements of the medium that appear to motivate children or adolescents. It includes research on why they spend time playing and what kinds of games they prefer. On the first question, surface rationales are not surprising; adolescents give reasons like "it's just fun" or "I'm totally absorbed." Group differences emerge in the propensity to select particular genres, ranging from sports to "survival horror" games. Females tend to opt more for simulation or educational games, while males prefer action-oriented, aggressive experiences. Girls tend to

value the social opportunities of gaming more than boys, whereas males report valuing both the individual stimulation and competing with their friends (Hamlen, 2011; Hoffman & Nadelson, 2010).

Learning theorists dig deeper into the psychological experience that motivates the user's engagement, including the sense of competence that comes from learning how to move up levels in a game. This line of research line began with video games but now extends to other digital platforms as well. Video games are effective learning devices, according to Gee (2008), as they enable children to use their knowledge to perform increasingly complex and challenging tasks, provide information that is useful and timely, and create a context or "world" that is novel and engaging. As the individual comes to master a game's sequence of tasks, he or she experiences feelings of competence and efficacy, in turn motivating ongoing engagement (also, Ito et al., 2008; Tesoriero & Lozano, 2012).

This account of individual-level engagement resembles earlier work of social psychologists that identifies intrinsic motivators that surface as the individual engages in tasks that vary in level of challenge and expectation of success (Lewin, 1938; Deci, 1977). It harks back to the human relations tradition in organizational studies, including studies by firms that attempted to identify the kinds of tasks that workers find intrinsically motivating. These results highlighted motivating elements of everyday tasks, such as novelty, fresh challenges, social recognition, and a feeling of membership within a cohesive social group (Mayo, 1945; Scott, 1981).

By the 1970s social psychologists were associating task structures to psychological experiences that children or adults found motivating, such as the perception of competence, novelty, and recognition, independent of extrinsic rewards or incentives allocated by others (Deci, 1980). Parallel work

also showed that strict external controls or stultifying work routines tended to displace the individual's experience of intrinsic motivation and desire to remain engaged in a task (Lepper, Greene, & Nisbett, 1973; Ryan & Deci, 2000). This line of research on intrinsic motivators now informs work on why children and teens so readily engage video games. Still, little work examines the role of intrinsic motivators in cognitive or social learning.

The social organization of motivation. Children and teenagers frequently glance at their phones or go online to check text messages and Facebook updates or to join games played by compatriots. A child may sit alone, but online she is far from engaging alone. So while effects on learning or behavior are experienced or expressed by the individual, the desire to feel competent or reap expressive rewards with family members or peers may motivate the steady use of digital tools. One study, for instance, found that three-fifths of all boys reported being at a friend's house when playing video games, and two-fifths played in the home of a kin member (Andrews & Haythornthwaite, 2007). Over half of the nation's teenagers say that social networking "mainly helped" their peer relationships; one-quarter report that it makes them more outgoing (Rideout, 2013). Still, Latino teenagers are half as likely to play in a virtual or in-person group of friends as white peers, according to a national survey (Lenhart et al., 2008).

How teenagers engage digital media exemplifies the socially embedded nature of these inventive tools. "Today's youth may be coming of age and struggling for autonomy and identity as did their predecessors, but they are doing so amid new worlds for communication, friendship, play, and self-expression" (Ito et al., 2008:1,10). These scholars argue that the cultural fabric and core activities of adolescence have shifted dramatically in less than a generation, with more time spent gaming, texting, and social

networking. Yet these activities are "friendship driven," extending out from in-person relationships and cooperative activities and spilling over to teenagers' ties with parents, teachers, and other adults.

Digital devices help foster the pursuit of friendships along with the kinds of ideas, social rituals, and forms of fun that electronic media facilitate. Ito and colleagues emphasize how digital tools help to extend in-person social ties; the meanings and terms of membership begin with interpersonal contact and are then advanced via electronic devices and shared content. "The majority of youth use new media to 'hang out' and extend existing friendships… their primary source of affiliation, friendship, and romantic partners. Their lives online mirror this local network."

Ito's research team details how many youths "geek out" and pursue networks of individuals with shared interests, building social ties and channels for learning that extend beyond local peer groups. They discovered teenagers that dug deeply into creative writing, video production, and political dialogue, based on a three-year qualitative study of diverse youths. Youths adopted identities drawn from the norms and conventions of groups motivated by specific topical interests or associations, describing themselves within these communal bounds as "geeks, freaks, musicians, artists, and dorks." Digital tools offer "a degree of freedom and autonomy for youth that is less apparent in a classroom setting," motivating them via exploration and self-directed learning, in sharp contrast to regulated routines that characterize traditional schooling.

Ito's study delves into how "networked publics" of youths can be structured along lines of gender, ethnicity and language, or musical tastes, at times generating new forms of literacy and ways of signaling social membership. The association called Machinima, for example, claims to be "the dominant video entertainment network for young males around the world." The *Mitú* video network, an offshoot of YouTube, claims to be "100% dedicado al lifestyle Latino."

Homegrown examples of hybrid forms of acculturation also arise. The staff at New Futuro in Chicago described Twitter conversations among young second-generation Latinas, in which they even recalled and adapted old recipes of their grandmothers. Membership in particular groups or affiliations motivates digital extensions of these ties, which may involve novel forms of literacy and social expression. In turn, novel digital connections often yield new social ties, either in-person with peers or virtual associations.

How socially embedded motivations to engage digital media can enrich home practices or classroom dynamics remains a huge question. The psychological notion of individual stimulation and learning dominates thinking about digital technologies, recalling students trooping down to the school's computer room each week. Digital materials for children continue to stress language and literacy skills, focused on nurturing the lone child's cognitive acumen (e.g., when perusing a curation site like Common Sense Media). Yet software designers and educators are making strides in marrying digital tools to cooperative forms of learning among peers. One research team utilized KidPad and Klump, software that facilitates collaborative creation and storytelling with two or more children (Benford, 1999). Teachers facilitated children's cooperative work, then let children craft their own tales, draw accompanying illustrations, and devise dramatic presentations, resulting in strong cognitive and social learning (Di Blas, Paolini, & Sabiescu, 2012).

Children may cooperatively work with adults in designing new educational software, an exercise that can yield strong cognitive and social benefits for youngsters (Guha & Druin, 2010). How the cooperative skills

and peer relations emanating from many Latino households may condition the social motivation to engage, or the effects of, digital media remain intriguing questions. Dual-generation programs, where Latino children engage digital tools with their parents, such as efforts in the Salt Lake City schools, may yield rich data on this collaborative strategy (reviewed in Vaala, 2013).

Little is known about the comparative benefits of digitally mediated learning when mixed with direct human contact. One recent study, drawing on a Skype-facilitated experiment with a sample of toddlers and parents, focused on learning novel verbs under differing conditions (Roseberry, Pasek, & Golinkoff, 2014). Children aged 24-30 months interacted with an adult via Skype to introduce and verbally practice fresh words. This was compared to live interaction with an adult or live interaction in combination with the Skype instruction. Learning was strongest under the latter condition. That is, the Skype-mediated experience boosted the effect size but only when combined with direct human conversation. How this might generalize to other media or age groups remains unknown. But these findings do suggest that future research should focus on the interplay between screen-based experience and social relations between live compatriots.

Sketchy Evidence on Benefits for Latino Children and Families

Hard evidence on the long-term effects of digital media, whether focusing on children or teens, remains scarce. Even fewer studies examine benefits or risks to Latino youngsters. Two promising lines of research are emerging: *longitudinal tracking of children* and their engagement with digital media and *experimental studies* of discrete projects or content. This work focuses on three types of *outcomes*: children's learning or social behavior (in the home or with peers); engagement between child and parent; and in-depth qualitative studies conducted inside Latino

homes or peer groups, which illuminate causal pathways and social mechanisms (e.g., Katz, 2014; Tripp, 2011).

Research by Hofferth and Moon (2011) describes how change in youths' use of digital tools may be associated with cognitive or behavioral change over time. These scholars drew from the 2003 and 2008 data waves of the Panel Study of Income Dynamics (PSID), a nationally representative sample of 1,221 youths between 9 and 18 years of age. Hofferth and Moon first report on baseline levels of media engagement and change over the five-year period, including hours spent on video games, personal computers, and mobile devices (reported by parents and youths via time diaries). Latino teenagers spent more time with digital media as they grew older, for example, spending almost two hours emailing each week in 2008, compared to just 20 minutes in 2003 (when five years younger). Latinos spent about one additional hour on video or computer-based games over this same period. Television remained the dominant medium for Latino youths, who watched 14 hours per week, compared to one half hour of digital connection that reportedly informed school homework.[3]

How does variability in time spent on digital platforms relate to student gains in reading comprehension and the capacity to solve mathematical problems? Hofferth and Moon employed a fixed-effects statistical technique to estimate the effect of "within-child" change in media use on achievement change (reducing the risk of selection bias where confounding factors tied to family background). Overall, youths that spent a rising numbers of hours playing video games enjoyed greater gains in reading comprehension and applied math problems than youths who did not increase their game playing. But Latino teenagers did not share this advantage. White youths spent four and a half hours weekly playing video games in 2008, compared to just over three hours for Latino teens. No significant negative effects could be detected from the increased

use of digital media among Latino girls or boys.

A similar study of children, which tracked them from age 6 to 12 years (1997 to 2003), found that increased use of digital tools by white and black girls improved reading skills and performance on applied math problems (Hofferth, 2010). But increased time spent playing video games depressed reading and verbal skills for all girls on average. Findings for boys were inconsistent in the cognitive domain, but increased play of video games significantly elevated aggressive social behavior. Hofferth found more positive effects for children who started at a low baseline of digital utilization and then increased usage, especially of video games. Other researchers have found smaller effects for children from lower-income families, though these studies drew on modest samples and cross-sectional analysis, less carefully accounting for confounding factors (Warschauer & Matuchniak, 2010).

Little is known about how the rising use of digital media reduces time spent in other household or peer activities and in turn shapes social behavior within families and peer groups. Popular concern is expressed over the force of digital media in displacing what are viewed as positive activities, from meals with the family to spending more time on homework. Greater social isolation of even toddlers has been suggested by early qualitative work (Steiner-Adair, 2013). On the other hand, moderate increases in time spent on video gaming may simply displace time previously spent watching television. And declines in family interaction may be tied equally to parents' rising use of digital media (Nikken & Jansz, 2006; Wright et al., 2001). When personal computers with Internet access were experimentally introduced into homes by Subrahmanyam et al. (2001), interaction among children and parents declined in the first year but then returned to earlier frequency levels. Overall, little longitudinal evidence is available that speaks

to shifts in the family ecology, either for wide populations or for Latino households in particular.

The second genre of research involves evaluation of specific programs or digital content that aim to lift children's literacy or cognitive skills, at times focusing on Latino youngsters and families. Brooks' (2013) initial study of Big Bird's Word App offers one example, where just under half of all participating children were of Latino origin within Idaho preschool classrooms. Preschool teachers encouraged 154 children aged 3–5 years were encouraged to play with mobile phones equipped with this Sesame Street app. The control group of children was given print workbooks that contained the same focal words, such as *milk*, *egg*, *carrot*, *oranges*, and *cereal*. Electronic and print content covered aspects of each word (how it is spelled, pronounced), as well as how the word is used at home and the origins of each farm product. Children and teachers participating in the experimental or placebo group were asked to explore materials during 10 days over a four-week period.

Brooks found significant gains in children's ability to identify the focal words between the pre- and post-test, with a positive interaction for children in the treatment condition who utilized the digital device and Big Bird app. Moderate to large gains were observed when these children were asked questions like "Where does milk come from?" or "How many eggs are in a dozen?" This initial study also surfaced implementation issues: just half the preschool teachers were familiar with smart phones in these poor communities, and children tended to play with their mobile device for fewer days than intended by the program designers.

Sesame Street researchers also conduct focus groups when field-testing new home-based materials. Cultural sensitivities often arise with Latino parents when learning materials,

for instance, touch upon family stress and divorce, nutrition or causes of childhood obesity, and incarceration of fathers (Galarza, 2013). Teaching materials distributed to childcare and preschool organizations, often focused on Latino children and parents, must fit cultural norms, linguistic conventions, and socialization goals. These elements of video, print, and other digitally provided content likely condition the effects on children and their parents. Still, we know little about how this insertion of novel materials fits into the activity structures of homes or preschool settings.

Evidence is emerging on how digital engagement may spill over into civic participation by youths or families. This is a major goal of Latino organizations that seek to enrich parenting practices or mobilize parents to boost college access or become engaged in civic debates (see Appendix). One national survey of youths aged 15 to 25 years found steady use of digital media across ethnic groups each day (Cohen & Kahne, 2013). Just over one-fifth of the 1,782 respondents said they had attended a political event or discussion over the past year, including 38 percent of Latino respondents. Interest-driven online activities—tied to hobbies, gaming, sports, and technology –mediated youths' engagement in civic action according to their own reports.

The survey revealed that three-fifths of all Latino and white youths owned a cell phone with Internet access. Latino teens were just as likely to follow political news via the Web or print newspapers as their white peers. The most common civic engagements included circulating political cartoons or videos pertaining to a policy issue or candidate, posting a political commentary, weighing in on a news article, attending a protest or demonstration, and deciding to join a boycott of products. Small-scale surveys find that youths or adults who spend more time online also engage in political action, whether

virtually (e.g., signing electronic petitions, posting comments on news articles or essays) or attending live civic events (Kahn, Lee, & Feezell, 2012; Raini, Smith, Schlozman, Brady, & Verba, 2012; de Zúñiga & Valenzuela, 2011).

Clarifying Pathways: Motivation and Learning in Cultural Context

How we conceive of the "effects" on learning or socialization that stem from digital media remains a largely atheoretical area of study. Causal steps or social mechanisms that link the use of a digital tool to individual learning or social outcomes remain largely unspecified or unsubstantiated. We suggest first identifying the *agent of action*, as electronic media has moved from passive reception (television) to highly interactive forms (e.g., gaming, texting, Twitter, and Facebook). At the same time, we have observed a remarkable proliferation of *messengers* (producers) alongside what some call *cultural creators*. Reading a news article involves receiving a message. But posting a YouTube clip, elaborating on a recipe from one's grandmother, or spreading commentary on a civic issue all involve cultural or knowledge invention. And finally, effects can be felt or expressed at *differing levels of social organization*, as we sketched above. This includes effects situated within the individual's cognition or affective motivation, social dyads, routine activities (at home or with peers), and in wider civic spaces.

We might also conceive of initiators as a social group or *established network*. The social collective may host a sustained portal or social location. Yes, the individual opts to enter this space, but the rules and motivations for participation pre-exist: they are not authored by the individual but are rather shared by members of the wider network. The Harry Potter Alliance is one example: the group persists with remarkable vitality, enjoying over 100,000 registered members, as "a sustained effort to mobilize a network of fans of J. K. Rowling's fantasy books around

an array of different issues and concerns, ranging from human rights in Africa to rights to equal marriage, from labor rights to media concentration and net neutrality" (Jenkins, 2010). The group or network exists prior to any one individual's contact, and it is this structure that hosts and sustains communications.

We might conceive of originating locations as being embedded in regular household routines or activity structures. This includes nightly routines involving homework or play and regular activities that involve digital tools. Again, the individual may choose whether or not to engage in these activities. But the routinized activity, with its expected form of participation, becomes the principal host of the digital connection. The ethnographic work of Ito et al. (2008) illuminates how children and youths "hang out" or "mess around" by assuming that they will play video games or text one another, often within a dyad or small group. To not deploy one's digital device would be counter-normative. It's assumed that digital tools will be mobilized when hanging out, incorporated into a predetermined activity structure.

We also know that wider social units are affected by the widening incursion of digital media. This includes the regularized structure of activities and social interaction in the home or among children's peers. Civic spaces can be shaped by digital communication as well. Political uprisings in Egypt and Syria, for example, received ample attention in the news media. We also report on how nonprofits in Chicago use multiple forms of media to mobilize community members for ethnic festivals, engage the process for becoming a legal resident, or join political protests. Unfortunately, we know less about the effects of digital media on youths' engagement in civic domains than we do about the individual effects of digital media on cognitive learning.

5 Conclusions—Illuminating the Benefits and Risks for Latino Children and Families

Let's review what has been learned in recent years about the production and use of digital tools, aiming to lift Latino children and parents. Then, we take stock of what is *not* known: how this growing kit of digital tools continues to proliferate across homes and among peers largely in empirical darkness when it comes to understanding the benefits and risks experienced by Latinos.

Lessons Learned

Plugging-in. We detailed in SECTION 1 how Latino households increasingly purchase and utilize digital devices, especially cell phones. The television remains the dominant electronic tool in the lives of children, including but not limited to Latino youngsters. This conventional device hosts video games as well, the platform which most research has been conducted with regard to effects on children's learning.

We saw how worries over a digital divide may ease as more Latino parents and youths acquire smart phones and use them as a digital portal. Yet disparities do persist in how digital tools are used inside the home, with low-income parents still reporting less frequent use of personal computers or mobile devices for educational or school-related purposes. Survey and qualitative studies detail how many parents pass a mobile device to their child as a discrete activity (or distraction), and find that educational content varies greatly.

Latino subgroups engage digital tools at varying rates and for differing purposes. Spanish-speaking parents are less likely to own or use a personal computer, and report less frequent educational uses when available inside the home. On the other hand, we are learning that utilization rates of PCs and mobile devices are quite high among most Latino children and youths. The information and language proficiency that children gain from being online likely contributes to their bilingual brokering role within the family and kin network. This prompts the question of how digital tools may alter the authority and expertise of adults and children inside Latino households. What are youngsters learning that holds utility in the day-to-day activities of parents and the family? Current research efforts are just beginning to inform this pivotal question.

Digital blizzard. Moving to SECTION 2 we delved into the interests of digital producers in engaging and entertaining children, only at times for educational purposes. We emphasized how the border between learning and novel entertainment has long been blurry in the video game and now digital world. Yet we don't know the range of digital material that Latino children and youths now access daily, how games, educational material, and networking activities advance language, cognitive, or social competencies—and resulting in what effects on family dynamics inside the home. The mere volume and range of digital content now spurs the growth of curation services, offered by for-profit companies (e.g., Apple Computer) and more discerning nonprofit firms (e.g., Commonsense Media).

Major Latino outlets, such as *La Opinion* and *Univision*, actively experiment with digital platforms to broadcast news or mount pro-education campaigns. But few other producers have created games, educational programs, or apps tailored to various slices of the Latino market. Producers seem to hold scarce knowledge of Latino communities and a weak

capacity to engage these children and families.

We did review inventive educational games that encourage collaborative learning between children and parents, which may well fit traditional pro-family commitments within Latino households. So-called *human centered design* can potentially tailor learning games and apps for diverse users, integrating culturally and linguistically situated material into programs that draw from Latino heritage and social values.

Hazy benefits for children's learning and families. Our review of the empirical literature found very few studies that examine the effects of digital media on the learning or wider socialization of Latino children. Earlier research on the engaging nature of video games did yield findings related children's motivation. Children and youths, for instance, report feelings of competence, progressive complexity, just having fun, and playing with peers—recasting daily activities in many homes. Old-fashioned learning theory, which focuses on the individual child's cognitive stimulation and processing, also informs the features of contemporary games, educational programs, and apps.

We broadened this conversation on motivation to include the wider socialization of children and how digital tools may serve to isolate them, shift relations with parents, or shape the scope and content of ties with peers. Once we place the upbringing and learning of children in (diverse) Latino families, then cultural patterns and linguistic skills come into focus. The so-called *ecocultural* framing places the child in everyday activities that now involve digital tools, engaged individually, with siblings and peers, or parents. And online learning and entertainment, we know, does affect the knowledge and authority of children inside Latino families.

So, as new research designs emerge, we urge greater attention to how digital engagement affects the entire family collective (and its interplay with teachers and schools), moving beyond individually bounded or psychological assumptions about the isolated child learning alone. We highlighted how early research suggests that digital benefits and risks vary by gender, age group, and social class. These dimensions characterize diversity among Latino children and families. Understanding this interplay between local conditions and digital tools offers another empirical frontier for scholars and electronic producers alike.

Digital organizing. A variety of community groups and nonprofit firms deploy digital tools to nudge social projects, from preparing Latino teens for college and organizing cultural festivals, to pitching novel parenting activities and political action. Another empirical widow opens as we studied the interplay between these pro-education firms and their diverse Latino clients in the Chicago metro area (detailed in the Appendix).

After interviewing staff in 17 community organizations and for-profit firms, we found that many integrate digital tools with direct services for clients or members. These Latino-focused firms displayed widely varying staff capacity to experiment with digital tools to inform, invite, and lift their clients. Each was keenly interested in the digital platforms and messages that engaged their constituents, which varied dramatically based on immigration status, home language, and social class. These organizations thought carefully about the digital platforms that their members or clients could afford or access. This varied greatly from illiterate parents who relied on their children for digital access, to young Latina professionals who commonly organized via the web or Facebook. Again, we discovered how digital engagement and content differs among various segments of the Latino community.

35

Illuminating the Empirical Dark

An unsettling irony emerges from this review. We know that digital tools increasingly shape the daily activities, learning and socialization of Latino children—from toddlerhood forward. Yet we know little about the benefits and risks of these online tasks, games, and social networks. We have little evidence on the cognitive growth or social norms acquired by the individual child. Nor do we understand how the child's or teen's relations with family and kin may be altered.

Future research might be grounded in clearer theory about the Latino child's everyday social contexts, the kinds of digital tools taken-up, and the facets of learning and socialization that we hope to strengthen. Earlier work on the motivating mechanisms and effects of video games did yield important findings on the psychological and social rewards experienced by children and teens. These foundations are too narrow, however, to fully capture the socialization agendas of diverse Latino parents, the *a priori* forms of authority and social ties that operate, and the kaleidoscopic range of digital material coming at families. What's key is mapping out a clear causal argument as to how digital tools affect the individual child and wider family relations.

We also have much to learn about the organizations that produce and transmit digital material—perhaps back-tracking from the prevalent platforms, games, educational packages, and networking sites that Latino children and youths most often plug into. How public and market actors may enrich the educational value and cultural sensitivities of digital content remains a daunting task.

We have detailed the variety of organizations just in the Chicago area that seek to engage and lift Latino children and families. But little is known about the prevalence of digital content that's designed and marketed by for-profit firms, and what subset is connecting with Latino children. Advertising revenue, venture capital, and foundation funding now support private firms that advance educational content or curation services. How these pro-learning groups balance less educational forms of digital content is not known, including digital material aimed at Latino children and parents.

Finally, we have not attempted to consider how educators and schools also structure the daily activities of Latino children and youths. Educators are becoming a major curator, trying to connect kids to highly educational content, including formal courses or activities that complement work inside the classroom. The advance of digital tools inside schools must also be recognized and empirically described in terms of which Latino children connect with what kinds of digital content—in turn affecting their learning and socialization and the vitality of their families.

ENDNOTES

[1]We have reviewed elsewhere the growth of virtual charter schools and online courses for high school students and their teachers, elements of the K-12 instructional technology field (Fuller, Dauter, & Waite, in press).

[2]Takeuchi and Levine (2013) applied Bronfenbrenner's original ecological model to clarify the individual psychological and social levels at which children experience effects from digital media. We draw on their framework while incorporating the culturally bounded routines, child-rearing norms, and rules of participation that lend order to many Latino families, setting a particular context in which digital media have become a dominant tool for learning and social discourse.

[3]Concern has long been expressed over children's daily exposure to television. *Time* magazine ran an article entitled "Opiate of the Pupil" in 1958. National surveys had already found that elementary school students spent 21 hours per week in front of a television on average (Witty, 1961).

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Organizing with Digital Media for Children and Families: Learning from Chicago

We now move beyond the household and ask how local organizations employ digital tools to reach Latino families. A variety of nonprofit and for-profit firms aim to advance parenting practices, children's early learning, and children's eventual success in school. These organizations work from their own theories of how digital tools might engage their clients to motivate learning or animate novel aspirations and behavior. That is, not only do families seek out content, expressing individual-level demand, but a variety of organizations deploy digital media to create novel educational options or encourage pro-learning behavior by Latino students or parents.

We inquired about the digital tools and strategies of nonprofit and for-profit firms in the Chicago metro area, each dedicated to increasing educational opportunities or wellbeing for Latino families. This section reports on lessons learned from the 17 firms that reported significant use of digital platforms and channels to mobilize Latino youths or families. Then we detail the digital innovations of three specific organizations.

Mobilizing Diverse Latinos

Table 1 shows the variety of Latino subgroups served by these Chicago-based organizations. A small portion work nationally, while most focus on particular communities in metro Chicago. We highlight how each organization utilizes or plans to deploy digital technology to offer information or services, perhaps to build wider social networks for families and access to formal institutions. Below we describe these findings, based on interviews with key staffers. First, we describe the organizations and their varying goals. Second, we detail how they utilize digital tools to mobilize Latino students or families. Third, we sketch the aspirations of organizational leaders for strengthening their

digital strategies. Developing these approaches involves discerning what kinds of platforms and software best reach clients and deepen dialogue among members.

We initially identified 36 community-based organizations in Chicago that aim to serve Latino children or parents, typically focusing on early education, maternal and child health, ongoing family support, and helping youths get ready for college. This initial scan was conducted with the Latino Policy Forum, which works to network many of these nonprofit and (a few) for-profit firms. We discovered that 14 of these organizations reported significant capacity for broadcasting digital messages, which typically requires a dedicated staff member or one who spends considerable time with digital technology. We did not include formal school authorities or colleges in our survey. We then conducted interviews with relevant staff and expanded our survey to preschool providers, charter schools, women's organizations, legal aid groups, cultural associations offering direct family services, and providers of college-readiness information.

Table 1 shows how these organizations serve differing slices of the Latino community across various areas of greater Chicago. The Erie Charter School and community center, for instance, serves largely poor and first-generation families, whereas New Futuro aims to raise the college aspirations for second- and later-generation youths.

This summary table also reveals how differing digital tools are utilized by Latino organizations. Larger organizations, like Casa Central, have the staffing capacity and expertise to employ their website, email blasts, texting, and social media channels to engage diverse clients, young and old. But smaller organizations report that their clients (or

Table 1. Chicago Organizations – Using Digital Tools to Reach Diverse Latinos

ORGANIZATION	SERVICE/AIMS	FAMILIES/CLIENTS			TOOLS			
		Poor	Working class	Middle class	Website	Emailing	Texting	Social media*
Aspira	Youth development, high school counseling	▲	▲			▼	▼	▼
Casa Central	Preschool, after school, supports for seniors	▲	▲		▼	▼	▼	▼
El Hogar del Niño	Prenatal care, Headstart preschool, family supports	▲					▼	
Erie Charter School	Education and after school programs, parent support	▲			▼	▼		
Family Focus - DuPage	Young parents, prenatal care, family supports	▲	▲		▼	▼	▼	▼
Latinos Progresando	Legal services, cultural events, family supports	▲	▲	▲	▼	▼		▼
Mujeres Latinas en Acción	Support for working Latinas, maternal supports	▲	▲	▲		▼	▼	▼
National Latino Education Institute	Job, training options for recent high school grads	▲	▲		▼	▼		▼
New Futuro	College preparation for high school students		▲	▲	▼	▼	▼	▼
Onward Neighborhood House	Food pantry, at-risk youths, computer center	▲				▼		▼
Puerto Rican Cultural Center	Family support, charter school, cultural events	▲	▲	▲	▼			▼
Telpochali Community Education	Small public school, community center	▲			▼			
West Town Leadership United	Organize parents on education issues	▲	▲				▼	▼
Youth Service Project	Social and academic support, children and youths				▼	▼	▼	

Notes: Across the sample of 36 nonprofit or for-profit organizations serving Latino children, youths, or parents in the Chicago metro region, these 14 reported significant use of digital tools. ▲ indicates the primary Latino subgroup served by the organization. ▼ indicates that the digital tool is significantly utilized to reach clients. * Includes Facebook, Instagram, Twitter, Pinterest, and YouTube.

parents in the case of schools) can't afford a home computer, have little familiarity with digital tools, or simply cannot read in Spanish or English. We return below to the challenge of staff capacity and how Latino organizations are experimenting with matching different platforms with particular Latino populations.

Digital Messages, Cultural Contexts, and Human Contact

One immediate lesson that quickly surfaced from our interviews was that NGO staff often situate digital platforms and messaging within regular face-to-face contact with clients or members. This human connection proves especially important in work that is very local, where social ties are key. This is obviously true with direct social services, such as those provided by Casa Central and Onward Neighborhood. For these NGOs the desire to maintain authentic human connections bears on their digital strategy, as they fear that digital communication may undermine their eye-to-eye relationships. Casa Central prided itself on having its proverbial ear to the ground and constantly learning about the needs of its constituency.

Given this emphasis on building human-scale trust and camaraderie, several of these organizations built websites or deploy Facebook messages alongside traditional newsletters, phone calls, and face-to-face contact. Staff at Casa Central espoused a communication strategy that avoided trying to fix something that was not broken. Hardcopy newsletters and meetings had worked well historically for many years in some cases, so they moved slowly in adopting digital innovations. Aspira – another NGO that helps to prepare Latino youths for college – also tailors its platforms and messages to its clientele. To complement face-to-face counseling sessions, Aspira staff deploy email, texting, and Facebook messaging to stay in touch and remind youths of necessary tasks and deadlines.

These organizations hold certain knowledge or assumptions about their clients' access to digital technologies. In the case of organizations like Casa Central or El Hogar del Niño, program staff discovered that many of their low-income families do own a personal computer or smart phone. Many parents displayed limited literacy skills, leading these organizations to limit their digital strategy for fear of losing clients.

Digital channels, including email, Facebook, and Twitter, are deployed essentially for analog purposes, used for one-way transmissions regarding upcoming meetings or cultural events, to complete necessary forms, or to urge civic action. At times, digital tools merely served as vehicles for communicating information that already existed in printed form. Overall, these organizations expressed slight desire to do away with their printed newsletters and use digital tools alone to broaden their audience or supplement traditional practices.

Digital media did reportedly strengthen social networks, especially for tech-savvy Latino subgroups. The organization Latina Women relied on email, Facebook, and Twitter to strengthen ties among members and organize shared activities. Similarly, El Hogar aimed to inform and network low-income mothers participating in Head Start preschools, relying on text messaging that could be easily accessed (although cell phone charges may have discouraged use of this service).

New Futuro offered an inventive alternative to reliance on one-way messaging. This for-profit social enterprise works through teachers in seven media markets to provide rich information about preparing for college. Once signed up as a member, a teenager gains access to a steady stream of information and may directly query New Futuro staff. A small group of counselors sit before a row of desktop computers in the Chicago office and field questions about getting ready for college.

Teachers who run college-readiness classes also interact online with New Futuro staff, reporting student progress on 10 core modules, which range from filling out the financial needs form to enlisting an adult mentor who is a college graduate. New Futuro steadily upgrades its anchoring website and experiments with Facebook and Instagram to spread messages and video clips of college-going Latinos. The firm's Costa Rica-based tech team is exploring a mobile app, which promises to offer a versatile hub for students and parents who seek out a variety of channels and websites.

Digital Tools to Build Latino Organizations

Participating organizations reported that digital tools do not simply focus on their clients or members but also are deployed for fundraising and to establish a digital presence in their field. Casa Central, for example, made ample use of You Tube, Facebook, and Twitter to post information relating to its annual fundraising gala. The Puerto Rican Cultural Center (PRCC) used its website and social media activities to alert the community to fundraising and cultural events, such as their yearly citywide parade. A tidy and engaging website also seemed to signal a well organized and busy nonprofit in the eyes of potential donors and individual contributors.

A subset of organizations, including Casa Central, New Futuro, and the Puerto Rican Cultural Center, benefitted from dedicated staff that devised broader digital strategies. Each held the capacity to experiment with differing platforms, gain feedback from clients, and adjust their strategies based on information about who utilized what channel of communication. The Puerto Rican Cultural Center, for example, aims to speak with members of differing ages regarding various services, including health services, cultural clubs, and the neighboring charter school. A board member with high-tech expertise aims to enliven classrooms with digital technology,

in addition to acquainting Puerto Rican teens with their cultural roots and traditions. These tech-savvy organizations make ample use of photos, video clips, and colorful graphics across their anchoring website and allied platforms.

Most NGO staff hoped to enrich their use of digital media, especially to engage existing clients and attract new ones. This would serve to strengthen their organizations and more steadily connect with clients or members. Most nonprofits come from a tradition of human-scale contact with clients and reliance on traditional hardcopy newsletters. But a subset of these organizations see the potential of moving beyond static websites by sending more vivid or compelling messages, even structuring online conversations when staffing is sufficient to be responsive.

We also discovered that better staffed organizations were widening their channels and using new platforms but had no organized method of eliciting feedback that could help them develop a coherent strategy. In some cases, dispersed staff in larger nonprofits deployed emails, text messaging, Facebook, and Twitter without knowing what colleagues in other parts of the organization were doing. In contrast, when strong technology leaders aided by communications specialists guided a more focused strategy, they could tame the proliferation of differing platforms and uncoordinated messages. In the Puerto Rican Cultural Center we saw the firm's able technology leader patiently negotiate resistance to inventive uses of digital technology. Without strong leadership and innovative know-how, the use of digital technologies can become fragmented and yield disparate or simply unknown benefits.

Messaging and Engaging Diverse Latino Subgroups

Despite their digital aspirations, several organizations suffered from limited staff capacity and technical expertise, already swamped with core tasks and services. Budget constraints limit the capacity of many nonprofits. When serving immigrant groups or low-income parents, staff reported confusion over how best to digitally connect with their clients. The most accessible devices proved to be cell phones, including smart phones, which adolescents and parents increasingly possess, as detailed above.

Most Chicago-based organizations still rely on one-directional messaging to clearly proscribed subgroups, be they mothers served by Head Start preschools or Latina professionals eager to network with other rising executives. The communications specialist at Mujeres Latinas en Acción relies on the organization's passive website, email, and Facebook to contact members, who are largely middle-age professionals from immigrant backgrounds. Despite running seven robust programs to elevate Latina professionals, Mujeres Latines en Acción has no staff with the time or expertise to manage digital communications. Only tech-savvy organizations like Casa Central and New Futuro experiment with ways to create more sustained dialogues among clients or members. The executive director of one Chicago NGO said that they rely on a "senior Catholic nun" to upgrade high-tech communications tools. "She really tries," the director told us.

We can conceive of electronic communication as unidirectional and static or multi-directional and dynamic. One-directional transmissions are sent out with no expected response from the recipient. An event posted on a website or in an email blast from a "do-not-reply" email address is unidirectional. More dynamic communication is designed to elicit a response, as with text messaging or forum discussions initiated by blogging or Facebook posts. Directionality is shaped by the digital tools and staffing capability available within an organization, the intent and scope of its services, and assumptions about how clients may easily plug into various types of digital media.

Overall, organizations that were attuned to their clients' digital capabilities and commonly used platforms could better tailor their organization's communications, while those who didn't understand their clients' electronic savvy or failed to match clients with the appropriate platform struggled to effectively use digital tools. NGOs like the Puerto Rican Cultural Center that serve the community in various ways— addressing concerns of health, schooling, and cultural heritage—seem better positioned to invite active responses from their clients.

When clients are less tech-savvy, Latino NGOs must be equally inventive in reaching out and engaging them. The Telpochali school and community center relies on face-to-face contact with its clients, including children, adolescents, and their parents, supplemented with cell-phone texting. Many low-income families now qualify for a limited number of free minutes on their cell phones. Still, many cannot read in Spanish or English, and "most families don't have a computer at home," the director told us. This may encourage greater use of mobile devices, especially in reaching adolescents with bilingual proficiencies. The director of El Hogar, which has provided Head Start preschool and family support services over the past four decades, experiments with texting in addition to tweets and Facebook messages. But "not all mothers have smart phones," he said.

Learning About Your Clients

Tech-savvy firms such as New Futuro spend considerable effort defining which Latino subgroups they aim to reach, what devices to utilize, and what kinds of messages and

reciprocal conversations are most likely to affect the expectations and behavior of students and parents. They also consider how the individual adolescent is situated within the authority structure of the family and the role of adult mentors. In these ways, for-profit and nonprofit firms must consciously evaluate their own assumptions about clients and deepen their knowledge of what platforms and messages are most likely to be effective. This can be done through surveys, careful conversations with clients, and tailoring the organization's platforms to the devices on which Latino youths and parents increasingly rely.

Staffing and expertise in digital technology remain limited across these Latino-focused nonprofits in Chicago. Many organizations do employ a staffer dedicated to communications with clients, allied organizations, and donors, but this person is not always tech savvy or inventive in deploying digital tools. Those nonprofits with policy interests may have a sophisticated person who stays in touch with journalists and external constituencies. Senior staff at Casa Central reported considerable discussion of how to work at this intersection between digital technology and communicating with their differing audiences. Located across several sites in Latino parts of Chicago, Casa Central offers preschool and family support programs, tutoring for school-age youths, health care, in-home assistance, and community centers for seniors. This robust organization also mobilizes marches against drug abuse and violence against women.

Still, staff members reported feeling segmented in their own programs or geographically dispersed, mitigating against a coordinated digital communications strategy. But Casa Central's technology specialists do work with program coordinators to harmonize messages on a variety of platforms and channels, utilizing texting, tweets, and Facebook. These transmissions go to various clients, allied organizations, and potential funders. This nonprofit is large and enjoys strong staff loyalty and commitment, setting the conditions for stronger coordination and innovation using digital tools. The effects of these differing channels, communication strategies, and staffing roles remain largely unknown. How to manage the creation of messages and deeper dialogue with clients presents not only a technical but also an organizational challenge for Latino-based NGOs.

Case 1

An Ounce of Prevention – Texting Mothers to Enrich Parenting

Aims and audience. The Pocket Literacy Coach beams-out messages to parents with young children that sketch a variety of simple educational activities. This digital application was originally devised by Parent University, a small for-profit firm based in Chicago largely financed by families that subscribe to the service. Weekly text messages are designed with the help of child development specialists, offering language and learning exercises pegged for infants, toddlers, and children through 12 years of age.

The Ounce of Prevention Fund, a nonprofit advocacy and research group, took-up the simple technology to experiment with whether and how it might enrich parenting among low-income Chicago mothers tied to preschool programs. About 250 mothers served by Head Start preschools participated in a pilot effort, which has expanded to almost 1,500 mothers and preschool-age children. Scholars at Northwestern University are evaluating parent utilization and behavioral changes reported by the mothers.

A media platform that fits clients. Digital designers report that smart phones and tablets are becoming the pivotal devices for reaching children and parents, not simply personal computers. In this light, texting to parents offers a convenient way to receive discrete ideas for educational activities. Texting is constrained in terms of the length of each message. The Pocket Literacy Coach keeps it simple:

- For a 2 year-old: "While reading a story together ask your child to point to the pic on the page & then the words on the page. Help them run their finger from left to right over the words."

- For a 3 year-old: "At the grocery store, in the car, on the bus, in the kitchen or while walking around ask your child to point out all the yellow things they see."

The messages emphasize how parents can familiarize young children with written text, expand their vocabulary, and come to enjoy collective activities with parents and siblings. The authors match the complexity and language of activities with the child's age, including requisite materials, ranging from tools for a baking project to educational places to visit. The program aims to bolster the parent's repertoire of activities and confidence in engaging their child over time. Messages encourage oral language between child and parent, along with an incrementally deeper engagement with books, signs, grocery labels, and literacy skills.

Challenges with texting, as the sole platform, have surfaced as Pocket Literacy Coach is extended to low-income families. Eligible mothers may qualify for subsidized minutes on their cell phones. But cell phone companies typically charge for incoming texts, a problem we heard from a Chicago-based Head Start director who messages parents through texting as well.

Social action and theory of motivating clients. The notion of beaming simple messages to paying subscribers assumes that parents consciously intend to engineer activities that boost their child's early language and literacy skills. The motivation of parents precedes this expression of demand for novel ideas and activities. Little is known, however, about the motivations of diverse low-income parents, including their tacit assumptions about early learning before their child starts school. Efforts like Pocket Literacy Coach may demonstrate to parents that even simple activities can yield positive responses from their young children, inducing growing demand for additional ideas and stronger feelings of efficacy as a parent. The premise is simple, according to program designers: "small, intentional acts, repeated consistently over time, are critical to establishing a foundation both in academic and life success for both parents and children" (Hanson & Raden, 2013).

This inventive use of a basic digital platform also demonstrates how one-to-one transmission may spur desire for social activity among parents. The Pocket Literacy Coach focuses on enriching the dyadic relationship between parent and child. Focus groups with participating mothers also revealed how some "told their sister about a neat activity" or "wanted to take the activity into the preschool classroom," Tony Raden told us, research director at the Ounce of Prevention Fund.

Organizational capacity. This program model builds from the private firm's earlier investment in the technology and message content. While subscriber fees sustain Parent University, the extension to low-income families is supported through foundation dollars and government support of affiliated preschools. One or two staffers at the Ounce of Prevention Fund run the project day to day. Senior staff oversee the strategy, along with evaluation activities.

Yet sustainability remains a pressing question for this and similar applications of digital media that aim to lift child development within poor communities. Situating these inventive strategies within preschool or elementary school might offer more institutionalized funding streams. It's too early to tell whether discernible gains in children's early literacy skills can be detected. But efforts like Pocket Literacy Coach could potentially raise the sustainable benefits of quality preschool or complement reading initiatives in the elementary grades.

For Latino families, two-generation efforts – based in preschool or public schools – could strengthen oral language development and parental attention to print material and early literacy. This model is taking root in a handful of school districts, including Salt Lake City (Lui, 2013).

Evidence – listening to feedback. Northwestern University scholars Alexis Lauricella and Ellen Wartella conducted a qualitative evaluation of the Ounce of Prevention's pilot effort. Participating low-income parents found the text messages convenient to access, whether at home, at the grocery, or in the bus. The activities were easy to put into motion, according to most parents. A portion of the messages reassured parents and assessed their own feelings. A mother reported that, "One text said, 'if you're frustrated, take a break.' My kids had something going on, candy, sugar, who knows… but I needed a break. And I thought, I am frustrated [and] it's okay to take a break."

Other mothers reported that the specificity and variety of the activities, along with the ease of implementation, were big plusses. And the benefits of steady and engaging interaction with one's child received kudos as well. "My kids are learning more than just school things," another mother reported. "One text said, 'say I love you.' That was really cool because my kids were all cuddly after that one."

An evaluation of the program's full implementation is currently underway. This work by the Northwestern team focuses on the reported frequency of activities, the breadth of the child's experiences inside and outside the household, and efficacy of mothers as parents. Latino mothers make-up only a small slice of all participating mothers. Future research might examine the types of activities favored by Latino parents and benefits for oral language development, as well as children's social engagement.

For further information: http://www.ounceofprevention.org/news/20140624-sesame-workshop-initiative.php?src=homepage

Case 2

NEW FUTURO – Getting Students (and Parents) Ready for College

Aims and audience. New Futuro deploys a variety of digital and in-person tools to prepare Latino youths for college. Working online and via teachers or counselors, this small and agile firm nurtures the aspirations, knowledge, and support networks that help propel high school students.

New Futuro offers digital messaging along with a print curriculum, face-to-face coaching, and citywide college fairs attended by tens of thousands of Latino families. A for-profit "social enterprise," this firm is financed through corporate sponsorships, offering attractive web-based advertising and marketing booths at the get-ready-for-college conventions held across five markets each year (Chicago, Houston, Los Angeles, Miami, and New York City). Allstate Insurance, the College Board, U.S. Marine Corps, and several large universities exemplify steady financial sponsors.

The firm's Chicago-based staff carefully strategize over what slices of Latino families may best respond to college access messages. Then, the organization marries digital platforms and face-to-face activities to equip youths with essential information – from taking the right classes from the start of high school, forward, to filling out financial aid forms. "Who is listening to what channel?" is a question constantly asked inside New Futuro, said Yessica Gamboa, who oversees school and community partnerships.

The firm has settled on second- and third-generation Latino teens as their core audience, those whose parents were raised in the U.S. but may not have completed high school. More acculturated Latinos may not need the basic data and motivational lift that New Futuro offers; first-generation Latino youths are less likely to enter college.

Students make initial contact with New Futuro through its inviting website, a school counselor or teacher, or the citywide college fairs. Once the firm snags an email address, the adolescent becomes a member, and the steady flow of college information kicks-in, often stirred by an electronic dialogue with web-based staff sitting before a bank of computer screens west of downtown Chicago.

New Futuro then nudges students to tackle 10 tasks early in their high school years, often during a college-prep period, which range from "take the right classes" and "getting the GPA you need," to "build your support team." Benchmarks are set for each student along which they progress, such as, "I need help knowing people that can support me getting to college," and "Done! I have my support team and I am ready for what's next."

The 10-point action plan forms the structure for a curriculum that New Futuro sells to school districts or individual schools. The sequential curricular units, a colorful and upbeat magazine, along with steady electronic messages help to structure ongoing "advisory periods" and year-long workshops with Latino students inside high schools. New Futuro offers a simple software tool for teachers or counselors who track each student's progress along the college-ready tasks.

Pulling-in parents. Engaging parents is key to New Futuro's motivational strategy, via electronic and in-person events. Latino families often share a single email address, and New Futuro staff have learned that parents often monitor their youth's electronic chatting at least when hip to digital technology. Parents often join the dialogue facilitated by New Futuro staff, who aim to pull-in parents as well. "It's important to work as a family unit to help your student believe and achieve their dreams

so that you all succeed together. Your child is your legacy and the greater their achievements, the greater your achievements," one get-ready blurb reads.

Media platforms that fit clients. New Futuro, just five years old, continues to experiment with digital platforms in the context of live human contact. The firm initially stressed electronic contact and broadcasting college related information. Inventive combinations of technology – especially video clips and chat-rooms where Latino youths can talk with peers who successfully navigated entry to college – still characterize digital fronts. Students also consult the core website, join Facebook discussions, upload photos of college-going friends on Instagram, and receive New Futuro bulletins on Twitter.

The firm's lean and creative technology team, based in Costa Rica, is considering a simple App that would dispatch students into a variety of sites, including links to specific colleges. Personalization and easy access to visual images of motivating peers or adults, those "who have made it, and those struggling to make it," seem key to motivating students, one staff member said. Attractive portrayals of "Latino heroes" fill New Futuro's magazine and online messaging: Javier Hernández who volunteered in the community, worked his way through college, and became an accountant. Or Enid Echevarria, who "always felt committed to making her parents' and grandparents' sacrifices worthwhile," went to college and succeeded in the hotel industry.

New Futuro staff carefully track national findings on what Latino subgroups utilize which digital platforms, concluding that mobile devices (smart phones and tablets) are steadily replacing personal computers as the nexus point for connecting with Latino youths. New Futuro banks heavily on informed dialogue about college among smaller networks of youths. "There's a weird subculture that relies on Twitter," Gamboa said.

Social action and theory of motivating clients. Most recently New Futuro has redoubled its efforts to host services with high school counselors and teachers – firmly founded on steady face-to-face conversation. Its "platform" is now placed within the student's immediate social context, involving ongoing dialogue with peers and school staff. This ties to the firm's evolving theory of how to motivate youths, how to move them over a tipping point where the student now feels informed, confident, and prepared to enter college. The strategy blends the broadcast of college-ready messages, web-based dialogue, and school-based workshops to motivate student progress along the 10 essential tasks. Just over 200 school-based facilitators each work with 35 or 40 students, moving through workbooks pegged to the 10 key tasks.

During advisory periods or small-group counseling sessions youths learn about financial aid forms, academic requirements for differing types of colleges, and explore various career options. The facilitating teacher or counselor updates online the progress of each student on the core steps, generating personalized messages to each. Parents may order workbooks to help coach and encourage their child, tracking along the school-based activities. The firm's staff talk about establishing a rhythm or routine for the flow of broadcast information, evocative images and role models.

A portion of New Futuro's modest professional staff, numbering 12, struggled to enter and complete college, at times swimming upstream against the cultural drag on young women who dare to leave home and pursue a career. "It's a very funny thing, you never ask yourself who or what I want to be," said staffer Elizabeth Romero. So, the motivational strategy for kindling interest in college is complicated. Getting the family behind the idea is key. Latino youths "arrive [to citywide fairs] in really big groups, there's a pool of people," said New Futuro's Elkind Arredondo. But once "they take

ownership – it's a point of pride – and they take away the fear."

Organizational capacity. The founders of New Futuro remain committed to a self-sustaining, for-profit enterprise. Their business plan counts on corporate sponsors – industries seeking market inroads into Latino communities and universities seeking Latino students – to fund programmatic activities. New Futuro hopes to avoid the transient tastes and short-term funding of private foundations.

The firm inventively creates advertising opportunities for a variety of sponsors. These include online spots on New Futuro's attractive website, along with print adverts in its periodically published magazine. Major sponsors gain a large visual presence at the annual college fairs, along with face-to-face opportunities to sign up new customers or potential students. A variety of nonprofit organizations are charged a small fee to set-up booths at the citywide fairs, ranging from tutoring services and health care agencies to U.S. Army recruiters. Thus far, New Futuro's business side yields sufficient revenues to fund current operations and design of new curricular materials and digital innovations.

Evidence – listening to feedback. New Futuro religiously tracks which clients utilize their main website, along with traffic spurred by broadcasts and dialogues held across Facebook, Instaram, and ever emerging sites. A modest bullpen of New Futuro staff chat with their student clients who have follow-up questions, or parents who send in queries as well. What's key for the firm's managers is to learn more about what kinds of broadcasts and dialogues prove to engage and motivate Latino students, whether these conversations are online or in-person, sustained with peers or adults.

Sketchy data is gathered from the tens of thousands of youths attending the annual college fairs. The main aim is to snag an

email address, the first step in becoming a New Futuro member. The firm also seeks to learn more about the students and family members who show up *en masse* to these huge events, typically held at downtown convention centers.

What's not well understood is what effect this barrage of information and human-scale facilitation actually holds for Latino youths. The count of students who plug-in at varying levels is impressive. But how this inventive firm moves the motivation and behavior of their clients – and what methods work for which subgroups – remain largely unknown. New Futuro's recent shift to work inside schools offers the opportunity to experiment more systematically to identify which specific in-person and digital strategies discernibly boost college going.

For more information: http://www.newfuturo.com/

Case 3

Puerto Rican Cultural Center – Boosting Families, Offering School Options

Aims and audience. Located on Chicago's west side, the Puerto Rican Cultural Center (PRCC) has lifted families and youths for over 40 years. This ambitious organization advances "a philosophy of self-determination, a methodology of self-actualization, and an ethic of self-reliance," according to its mission statement. Digital media offer still nascent tools for connecting with, and motivating engagement of, the center's diverse clients, young and old.

The PRCC tackles tough issues facing Puerto Rican neighborhoods, ranking from housing costs and mediocre schools, to AIDS and health care for the elderly. The center puts forward an array of programs to buoy the well-being and deepen the cultural identity of the city's large Puerto Rican community. The center celebrates the music, poetry, and drama of Puerto Rican diaspora, which populate the metro area. PRCC staff report how they encourage their constituents to think critically about their often brittle economic exigencies, while nurturing successive generations of civic leaders and advocates.

The PRCC is centrally located on the Paseo Boricua in the Humboldt Park neighborhood, colloquially known as Little Puerto Rico. It serves differing segments of the heritage community and through various services. This includes, for instance, the Diabetes Empowerment Center, a collaborative effort with the Sinai Urban Health Institute, which helps clients manage or prevent diabetes. The diabetes center sports its own website, staffed by the office manager who looks after electronic and print communications. Once becoming a member or client of the PRCC, one receives automated messages by phone about prevention and treatment services. Linking PRCC programs and activities across offices and creating synergies with differing digital platforms remains a challenge, some staff report. Like other NGOs the Puerto Rican

Community Center has not invested in a tech-savvy communications person to harmonize across program branches.

The VidaSIDA education program engages adolescents on issues of sexuality and the prevention of AIDS. PRCC collaborates closely with Pedro Albizu, director of the nearby Campos Puerto Rican High School, offering an alternative school that's steeped in cultural heritage and history. The PRCC may be best known for its Three Kings Day Festival and parade, which draws a wide diversity of participants and spectators from across the Chicago metro area each year.

Media platforms that fit clients. The PRCC utilizes various media platforms to engage differing clients, as well as coordinating staff across distinct service areas. Digital tools regularly inform volunteers, staff, and funders about a variety of activities and services – to ensure that word gets out to clients. Certain platforms are proving more effective with these differing constituents, ranging from the PRCC's engaging website to a weekly e-newsletter (sent via email), print postcards, along with Twitter and Facebook messaging. Managers of the various service programs plug into these platforms to advise their particular clients or audiences – often in an uncoordinated manner, according to some PRCC staff.

Given the PRCC's emphasis on civic participation and shared responsibility, program managers and technology staff (including a board member working pro bono), encourage clients and members to submit photos, video, and narratives for broadcast from the differing electronic platforms. PRCC leaders strive to teach their clients and audiences to not simply consume media messages, but also to create content and contribute to how the organization networks information and collective action.

Social action and theory of motivating clients. Some leaders at the PRCC advance the notion that digital technology can become a tool for advancing the community. This appears most evident in the Campos Puerto Rican High school, located across the street from the community center's main office. The cultural identity and commitments of this charter school operate in consonance with the larger organization. A dedicated board member, Alejandro Luis Molina, who as a young teen attended events at the PRCC, now helps to build digital tools for teachers within the school. These efforts include –

- Setting up Google apps and document sharing to facilitate cooperative projects undertaken by students, turning in written assignments, and helping teachers mark-up and share student work.

- Creating a "sustainable democracy project," where students work within a neighborhood organization, researching a problem online – housing quality, gaining citizenship, or expanding child care—then engaging community leaders to address the issue. Students also deploy digital survey tools to learn about how the Puerto Rican community feels about such issues.

- Building electronic portfolios so students can keep track of college-going information, such as financial aid applications, tracking course pathways and grades, and possible colleges within their reach.

- Exploring aquaponic technology online to experiment with growing crops inside greenhouses built atop apartment buildings where students reside.

Overall, the charter school offers a dynamic laboratory in which PRCC technology staff work with teachers to demonstrate the utility of digital tools—both to enliven pedagogy and to advance computer literacy for students.

Organizational capacity. The bulk of digital development is led by Molina, the energetic board member. He works closely with program managers to advance a colorfully engaging website, posting a variety of photos and video clips that bring the center's work to life. Molina also works to build stronger coordination, requiring staff within each program area to submit text and photographic content each month. This ensures that both narrative messages and vivid pictures are steadily updated—corresponding with new services for clients, events at the charter school, or festivities for the Puerto Rican community in general. So, the roles played across divisions of the PRCC are quite clear, and expectations for the creative production of images and messaging yield steady results.

Evidence – listening to feedback. Staff tend to gauge the efficacy of their media efforts by tracking client demand for services and attendance at PRCC events. By these benchmarks, digital activities appear to be quite effective. But whether messages about health and nutrition, adolescent development, or innovations at the charter school help to advance family well-being or learning remains an open question. A variety of digital messages and symbols spring from various platforms, as we observed at other Latino NGOs. But which messages or collective invites, advanced by what platforms and for which slice of clients shift behavior or social cohesion is a complicated question.

The PRCC is a mature and dynamic organization. But it still relies largely on the *pro bono* work of one or two tech-savvy volunteers. They exercise strong and creative management skills, motivating the creation of engaging content. Ideally such large NGOs will build the capacity to learn more about what digital channels are working to lift which clients or members.
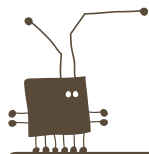
For further information: http://prcc-chgo.org/mission/

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