

From Needs to Strengths: Devising Assets-Based Parent-Education ICTs for Latinx/a/o Immigrant Parents in the United States

MARISOL WONG-VILLACRES, Georgia Institute of Technology and Escuela Superior Politecnica del Litoral

As the number of people moving across the world increases, so does the number of children of immigrant parents needing their support to succeed academically in the large-scale educational systems they navigate. While a growing number of Information and Communication Technologies (ICTs) offer parent-education support, these rarely respond to the complex reality of parents from nondominant backgrounds, such as immigrants. When ICTs attend to these groups, they tend to do this via patches to help these parents catch up with mainstream society. By disregarding immigrant parents' strengths and capacities—or assets—to contribute solutions to their own problems, parent-education ICTs perpetuate information inequities. In my research, I follow an ecological and assets-based design approach for re-imagining parent-education technologies that support low-income, Spanish-speaking immigrant parents in the United States as they participate in their children's education. In my previous work, I used ethnographic fieldwork and participatory design to work with parents, bilingual liaisons, supporting organizations in uncovering design pathways for parent-education ICTs that can best respond to the everyday information challenges of low-income immigrant parents while leveraging and augmenting their assets. My work suggests key directions to follow when designing with immigrant parents for challenging the large-scale issues that affect them. In particular, it reveals the need for participatory approaches that can help institutional decision-makers understand and effectively prioritize the assets of marginalized groups in designing ICTs and policies that support their use.

CCS Concepts: • **Computer systems organization** → **Embedded systems**; *Redundancy*; Robotics; • **Networks** → Network reliability.

Additional Key Words and Phrases: datasets, neural networks, gaze detection, text tagging

ACM Reference Format:

Marisol Wong-Villacres. 2018. From Needs to Strengths: Devising Assets-Based Parent-Education ICTs for Latinx/a/o Immigrant Parents in the United States. In . ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/1122445.1122456>

1 INTRODUCTION

Since 2017, nearly over 165 million people have immigrated to higher-income countries [19]. Increasingly, these immigrants face the challenge of supporting their children's education in a foreign educational system [8]. Like most parents, immigrants must learn how to navigate multiple information channels for accessing learning resources that can enrich their children's learning experience [1, 4]. Immigrant parents often leverage many cultural and social resources to attain their information goals (e.g., asking neighbors and relatives for homework support) [4]. However, educational systems' historical inequities position these parents' socioeconomic, linguistic, and cultural differences as deficits [2, 5, 11], complicating their possibilities to connect with information that speaks to their contexts and interests [10, 18]. While a growing number of Information and Communication Technologies (ICTs) offer support for parents to adequately relate with the education system—including formal and informal systems in all their extension, these

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.

© 2018 Association for Computing Machinery.

Manuscript submitted to ACM

rarely respond to the complex reality of parents from vulnerable groups [6, 16]. When ICTs do attend to nondominant realities, they tend to treat these as exceptional cases that need patches, often disregarding vulnerable groups' strengths and capacities—or assets—for contributing solutions [12, 20, 24, 30]. In the case of parents from vulnerable populations in the context of education, this deficit-fixing, interventionist approach can further disconnect many parents from their children's academic lives [9, 15, 22, 27].

For five years, I have explored this issue by working specifically in the context of Spanish-speaking Latino immigrant parents with a low socio-economic status in the United States (U.S.). Despite being the largest group of immigrants in the country [3], they have had a troubling relation with this country's educational system [4, 5, 7, 11]. Latino children face a historical and prevalent academic gap compared to their European American peers [7, 23, 25]. Extending the work done in the field of Human-Computer Interaction (HCI) with parents from nondominant backgrounds and digital technologies [6, 13, 16, 21, 33, 34], I have used ethnographic fieldwork and participatory design as methods for working with diverse groups of Latino parents and institutional actors such as bilingual liaisons, program coordinators, and institutional actors, to explore how parent-education ICTs can support parents in connecting with meaningful resources for participating in their children's education information. Specifically, we have examined how parent-education ICTs working in the educational system can best respond to the everyday challenges of parents from nondominant groups, while appreciating, leveraging, and augmenting their strengths.

To that end, I have pursued an ecological, assets-based approach [4, 14, 17, 20]. This has entailed examining not only parents and the technologies they use, but all the actors involved in parents information-access, -seeking, and -processing experiences. Likewise, it has entailed a commitment to understanding and leveraging the already existing—but often disregarded—skills, strengths, and capacities of all the actors of the ecology. This research has highlighted three key findings about how to change ICTs operating in the educational system to connect parents with educational resources. First, despite the plethora of assets in the system, both from parents and other actors, the misalignments amongst these assets prevent information to flow to parents [31]. Second, parents' use of their assets in design suggested that their priority is to foster meaningful connections between themselves and other actors of the system such as other parents, and supporting institutions [28]. Finally, institutional actors advocated for supporting parents' assets and goals by de-centering schools and technology in the parent-education relation. The designs insisted in ICTs that could connect institutional actors across the educational system and encourage more opportunities for parents to engage in face-to-face connections with other parents and community partners. Future work will need to explore methodological pathways for a) engaging in incremental, participatory design with immigrant parents for considering these findings in the creation of initiatives that benefit them; and b) using those attempts to elicit assets-based changes in policies and practices at an institutional level.

2 PRIOR RESEARCH

2.1 An Assets-Based Mapping of the Educational System

The first stage of my research explored how the assets of the many actors in the ecology interact to facilitate or hinder information flows to parents. Parent-education ICTs are prevalent in school districts across the country, all parents are exposed to them. Thus, my first study sought a generalizable, large-scale understanding of how existing ICTs support parents' use of their assets, at a nationwide level, across socio-economic status, and ethnicity [29]. Based on interviews with 63 parents from different socioeconomic status across the country, this study found that ICTs are too many, too restrictive, overly fragmenting information for all parents and supporting parent-teacher communications mostly.

High and mid SES parents react by using technology to harness their social capital, creating online groups and shared documents to exchange information about learning resources. For lower-SES parents recovering from breakdowns in school information is harder, time constraints and the relation with their social capital is different than High SES parents. Many try using options such as online searches for finding support, but these usually fail in offering resources that are contextualized to parents' realities.

With that baseline, the next study moved to the local view of how actors in the ecology of Latino parents use their assets to to facilitate information channels for parents [31]. This inquiry relied on a two and half year , multi-sited ethnographic fieldwork across 13 schools, NGOs, churches, and college fairs, 55 interviews with parents, organization, and school staff, and observations of over 300 participants. Findings showed that the ecology is plagued with assets, but that most misalign, leading to unreliable information channels. For example, while parents' resort to closeness as a strategy to deal with their children's problems, teachers' self-protect from their overwhelming workload by preferring more distanced interactions. Parents are also very skillful users of apps for everyday goals such as google maps, Google Translate, YouTube, and Facebook but the apps that schools promote are not related to those everyday uses, forcing parents to engage with new technology and information practices. There is also a misalignment between the abundance of information that supporting organizations like NGOs and churches offer to immigrant parents and the meaning that parents can make out of such abundance: so much information often gets lost and many parents never find out about the opportunities that fit their context. Finally, bilingual liaisons emerged from the previous study as critical actors for the ecology, connecting parents and other actors.

The last study thus, explored the specific experience of these connectors more in-depth to seek opportunities to learn from them and/or support their work [32]. This study found that liaisons' work entails transforming gaps and differences into assets. For example, some liaison put together initiatives such as workshops for immigrant parents and native-born parents to teach Spanish and technology use to each other. Liaisons' work however, is too laborious and even emotionally taxing. They need more hands to help them, more ideas for transforming gaps into assets, and more institutional support to align assets creatively.

2.2 Parents and their Assets in Design

With that rich understanding of the system that parents navigate, including its assets and challenges to offer effective information flows, the next stage was to explore visions for the future that Latino parents preferred. I engaged in PD with 35 parents distributed in four groups across four locations in the city of Atlanta for envisioning parent-education ICTs that address their challenges but that also supports their assets [28]. Parents' experiences and designs highlighted four key critical capacities for accessing and making sense of information in the educational system, they sought to leverage for proposing a different future. This entailed abilities to negotiate information, self-empower through learning and serving, make sense of the world via consejos, and orchestrate resources for ensuring their children have what they need for studying. All these capacities, however, depend on the existence of a thriving community of parents, teachers, friends, and others, who are willing to interact with them.

Parents' experiences and designs, illuminate that such communities are not the norm; issues of distrust towards their environment, and cultural, linguistic, and educational gaps curtail possibilities for parents to come together with other actors and mobilize their capacities. There is, thus, a need to reframe the problem of Latin* parents' engagement with their children's education: it is not that parents need support for accessing information, it is that the educational

system—including ICTs, is not supporting community-building spaces where parents can make use of their problem-solving and information-seeking skills. A shift from information to community, however, is not seamless. As parents' designs suggest, it implies promoting parent-to-parent, parent-to-liaisons, and parent-to-organizations connections.

2.3 The Support of Institutional Actors

After understanding parents' assets and goals, the next stage was to explore how this knowledge could inform institutional actors' view of the educational system and ICTs. In particular, the goal was to explore the design pathways that they saw as desirable for ICTs to support parents' assets and goals. And from there, to determine actions that the educational system could take moving forward. To do this, I engaged in four iterative 3-hour PD sessions with four different groups of institutional actors, summing up a total of 32, including school liaisons, after-school and parenting program coordinators in Atlanta, and the staff of a software company serving schools in the city. As a result, participants incrementally pushed towards three critical changes in the status quo.

First, participants asked for less production of ICTs for parents, and more ICTs for connecting institutions. Most of participants' designs stressed that institutions and institutional actors needed to be more connected, working together. Such connectivity could help raise awareness among decision-makers in the system, such as school principals, about what is going on and why actors working directly with parents need more support. Such a connectivity could also lead to more knowledge of how to collaborate together, setting up more effective initiatives for parents. For example, many participants suggested adding local business such as Publix, and Chickfilla-A as users of the system: if Publix is making food donations, they want to know and figure out ways to collaborate to benefit parents.

Participants also suggested key particularities for parent-education ICTs to stop pushing information at parents and rather support meaningful connections for them. Specifically, they expressed a desire to rethink technology's entry point, moving from pushing technology to parents and leaving it to them to figure out the meaning of these ICTs, to rather providing meaningful, on-the-ground experiences first. In these experiences parents could be given a chance to understand new apps, try them out, and learning what they are for. Further, participants also stressed that for helping parents make the connection between various resources and education, initiatives needed to work as a concerted effort between schools and other institutions. That is, interactions and request for participant cannot come only from schools. Finally, from their perspective, any initiative that suggest new resources to parents, needs to gradually motivate parents to get closer to others in the community, possibly via rich, face-to-face interactions.

The last change they proposed was in the way ICTs and its data is managed. They suggested to go from a school-centered perspective to a community-led one. That included mechanisms for supporting that it is parents, and not other actors, the ones who can eventually be in charge of organizing events for other parents to come together, learn about new technologies, and their children's education in general. Further, in terms of the data that parents and institutions might generate when using these ICTs, participants argued against schools being the only ones making decisions and harnessing that data. They rather suggest forming consortiums of parents, NGOs and private companies to own and manage that data.

3 FUTURE WORK

The findings from these previous research stages suggest a two key directions to further explore in future research. First, to work with one community only to learn the implications of working ICTs that stress on-the-ground, meaningful interactions over online ones. This implies, understanding the pace in which advancements towards producing such ICTs need to take place for the community to guide and appropriate the endeavor. It also implies exploring the

right methodologies to mediate the work between immigrant parents and institutional actors, considering the power differences and the relevance of prioritizing parents' assets and goals.

Second, it remains critical for any community-based intervention to also explore how it can derive transferable lessons that can challenge and change the larger-scale system. In this case, the educational system. For this, it is key to develop methodologies that can allow the designer to behave as an assets-based mediator, helping different parties to make sense of each other, their assets, and they way in which their assets can be used to change the system. I find in the notion of notion of seams and patchworking proposed by Janet Vertesi [26] an interesting analytical lens for understanding the work of the designer and the methodological implications of creating methodological patchworks that allow for the world of parents—a vulnerable group—and system decision-makers to coexist and co-produce changes. Her view of differences—or seams—across multiple worlds can inform designs' decisions on the possible resources to use for paving the way to co-creation amongst radically different groups.

4 CONCLUSION

In response to the rapid increase of children of immigrants who require their parents' support to succeed academically, educational systems sponsor a series of parent-education ICTs that often do not align with immigrant parents' cultural, information, and technological knowledge or assets. Relying on ethnographic and participatory research methods, my research explores other pathways for parent-education ICTs to exist in the educational system. Specifically, it seeks to inform ICTs that address these parents' challenges while recognizing and supporting their assets. Through three inquiries, it contributes a rich analysis of the multiple assets operating in the educational system, suggesting neither parents nor institutional actors want parent-education ICTs to continue pushing information to parents. Instead, they propose ICTs that support meaningful connections amongst all members of the educational system, which can lead to parents taking charge of community-building and parental involvement strategies and the data ICTs produce. These findings suggest two critical directions for future assets-based work with immigrant parents. First, to learn the implications of ICTs that promote on-the-ground, assets-based meaningful interactions amongst parents and other actors of the educational system. Second, the develop participatory methods for working with institutional actors to ensure that the assets-based lessons at a community level inform changes in practices and policies for the educational system.

REFERENCES

- [1] Brigid Barron, Caitlin Kennedy Martin, Lori Takeuchi, and Rachel Fithian. 2009. Parents as learning partners in the development of technological fluency. (2009).
- [2] Angela Calabrese Barton, Corey Drake, Jose Gustavo Perez, Kathleen St Louis, and Magnia George. 2004. Ecologies of parental engagement in urban education. *Educational Researcher* 33, 4 (2004), 3–12.
- [3] United States Census Bureau. 2015. FFF: Hispanic Heritage Month 2015. <http://www.census.gov/newsroom/facts-for-features/2015/cb15-ff18.html>
- [4] Gustavo Pérez Carreón, Corey Drake, and Angela Calabrese Barton. 2005. The importance of presence: Immigrant parents' school engagement experiences. *American Educational Research Journal* 42, 3 (2005), 465–498.
- [5] Rosario Ceballo, Laura K Maurizi, Gloria a Suarez, and Maria T Aretakis. 2014. Gift and sacrifice: parental involvement in Latino adolescents' education. *Cultural diversity & ethnic minority psychology* 20, 1 (2014), 116–27. <https://doi.org/10.1037/a0033472>
- [6] Alexander Cho, Roxana G Herrera, Luis Chaidez, and Adilene Uriostegui. 2019. The" Comadre" Project: An Asset-Based Design Approach to Connecting Low-Income Latinx Families to Out-of-School Learning Opportunities. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. 1–14.
- [7] Concha Delgado-Gaitan. 1991. Involving parents in the schools: A process of empowerment. *American journal of Education* 100, 1 (1991), 20–46.
- [8] Horst Entorf. 2015. Migrants and educational achievement gaps. *IZA World of Labor* (04 2015). <https://doi.org/10.15185/izawol.146>
- [9] JS Goodall. 2016. Technology and school–home communication. *International Journal of pedagogies and learning* 11, 2 (2016), 118–131.

- [10] Diley Hernandez, Shaheen Rana, Meltem Alemdar, Analia Rao, and Marion Usselman. 2016. Latino parents' educational values and STEM beliefs. *Journal for Multicultural Education* 10, 3 (2016), 354–367. <https://doi.org/10.1108/JME-12-2015-0042>
- [11] Diley Hernandez, Shaheen Rana, Meltem Alemdar, Analia Rao, and Marion Usselman. 2016. Latino parents' educational values and STEM beliefs. *Journal for Multicultural Education* 10, 3 (2016), 354–367.
- [12] Naveena Karusala, Aditya Vishwanath, Arkadeep Kumar, Aman Mangal, and Neha Kumar. 2017. Care as a resource in underserved learning environments. *Proceedings of the ACM on Human-Computer Interaction* 1, CSCW (2017), 1–22.
- [13] Parisa Khanipour Roshan, Maia Jacobs, Michaelanne Dye, and Betsy DiSalvo. 2014. Exploring how parents in economically depressed communities access learning resources. In *Proceedings of the 18th International Conference on Supporting Group Work*. ACM, 131–141.
- [14] John Kretzmann and John P McKnight. 1996. Assets-based community development. *National Civic Review* 85, 4 (1996), 23–29.
- [15] Cathy Lewin and Rosemary Luckin. 2010. Technology to support parental engagement in elementary education: Lessons learned from the UK. *Computers & Education* 54, 3 (2010), 749–758.
- [16] Michael A Madaio, Fabrice Tanoh, Axel Blahoua Seri, Kaja Jasinska, and Amy Ogan. 2019. "Everyone Brings Their Grain of Salt" Designing for Low-Literate Parental Engagement with a Mobile Literacy Technology in Côte d'Ivoire. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. 1–15.
- [17] Alison Mathie and Gord Cunningham. 2003. From clients to citizens: Asset-based community development as a strategy for community-driven development. *Development in practice* 13, 5 (2003), 474–486.
- [18] Luis C Moll, Cathy Amanti, Deborah Neff, and Norma Gonzalez. 1992. Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory into practice* 31, 2 (1992), 132–141.
- [19] United Nations. 2017. International Migration Report 2017. <https://tinyurl.com/y75wafgz>
- [20] Lucy Pei and Bonnie Nardi. 2019. We Did It Right, But It Was Still Wrong: Toward Assets-Based Design. In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems*. 1–11.
- [21] Gonzalez C. Nieto C. Roldan W. Onofre E. Yip J. Pina, L. 2018. How U.S. Latino children engage in collaborative online information problem solving with their families. *Proceedings of ACM Computer Supported Collaborative Work* (2018).
- [22] Fred Ramirez. 2001. Technology and parental involvement. *The Clearing House* 75, 1 (2001), 30–31.
- [23] Jesus Ramirez-Valles and Amanda Uris Brown. 2003. Latinos' community involvement in HIV/AIDS: organizational and individual perspectives on volunteering. *AIDS Education and prevention* 15, 1 Supplement (2003), 90–104.
- [24] Kentaro Toyama. 2011. Technology as amplifier in international development. In *Proceedings of the 2011 iConference*. ACM, 75–82.
- [25] Richard R Valencia. 2002. "Mexican Americans don't value education!" On the basis of the myth, mythmaking, and debunking. *Journal of Latinos and Education* 1, 2 (2002), 81–103.
- [26] Janet Vertesi. 2014. Seamful spaces: Heterogeneous infrastructures in interaction. *Science, Technology, & Human Values* 39, 2 (2014), 264–284.
- [27] Linda Willis and Beryl Exley. 2018. Using an online social media space to engage parents in student learning in the early-years: Enablers and impediments. *Digital Education Review* 33 (2018), 87–104.
- [28] Marisol Wong-Villacres, Carl DiSalvo, Neha Kumar, and Betsy DiSalvo. 2020. Culture in Action: Unpacking Capacities to Inform Assets-Based Design. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. 1–14.
- [29] Marisol Wong-Villacres, Upol Ehsan, Amber Solomon, Mercedes Pozo Buil, and Betsy DiSalvo. 2017. Design Guidelines for Parent-School Technologies to Support the Ecology of Parental Engagement. In *Proceedings of the 2017 Conference on Interaction Design and Children*. ACM, 73–83.
- [30] Marisol Wong-Villacres, Arkadeep Kumar, Aditya Vishwanath, Naveena Karusala, Betsy DiSalvo, and Neha Kumar. 2018. Designing for intersections. In *Proceedings of the 2018 Designing Interactive Systems Conference*. 45–58.
- [31] Marisol Wong-Villacres, Neha Kumar, and Betsy DiSalvo. 2019. The Parenting Actor-Network of Latino Immigrants in the United States. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*. ACM, 684.
- [32] Marisol Wong-Villacres, Neha Kumar, and Betsy DiSalvo. 2019. The Work of Bilingual Parent-Education Liaisons: Assembling Information Patchworks for Immigrant Parents. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW (2019), 1–24.
- [33] Sarita Yardi and Amy Bruckman. 2012. Income, race, and class: exploring socioeconomic differences in family technology use. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, 3041–3050.
- [34] Jason C Yip, Carmen Gonzalez, and Vikki Katz. 2017. Children of Immigrant's Experiences in Online Information Brokering. *Children and Families in the Digital Age: Learning Together in a Media Saturated Culture* (2017).