Designing for the Parenting Actor-Network of Latino Immigrants

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Abstract

The fields of Human-Computer Interaction (HCI) and HCI
for Development (HCI4D) have shown a strong
commitment to build channels between vulnerable groups
and information resources in areas such as health,
agriculture, and education. Proposed interventions have
recognized these as complex areas entailing the
interaction of many different actors. However, most have
struggled to meet the cultural, emotional, social and
information needs of such a wide variety of stakeholders.
In this paper, we address this pending design challenge by
turning to the information needs of low-income
Spanish-speaking Latino immigrant parents in the United
States as they strive to support their childrens education.
Drawing on a 1.5-year ethnographic work with low-income
American and Latino parents, and with a strong
grounding in Participatory Design, we propose to study
how to design technology that connects parents with a
variety of other actors who could help diversify the
information parents manage about learning resources. In
particular, we seek to explore how classism, aspirations
and closeness—aspects our formative research uncovered
as key factors shaping information sharing among
stakeholders—can be used as assets for building effective
information channels among such wide range of actors.

Introduction
A vast and growing body of work in Human-Computer Interaction (HCI) has shown a strong commitment to exploring ways for technology to connect people with opportunities for enhancing their lives as well as the lives of those they care for [20, 46, 47, 43]. The field of HCI for Development (HCI4D), in particular, has worked towards this goal by using technology to build channels between vulnerable groups around the world and information resources in areas such as health, agriculture, and education [16, 23, 38, 50, 55, 58]. Much of these initiatives have acknowledged that these are highly complex problem areas entailing an interaction of different actors coming from different backgrounds and defending different interests [15, 23, 24, 38]. However, interventions have often struggled to meet the cultural, emotional, social and information needs of such a wide variety of stakeholders. In this paper, we address this pending design challenge by turning to the information needs of low-income Latino immigrant parents in the United States as they strive to support their childrens education.

Parents ability to secure educational resources for their children greatly impacts childrens academic success and social development [2, 3, 10]. Such abilities, however, are especially challenging for parents from marginalized groups such as low-income and low-educational ethnic minorities [2, 3, 9]. Among disenfranchised minorities, Latino immigrants parents are one in special need for support: although their children are among the least educated children in the country [6], intersecting factors (e.g., cultural, linguistic and socio-economic) prevent these parents from navigating the information channels that could change their childrens present and future [3, 12, 25]. We propose a research study to design and evaluate an ICT that connects parents with a variety of stakeholders (e.g., teachers, other parents, supporting organizations) who could help diversify the information they manage about learning resources, considering the different needs and interests of such a wide range of actors.

To work towards a design that fosters the creations of alliances between parents, schools, and communities we draw on our previous formative research with Latino immigrant parents. Heavily guided by the lens of Actor-Network Theory [8, 40], we studied these parents as actors of a networked, sociotechnical system, establishing information channels with a wide range of other actors—including technology—to exchange resources for better supporting their childrens education. From that work, we uncovered three cultural and social aspects strongly shaping the quality of the information channels between Latino parents and other actors: classism, aspirations and closeness. With a strong grounding in Participatory Design methods, our goal is to explore how to leverage these aspects so as to better respond to all stakeholders cultural and socio-economic context, as well as to their information and technology practices.

This research proposal seeks to contribute to the HCI4D community that designs technology for addressing the needs of marginalized groups, while also understanding the various intentions and interests of other key, but widely different stakeholders within complex socio-technical systems. We also extend knowledge on

how to factor cultural and social factors in the design for vulnerable immigrant groups, considering how their growing presence poses issues of development in the Global North. Finally, we further advance the existing understanding that HCI and HCI4D communities have on the Latino population in the U.S.a significant percentage of emerging technology users in the country.

Background

Information Access and Sociotechnical Systems
The HCI community has long looked at improving peoples access to information for bettering their lives [20, 46, 47, 43]. In particular, HCI4D has proposed the design of different technology-enhanced interventions to connect marginalized groups in underserved contexts—often located in the Global South—with key information in domains pertaining the achievement of sustainable development goals (e.g., health, agriculture) [16, 23, 38, 50, 55, 58]. In addition to addressing the information needs and practices of immediate actors (e.g., employers and job seekers [15, 23, 45, 62], patients and community health workers [1, 11, 37], etc.), a group of these initiatives has attempted to negotiate new technology and information practices with disparate groups of users [23, 29, 38, 48]. The overall goal has been to harness individuals knowledge and willingness to participate as intermediaries between information/technology and vulnerable groups, an aspect previously reported as key for ensuring users overall acceptance of new platforms [44, 53]. Digital Green, for example, an ICT for disseminating agricultural information to rural farmers in India, tapped into existing local social networks for connecting rural farmers to agriculture experts, amplifying these networks effectiveness [23]. Likewise, Projecting Health, a video-based initiative to disseminate health information for mothers and newborns, leveraged community resources for the generation, dissemination, and assimilation of such information [38].

While these examples highlight the relevance of viewing the community at large rather than focusing only on one actor of a sociotechnical system, most of existing interventions have faced issues assigning value to all actors practices and needs. Most operate under an implicit assumption that there is a group—either service providers or intervention managers—holding a scientific truth that needs to be disseminated and a group whose knowledge is not as valid. As Ismail et al. explain, such view prevents projects from learning details about individuals' everyday lives that could inform practice, such as the challenges individuals face in assimilating information, preferences for certain type of information, as well as cultural beliefs [28].

In this proposal, we turn to the domain of education and marginalized groups, where most HCI4D work has usually focused on teachers and students only [17, 13, 18, 31, 30, 59]. Specifically, we investigate how to design technologies for supporting parents' information needs when trying to shape their childrens academic present and future. Previous HCI work in the Global North has suggested that parent-school communication technologies should facilitate parent-led initiatives rather than only school-authored ones [21, 35], providing *1)*support for equitable interactions for all parents and teachers, *2)* a unified and organized source of information, and *3)* access to relevant information [60]. We extend this work by proposing a design process that shifts the focus from parents to what Carreon et al. call the ecology of parental engagement [9], an ever-changing network of individuals and resources that parents interact with to make decisions about their childrens academic lives. Inspired by assets-based approaches that render visible the

opportunities lying in the everyday practices of marginalized groups [61, 64] we study this ecology as a socio-technical system in which all actors' knowledges and interests—including parents'—are valued and heard.

Latino Immigrants in the United States
ICTs usually play a role in helping immigrants navigating their new environment [14, 27, 32, 54]. Immigrants typically use mobile phones to maintain a sense of closeness with their distance social network [26], adapt socially and culturally to the host society [14, 27], and connect with other immigrants [19, 36]. However, researchers suggest the way in which immigrants tend to use ICTs (e.g., seeking closeness with those back home, and trying to hide their differences from members of their new society) can lead to an increase in stress and further isolation from their new context [14, 32]. Empowering immigrants via ICTs might, thus, not be a enough for providing them with the needed support [4, 32]. A crucial change to consider is to understand and harness the human infrastructure connecting with immigrants. For example, Brown et al. suggest exploring the cultural, social and financial considerations for helping new settlers rebuild their social support [4]. This can include technology-enhanced initiatives helping the host society embrace immigrants [32], or working with organizations such as religious ones so that they can provide immigrants with social and organizational support during times of considerable flux [5, 54].

We focus on Latino immigrant parents in the United States for they are a particularly large group of immigrants [7] in urgent need of information support for positively shaping their children's academic outcomes [3, 12, 25]. These parents' emergent technology practices indicate opportunities for technologies to provide such support [22, 41, 42]. Latino children are among the least educated children in the country: they have lower achievement test scores [6], higher dropout rates, and lower college attendance than European American and African American youth [56]. Contrary to the notion that Latino immigrant parents do not value education, research in education show that most of these parents engage in at-home practices to help their children attain a better future through education (*e.g.,* [9, 12, 51]. However, schools tend not to ascribe value to these practices [9, 10, 49]. In addition, these parents' scarce familiarity with English constrains their ability to express their views regarding the schooling of their children, their limited understanding of the American educational system prevents them from critiquing it, and their immigrant condition isolates them from heterogenous social support networks [9, 10].

Despite the glaring information needs of Latino immigrant families in the US—the largest group of emergent technology users in the country [57]—HCI and HCI4D related work on technology's role in supporting those needs is still sparse. Existing studies have explored the kind of devices parents and children use [22], emphasizing children's role in how families' use media [34] and access online information [33, 63]. Another area of interest has been the parent-child dyad and its interaction with technology for co-learning and co-searching of information [41, 42, 47, 52, 63]. Our work extends their work by proposing the design of new ICTs for low-income Latino parents to connect with and harness other social networks within and beyond school. Our goal is to determine what cultural, social and financial factors to consider when designing technology that mediates information-sharing alliances between stakeholders so that parents can better seek and access education-related information.

Prior Research

This proposal is grounded in findings from research conducted in the last 1.5 years about the use of technology of low-income American and Spanish-speaking immigrant parents for activities relevant to their participation in their children's education. Given the strong role of technology in schools these days, we first studied how technology facilitates parents' engagement in their children's education [60]. Based on interviews with both high- and low-income American parents, as well as on observations of parents' online interactions with schools/teachers, we learned that technology (both managed by schools and parents) is not currently supporting diverse groups of parents to connect and exchange information beyond the homogeneity of their networks. As a result, not all parents are given the same opportunities to help their children advance academically.

Drawing on that initial exploration, we then engaged in an ethnographic study of how low-income Spanish-speaking Latino immigrant parents engage in their children's education. Inspired by educational researchers Carreon et al.'s view of parental engagement as a relational phenomenon among parents, teachers, and communities [9], we studied parents as actors of a sociotechnical system, interacting with a wide range of other actors—including technology—to exchange information that might better support their children's education. We used the ANT framework to analyze human and technological actors, and the information exchanges that take place between them, in this network. From an ANT perspective, the social and the technical are inseparable entities, coexisting in an ever-shifting network of human and non-human actors associated by aligned interests [8, 39]. ANT allowed us to unpack the different roles actors enact within the system, and analyze the quality of existent information channels between those actors, illuminating the often forgotten informal practices that Latino immigrant parents engage in outside of school to support their children's education.

Our ethnographic engagement revealed three key aspects shaping the everyday information-sharing and community-building practices taking place in the system. First, historical Latino *classsism* prevents middle class Latino immigrants from becoming a resource for diversifying the information-seeking practices of lower income parents. Second, parents' *aspirations* for their children's future are often disconnected from information-seeking strategies. Further, due to a linguistic and cultural gap, most teachers have no knowledge of these aspirations, which prevents teachers from working towards helping parents achieve these long-term goals. Third, while parents reject public social media for building communities with the school and other parents, they tend to embrace the *closeness* of more private media like WhatsApp and Facebook Messenger, rather than public spaces such as Facebook, Twitter or Instagram. These three factors suggest design considerations for future technologies to effectively support Latino immigrant parents as they navigate the parenting sociotechnical system.

Proposed Work

Informed by our previous work, we propose a study to design and evaluate ICT that help parents build connections with other networks (e.g., parental networks, school network) so as to diversify and strengthen parents' access to learning resources. In particular, we seek to explore how to harness Latino classism, parents' aspirations, and closeness for shaping the design of such ICT.

To achieve our goal, we will explore the following research questions: *(1) How might ICTs be designed to assist parents' decision-making abilities in relation to their aspirations for children's future?, (2) What modalities might be most effective in fostering closeness among diverse groups of actors—including teachers, school liaisons and middle-class Latinos—so that they can share actionable information about children's learning opportunities?, and (3) How can the designed ICT impact parents' information-seeking abilities, qualitatively and quantitatively?*

Our proposed study will entail three phases—(1) two design cycles entailing Participatory Design (PD) sessions with low-income Latino parents, teachers, bilingual school liaisons, and middle-class Latino immigrants, to produce a refined and working prototype of an ICT for supporting parents, (2) a deployment of the ICT, and (3) an assessment of the deployment. The results of this research will contribute towards technology design for supporting information-sharing ecologies, where these ecologies may include parents, but also, more broadly, traditionally vulnerable and marginalized communities, with a view to engage more equitable participation and wider information exchange in the domain of education. By examining the example of low-income Latino parents as they attempt to shape their children's academic potential, our research aims to identify culturally and socioeconomically acceptable opportunities for technology to integrate learning ecologies so that available resources are effectively leveraged. This research has potential to greatly impact the value that digital channels bring to vulnerable communities, even after goals of bringing people online have been attained.

Conclusion

Our research proposes a study on how to design ICTs for supporting parents of marginalized communities into finding their way across information traditionally harnessed almost exclusively by dominant social structures. In particular, we seek to examine the role that technologies might play in assisting parents as they participate in their children's learning experiences. We emphasize the need for harnesing classism, aspirations and closeness as resources in this process, studying how these aspects can help connect parents, middle class Latino immigrants, teachers and school liaisons. We believe that the challenges and opportunities that underlie the making of these connections among Latino and American actors will resonate with HCI4D researchers studying immigration, marginalized groups, and ICTs.

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