# "Best of Both Worlds:" Opportunities for Technology in Cross-Cultural Parenting

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## ABSTRACT

Families are becoming more culturally heterogeneous due to a rise in intermarriage, geographic mobility, and access to a greater diversity of cultural perspectives online. Investigating the challenges of cross-cultural parenting can help us support this growing demographic, as well as better understand how families integrate and negotiate advice from diverse online and offline sources in making parenting decisions. We interviewed parents from 18 families to understand the practices they adopt to meet the challenges of cross-cultural parenting. We investigated how these families respond to conflicts while integrating diverse cultural views, as well as how they utilize the wealth of parenting resources available online in navigating these tasks. We identify five themes focused on how these families find and evaluate advice, connect with social support, resolve intra-family tensions, incorporate multi-cultural practices, and seek out diverse views. Based on our findings, we contribute three implications for design and translations of these implications to concrete technology ideas that aim to help families better integrate multiple cultures into everyday life.

## Author Keywords

Families; culture; cross-cultural; parenting; technology; religion; values; conflict.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## INTRODUCTION

Being a parent is a demanding role. The parenting process is subjective and difficult to control, despite documented best practices for raising children [16]. Furthermore, as families become increasingly blended, global, and diverse [37], parents take on new challenges of adopting and adapting to multiple cultures as they raise their children [9]. A number of recent, high-profile books have explored these differences [20,23,26,33]. For example, Rockquemore's *Raising Biracial Children* explores how mixed-race children's conception of racial identity should be developed [33]. In *Parenting Without Borders*, *Bringing up Bebé*, and *How Eskimos Keep Their Babies Warm*, mothers describe the differences they experience when raising their children in other countries and cultures.

There are two reasons why we are at a critical juncture for developing supportive technologies that consider culture in helping parents adapt to their roles. First, the demographic of cross-cultural families is becoming more salient. For example, 12% of new marriages (and 6.3% of overall marriages) in the Unites States were interracial in 2013, compared to less than 1% in 1970 [59]. The U.S. population is also increasing in its diversity in religious beliefs [48]. Parenting is a particularly appropriate context to investigate cross-cultural perspectives as the act of raising a child can amplify differences in cross-cultural families [13]. Second, many other parents now face more parenting decisions that include elements of cultural diversity as the Internet provides more pervasive access to information about diverse parenting practices. Parents actively use the Internet to gain access to diverse cultural perspectives about parenting, health, and development, as well as to seek and provide support [21]. Understanding how cross-cultural families integrate diverse sources of advice can help design information technology that would help all families negotiate and navigate the diverse perspectives and opinions available to them online. Despite these factors, little is known about how cross-cultural parents integrate their online and offline experiences in making parenting decisions. Similarly, more empirical investigation is needed to understand how technology might be designed to better support parents in integrating multi-cultural advice, support, and perspectives into their everyday parenting practices. This investigation addresses the following research questions:

1. What information practices do parents adopt to meet the challenges of cross-cultural parenting?
2. How do these parents negotiate and integrate divergent sources of advice received both online and offline in making parenting decisions?
3. What role does technology play in connecting parents in cross-cultural families to information and support?

We address these questions through an in-depth interview study with parents from 18 diverse, cross-cultural families. We identify five themes focused on how cross-cultural families find and evaluate advice, connect with social support, resolve conflicts, incorporate cultural practices, and seek out diverse views. Based on these findings, we contribute three design directions for technology to support the practices of cross-cultural families.

## RELATED WORK

We synthesize research from multiple disciplines to set the context for our work. Cultural identity has been investigated in a number of disciplines, and describes how people relate to the cultures with which they identify. Family Studies has investigated how families manage and integrate multiple identities, including cross-cultural identities. Finally, parenting as it relates to technology use is a growing field in HCI domains, and typically investigates how parents might be better supported through online resources and technology designs, though little work has explored cross-cultural families. Throughout, we synthesize these bodies of literature with an eye towards open questions and design opportunities for better supporting cross-cultural families.

### Cultural Identity and Cross-Cultural Families

Cultures are groups with shared beliefs, attitudes, and traditions [29]. Cross-cultural studies of collaborative systems are a significant recent thrust in HCI and Social Computing research (e.g., [24]). Cultural belonging has a significant impression on people's perspectives on emotions, values, and traditions. It influences how people orient towards their role in the larger community, for example, to what extent a person behaves in ways that support individual versus collective wellbeing [25]. Culture also provides guidance and rules for safety, hygiene, communication, and acceptable behavior [35]. Cultural identities are shaped not only by family but also by generational cohort, through environment and political events. The importance of culture in influencing approaches to parenting and family structure has been well documented [18,30,52].

Multicultural families have been found to have diverse struggles, unique to their cultural cohorts. The definition of marriage itself can have varying expectations. In some Western cultures, marriage tends to occur between couples in love looking to extend their relationship [34]. In contrast, in some Eastern cultures, marriage can be arranged by parents, with the focus on preserving familial traditions, and can range from consensual to forced [11]. The outlook on the relationship between parents and children is also culturally dependent. For example, Jewish families have been found to encourage open communication between parents and children whereas Greek and Chinese families are less likely to encourage unrestricted communication across generations [42]. Other cultures have been found to prefer a family-oriented style towards communication and caregiving [38]. Prior work has investigated how intercultural parents navigate cultural differences within the family, finding

that they rely on adaptation strategies like assimilation and cultural transitions [14]. However, their work does not address the role of the Internet or technologies in this process and speaks to how counselors might better support cross-cultural families. A critical gap remains about the role of and opportunities for technology in cross-cultural families' lives. We address that gap.

### Family Relationships and Conflict

Probe studies of familial relationships point to the importance of a shared past, shared future, and common world view as antecedents for intimacy both for romantic [58] and parent–child [15] relationships. For cross-cultural families, it may be challenging to achieve and negotiate this shared outlook. Conflict appears to be more frequent and intense within families than other social contexts [56]. Communication strategies around conflict strongly affect the quality of the relationship. It is productive to calibrate expectations of conflict and adopt a cooperative rather than competitive approach to resolving issues [56]. In particular, communication about perceived fairness in child-rearing and domestic division of labor contributes to the quality of familial relationships [47]; however, as described in the previous section, approaches to communication are influenced by cultural factors such as race, ethnicity, and social class. Approaches and attitudes towards co-parenting also affect the well-being of the child and are influenced by cultural backgrounds and expectations both within and outside the family [19]. Conflict resolution is crucial to healthy development of children. It is especially important in culturally diverse families because studies suggest that positive early childhood experiences can foster a healthy respect for other cultures [61].

Previous work in social science fields points to the importance of examining family relationships from the perspective of cross-cultural interaction (e.g., [10]). However, in computing research, investigations of family relationships have focused mostly on matters of coordination (e.g., [17]) and remote presence-in-absence (e.g., [60]). Here we build on these bodies of prior work towards the goal of understanding how to design technologies to better support cross-cultural families.

### Parenting Online

Parents are one of the fastest growing demographics of social media users on sites like Facebook, Instagram, and Twitter [39,45,49]. A number of studies show how parents go online to access information, social support, and overcome judgment [4,5,40,49,53]. Mothers go online anonymously to access support and overcome judgment that they might experience in face-to-face interactions or on real-name sites [54]. They use Facebook to remain connected with other adults during the early days of new motherhood [22]. New mothers use Facebook to post status updates and photos of their child [7,43], an activity new fathers do as well, though at a slightly lower rate than new mothers do [4,7]. New mothers' posts are slightly more positive after

| | M/F | Age | Occupation | Primary Cultural Affiliation (Self-Labeled) | Strength of Affiliation (4 = highest) | Other Cultures in Parenting (Self-Labeled) | Household Income | Other Self-Reported Important Family Features |
|---|---|---|---|---|---|---|---|---|
| P1 | F | 35 | Nurse | Russian | 3.08 | American | >$150k | Strong "natural living" values |
| P2 | F | 37 | Homemaker | German | 3.25 | British, American | >$150k | Speak only German at home |
| P3 | F | 39 | Journalist | Roman Catholic | 3.42 | Arab Muslim | $25k-$49k | Divorced, single mom |
| P4 | F | 32 | Researcher | Brazilian | 2.58 | Polish, American | $50k-$74k | Same-sex partner household |
| P5a | F | 40 | Homemaker | Korean | 2.25 | Jewish | $75k-$99k | Raised son Jewish while living in Korea |
| P5b | M | 43 | Writer | Jewish | 3.83 | Korean | | |
| P6 | F | 34 | Grad Student | Chinese | 3.00 | Jewish | >$150k | Oldest child has autism |
| P7 | F | 34 | Attorney | Jewish | 1.33 | Christian | $75k-$99k | Socio-economic differences |
| P8 | F | 31 | Software Engr. | Korean | 2.00 | White American | >$150k | Full-time nanny contributes |
| P9 | F | 34 | Manager | Korean | 2.00 | White American | >$150k | - |
| P10 | M | 36 | R&D | Italian | 3.83 | American | >$150k | Speak only Italian at home |
| P11 | M | 33 | Homemaker | Mixed | 1.42 | Christian | $50k-$74k | Different intensity of religion |
| P12 | F | 25 | Homemaker | Black Hispanic | 1.58 | Japanese, USA | $50k-$74k | Speak only English at home |
| P13 | F | 54 | Writer, Teacher | Chippewa | 2.08 | White American | $25k-$49k | Single mom, lives w/ parents |
| P14 | F | 33 | IT Manager | Chinese | 3.17 | Vietnamese-Dutch | 100k-$150k | 4 languages spoken at home |
| P15 | F | 40 | Social Worker | Rastafarian | 2.67 | Jehovah's Witness | <$25k | Interracial couple |
| P16 | F | 40 | Product manager | White American | 1.67 | Brazilian | $100k-$150k | Bilingual at home |
| P17 | F | 27 | Healthcare | Hispanic Catholic | 1.92 | Russian Jewish | $100k-$150k | 3 languages spoken at home |
| P18a | F | 34 | Project Leader | White Catholic | 2.33 | Costa Rican | $75k-$99k | Child lived in both U.S. *and* Costa Rica; bilingual at home |
| P18b | M | 31 | Homemaker | Costa Rican | 2.00 | White Catholic | | |

**Table 1. Demographics and cultural self-affiliations of each participant household and additional salient family characteristics.**

their child's birth than prior to birth, most likely because mothers tend to use positive terms when referring to their baby online [43].

Parents actively use online platforms to seek information and social support related to health issues in the family. A meta-review shows that first-time, middle-class mothers between the ages of 30-35 are most active in looking up health information online [49]. More broadly, parents look up health and developmental information related to their child on search engines and social media sites [41,44]. Parents of children with special needs turn to Facebook groups to find people near them who can help them to navigate health and education services, and they find online environments to be less judgmental than their offline environments [5]. These parents often turned to online communities to access health information and support related to their children's needs (e.g., parents of children with autism [27]).

Despite the rapidly growing body of research exploring parents' use of technology, little is known about how cross-cultural families leverage these resources. Research has shown that culture influences how people accept, use, and respond to technology [8,32,36]; in this study, we investigate how cross-cultural families integrate online and offline resources into their parenting practices.

## METHODS
We conducted in-depth semi-structured interviews with parents from families who self-identified as cross-cultural. We were interested in understanding the experiences of parents who incorporated and negotiated the influences of multiple cultures in their daily family practices, especially

as those experiences pointed to the role of and opportunities for computing technologies.

## Instruments
The questionnaire portion of the interview study contained two instruments. The first was an adapted version of the Multigroup Ethnic Identity Measure [28] (referred to as the Adapted Multigroup Ethnic Identity Measure), a measure tested and validated in prior work across a variety of demographics [28]. It measures two primary components: 1) identity and 2) affirmation, belonging and commitment. The recommended scoring is to use the mean of the 4-point Likert Scale responses to twelve items (5 identity items and 7 affirmation items). The language of the original scale was changed from "ethnic" to "cultural" to better reflect our broader focus on the participants' self-identified cultural characteristics, which could include religion and other differences. Example items include "I am happy that I am a member of the group I belong to" and "I participate in cultural practices of my own group, such as special food, music, or customs." Participants were asked to fill out this questionnaire about the culture that was the primary cause of negotiation, integration, or consideration in their family (e.g., if most negotiation was about religion, the participant filled out this survey about his/her religion). However, we caution the reader that the modifications to the measure mean these values should be interpreted as descriptive rather than as a validated diagnostic metric.

The second questionnaire focused on demographic information, including gender, age, occupation, household income, relationship status, residential status, and information about race and religious and education levels of the partici-

pant and his or her family. We also asked participants in what ways their parenting incorporates influences from multiple cultures (e.g., multiple religions of family members) and what were primary causes of negotiations among family members. Answers to both questionnaires are summarized in Table 1.

**Operationalizing "Culture," Recruiting, and Participants**
While there are many definitions of "culture," we defined culture broadly as "ethnicity, where you were raised, religion, or anything else that you feel has influenced your parenting styles" and allowed participants to self-identify as to what it meant to be cross-cultural or which aspects of cross-cultural parenting would be the focus of the interview. However, we excluded participants who were unable to describe in their own words at least two cultures that were negotiated and balanced in their parenting approach (this resulted in one such volunteer parent being excluded from the study). One other main criteria determined participation in this study—the family had to have at least one child younger than eleven years of age. This was chosen to ensure that parents could provide rich insights about their experiences as a new parent. We recruited participants through a variety of channels including word-of-mouth, snowballing, parent email lists, craigslist advertisements, and social media postings.

We conducted a total of 18 interviews (two were with husband-wife pairs for a total of 20 participants). All participants were currently living in the US, representing several major regions of the country: the West and East coasts, the South, and the Midwest. Participants were relatively diverse in terms of cultural experiences related to ethnicity and religion, though not in terms of gender (16 out of 20 were female, see Table 1). The median age of participants was 34 and ranged from 25-54. Household incomes ranged from less than $25,000 per year to over $150,000 per year. Participants held a diverse range of professions and five were homemakers (three female and two male). Their primary cultural affiliation was also diverse. Not surprisingly, given the recruitment focus on families with cross-cultural influences, only two participants indicated a strongly exclusive sense of affiliations with their primary cultural identity. The average Adapted Multigroup Ethnic Identity Measure score for our participants was 2.5 out of 4—parents were familiar with their primary cultural affiliation, but did not participate in it exclusively or explore all of its possible facets.

**Procedure and Analysis**
We conducted interviews between January and June of 2014. We interviewed nine families by telephone or videochat and nine in a face-to-face setting. All participants signed consent forms, responded to a demographic questionnaire, and filled out the Adapted Multigroup Ethnic Identity Measure (on paper in face-to-face interviews and through an online form for phone/videochat interviews).

Interviews were conducted by each of the four investigators, following a common protocol. The interview began

with questions about participants' cultural background, such as where they were raised, what kinds of traditions they had growing up, as well as traditions of their current nuclear family. The second set of questions focused on the participants' experience as a parent including who they went to for advice, unsolicited advice they have received, and how they responded to conflicting parenting advice. The third set of questions focused on advantages and struggles related to raising a child with multiple cultural influences. Finally, the fourth set investigated the role of technology in the cross-cultural parenting process. To wrap up, we asked participants for three pieces of advice they would pass on to every new parent in the world, and what advice they would give to other parents who were looking to integrate multiple cultural approaches in raising their children. Though only one section of the interview asked explicitly about technology the parents used, participants discussed technology pervasively throughout the interview, as it was introduced as the focus of the study.

The research team analyzed interview transcripts using an inductive approach [57]. Each interview was independently open-coded by at least two of the investigators. This process produced more than 750 open codes that were then discussed among all four investigators to resolve any disagreements and to combine insights from the multiple passes. All four investigators participated in generating larger themes from these open codes through the following process: any investigator could suggest a potential theme, then all four investigators reviewed open codes and interviews to identify both supporting and conflicting statements from participants. As the initial findings were quite broad, an additional analysis pass through all of the interview data was conducted to focus more explicitly on the role of technology. This paper presents identified themes that are most relevant to the context of cross-cultural parenting, particularly where it intersects with the role of and opportunities for technology.

**Limitations**
This work presents an exploratory qualitative investigation of the role of and opportunities for technology in cross-cultural parenting. We focused on new parents' experiences and parenting practices in this research and most of our participants had children under the age of 6. We could not interview children that young, but understanding children's perspectives and experiences with cross-cultural childhood are an important area for a follow-up study. Though we were able to represent multiple geographic regions within the U.S., all of our participants lived in the U.S. at the time of the study, thus our findings apply most directly to the U.S. and additional work would be required to extend this contribution to other cultural contexts. More mothers volunteered for participation in this study than fathers (an ongoing challenge in parenting research). Finally, there was a self-selection bias to the sample as parents had to self-identify as cross-cultural and volunteer to participate.

## RESULTS: FIVE THEMES OF CROSS-CULTURAL PARENTING AND TECHNOLOGY

Our analysis revealed five themes pertinent to the role of and opportunities for technology in cross-cultural families. The themes draw on families' experiences both with and without technology in ways that point to implications or opportunities for design. In the subsequent section, we translate these themes into technology designs.

### Theme 1: Seeking Online & Offline Advice

While the Internet has made advice and parenting information very accessible to parents, many parents in our interview expressed high anxiety about making the "right" parenting decisions because of conflicting advice available to them through the variety of sources and cultures that make up their families. Parents developed practices for both finding and evaluating advice.

### Finding Advice

The majority of parents in the study reported disliking unsolicited advice, as they frequently felt judged for their parenting choices by both cultures:

*[The children] are officially allowed to walk and come back from school without the parents.  I do it and I'm the only one. And people ask me, "Oh, I'm happy to take [your daughter] home for you." "But, I want her to learn to cross the road on her own. I think she's fine." ... In Germany, the kids walk to school by themselves. So yeah, I felt a bit judged. (P2)*

*Our parents judge all the time ... they're just sitting there and waiting for us to fail and to see how the kids won't be good grownups. (P1)*

Instead of accepting unsolicited advice, cross-cultural parents mentioned two major practices for finding information pertinent to their family. The first practice, mentioned by 11 parents, was connecting with remote friends and family through technology to ask for advice. In connecting with remote friends and family, technology (videochat, instant messenger, email, etc.) expanded the available circle of advice-providers, letting them choose to turn to individuals who had similar values and experiences rather than only close relatives or the local community:

*I have a cousin in Brazil who I was not very close to her when I was growing up, and we became much closer [after I had the baby] ... It was really, really refreshing to learn about these things from family members that I can trust. (P4)*

*Especially because we're Rastafarian, we think a little bit differently than our parents and some of our relatives might. So, a lot of times I think we look to ... other families. (P15)*

The second practice was using a search engine to find answers to specific questions, P5 terming this "parenting by Google." Parents used but relied less on information curated by large U.S. websites (e.g., BabyCenter), which felt "irrelevant a lot of the time" (P3). Instead, cross-cultural families examined and searched websites from diverse cultural backgrounds:

*If there's a problem, I go to German websites and American websites and whatever else I can read.  A little bit maybe French, although I can't really read this. But I also try to find UK kids websites to get advice. (P2)*

Cross-cultural families may struggle to find acceptance of their parenting decisions and had to look widely to get relevant advice, including reaching out to remote family through technology and searching a broad selection of websites from each of their cultures.

### Evaluating Advice

Though participants had a variety of strategies for evaluating sources of factual information (echoing results from [4,49]), the most common practice was filtering advice based on similar experiences and values.

Cross-cultural families frequently relied on the lived experiences of other parents to filter what may or may not work for their unique circumstances. Parents wanted "*not just advice, but advice that was actually helpful about how to deal with my own child*" (P3), "*real-world opinions in addition to doctor's opinion*" (P6), "*other actual people's advice*" (P7), who "*had the experience ... not a supposed expert*" (P12). This was a recognition that experts frequently reflect on aggregated data, whereas: "*having children is not a one-size-fits-all kind of thing, and every kid is different*" (P14). P11 described his information-seeking process as follows:

*I would look at different blogs to see what different parents would say about some of these techniques ... That helped us a lot because not everything that I've found online that so called specialists said would work, really worked. So more or less take a combination of both information and see what will work best for my daughter in particular... using the blogs and comments from other parents to weed out the bad information from the good information that I was finding online.*

While this is not unique to cross-cultural families, this may have been exacerbated by the unique contexts and problems these families face which may require more tailored solutions rather than broad advice. For example, P17 shared:

*I would go online and Google religious views, Judaism, or Family Reform Judaism and Orthodox Judaism, and read some of the comments, see what people we doing, how are they compromising in their lives.*

However, filtering information through close-knit communities with similar values may have reduced the diversity of perspectives for some families, perhaps contributing to decisions that others may consider extreme. For example, P1 and P15 chose not to vaccinate their children. P15 used her community to find doctors who would accept and support her decision. For P1, the decision was an explicit rejection of authorities that she felt gave erroneous advice:

*Like the guidelines from the American Association of Pediatrics [on topics like] vaccines or eating flour ... The information that's available on the Internet allows you to question whatever authority says to you ... for medical care it's [the Facebook group] and it's Mercola.com ... People around scare you because everybody is vaccinated and they think it's great, so you don't hear like-minded people that support you.*

P1's Russian parenting Facebook group connected her with a number of like-minded people who had made similar decisions not to vaccinate.

To summarize, cross-cultural families reported experiencing judgment over their parenting decisions and often turned to technology to look for advice. They then filter this advice by locating other parents with like-minded experiences and values.

### Theme 2: Seeking Online & Offline Social Support

Participants relied on the Internet not just to find information but also to seek social support. While this largely corroborates the findings of other studies of online parenting support (e.g., [5,6,40,43]), cross-cultural families described particular types of support needs, which they accessed in two ways: normalizing experiences by reading about other in the same situation and connecting with hybrid social support communities.

As in other studies (e.g., [5,6,40,43]), we found that one social support practice used by many parents was reading about other families who have faced similar situations:

> *If you're scared of something and it's always good to know other people are scared as well. (P2)*
>
> *It's just nice to know that I'm not the first mom that is encountering this weird problem. (P8)*
>
> *I often rely on the Internet for normalization ... often times when I worry about things with [my son]. I just need to see other people say: "This happens." (P16)*

However, parents in this study rarely posted about their own experiences online publicly, with only two parents mentioning that they posted questions in public forums. The reasons for this were twofold. First, six of the parents worried about over-sharing and privacy online (echoing other research [3]). Second, eight of the parents described witnessing significant conflict or being subjected to online bullying in open online forums:

> *I have to say that I stopped posting [on CafeMom] ... I think most of them were bullies, they were mean girls. They were constantly trying to shoo me away... (P13)*

P6 also described that online interaction felt "distant," making her hesitant to discuss sensitive topics or seek support. Since cross-cultural families already frequently feel judged for their parenting choices, they may have been particularly hesitant to contribute to online forums.

Instead, many cross-cultural families (7 families from this study) used the Internet to find and connect with hybrid in-person and online sources of social support. As P3 describes, hybrid groups are "a combination of in-person and online stuff." For example, P5a and P5b's family went through the traumatic experience of P5a's family cutting off contact because they disapproved of the interracial marriage. They were able to find support by connecting with other cross-cultural couples with Asian and Jewish backgrounds:

> *The other people are in the same boat. We've met great families and have had really close relationships in both countries with the community of mixed families ... you can hang out with them immediately and have stuff to talk about ... Nobody judges about either side because they've experienced both sides of it. (P5b)*

This group connected through an online group, but also periodically met in-person. Through the Internet, families found organizations that matched their values and allowed them to normalize their differences from the dominant culture by spending time together:

> *[We] are part of an [LGBT Family Organization]. And that's something that we try to be involved just because, we don't make a big deal out of it but we try to explain to our kids that our family's different ... We go to a camp for four days and it's just all gay families. (P4)*

To summarize, while cross-cultural families normalize their experiences by reading personal narratives online, they may feel more comfortable sharing their stories and receiving social support in hybrid in-person and online communities.

### Theme 3: Resolving Conflict through Compromise, Preemptive Discussion, and Humor

Cross-cultural families must negotiate multiple approaches and philosophies of parenting and thus many of them experienced conflict both between the parents and with the extended family. Three common practices cited for dealing with this conflict included compromise, humor, and preemptive discussions.

Compromise was most frequently described with the phrase "*choosing your battles*" (P18a). P8 gives an example:

> *For instance, eating etiquette in Korea is when you're eating noodles you slurp because that's showing that you appreciate the taste, and here in the U.S. that's like a huge no-no ... we actually made a deal when we got married that I wouldn't slurp if he'd put down the toilet seat.*

Some parents preemptively found opportunities to "give in" to alleviate other potential conflicts:

> *There's too much debate about big issues. But for advice on little things, I feel perfectly fine doing that. I would very consciously ask for advice about things that don't matter to me. So for example, "How do you make sure the baby's butt doesn't get diaper rash?" ... It made [the grandmother] feel included and that she was contributing and so ... I direct it in ways where I can actually take their advice. (P18a)*

However, there were times when parents felt strongly about divergent courses of action and finding a common solution was very difficult:

> *I cannot describe the lengths that I went to, but we worked out a kind of a compromise that both of us could live with [regarding circumcision] ... I was concerned about the pain that you're inflicting on a two-day-old baby. And so, we were going to delay it. [The father] was open to getting a Jewish mohel to do it, or going to a pediatric neurologist and do it with major anesthesia a month or six months down the line. (P3)*

This debate was so intense that it contributed to the dissolution of the parents' relationship:

*I feel like that contributed to not continuing with our relationship in a way, because I would never want to go through that again. (P3)*

However, with the exception of two families, most cross-cultural families were able to arrive at solutions or simply agree to disagree. Humor played a big part in this and many of the participants laughed as they discussed past and current issues:

*There are no guarantees that you're going to agree [chuckle] at all. (P16)*

Technology played a role in this process, by allowing parents to share bite-sized bits of their child's life, choosing moments that could reduce tensions around disagreements through humor. P18a described one such example:

*Costa Ricans, compared to people from the U.S., take much better care of their presentation. [The grandparents] would like us to make him look a little preppier or maybe just not parade him around in his dirty pajamas... We just laugh it off ... So if he's having a really bad hair day we'll send a picture via whatever iPhone technology, those instant things and we'll say "Oh look GG we did his hair especially for you today." We try to make light of it to keep the peace and I think it works.*

One consistent piece of advice parents suggested for other cross-cultural families was to discuss potential conflicts ahead of time:

*Talk about it before you have children. Get the help of a professional if you have conflicts when you talk about it like a counselor. (P7)*

*I would say, before they even have children, to discuss their differences and to discuss their ideas on parenting and their ideas on how they'd want to raise their children. (P11)*

*Talk about it, and just look at the different sides to the issue ... We've always been pretty good about, talking about our parenting strategy, and we even talked about it way before we had kids. (P18b)*

Cross-cultural families were able to deal with intra-family conflict by anticipating it and finding opportunities for compromise, discussion, and even humor. While this theme is perhaps least focused on current technology use, it highlights opportunities for technology in supporting these practices and we return to these opportunities in the last section of the paper.

### Theme 4: Incorporating Additive Practices
A practice is additive when it can be incorporated into the family's life in a way that does not detract from or exclude participation in other practices. The most commonly mentioned additive practices centered on food, holidays, and media consumption. As one participant summarized:

*We have Brazilian cultural traditions in our household. We eat a lot of Brazilian food ... We listen to a lot of Brazilian music ... We celebrate certain Brazilian traditions. (P16)*

Technology played an important role in helping families connect with and implement certain additive practices in their lives. For example, six of the families shared concrete examples of using the Internet to connect with the media

and products of the non-dominant culture. Many watched movies, cartoons, or listened to music from the non-dominant culture—available through online media platforms. Some also mentioned appreciating the ability to order the products that they remembered growing up, such as an iconic toy or a nostalgic baby lotion.

Participants made an explicit effort to find practices and traditions that could be integrated in an additive way and saw that it was important to include aspects of both cultural identities in the child's life. As one parent advised:

*Make sure you expose them to both the cultures that are in the child's heritage ... take the best of both worlds. They are actually more special because they have all of those influences, not just one. (P15)*

Unfortunately, even with additive practices, cross-cultural parents sometimes struggled with getting their partner to understand the importance of specific values and practices; both P8 and P14 described variations of a similar situation:

*I have Asian beliefs and traditions, and my husband is Caucasian. And obviously, we still clash a bit on some things. For me, the first birthday is a super important event. He was just like "I don't see why you're making such a big deal about her first birthday, it's just a birthday." ... I don't think it really hit him how much of a big deal it was. (P8)*

While food and non-religious holidays were frequently treated as additive, language and religion were perceived as additive by some families but not by others. For example, P5b rejected the possibility of multiple languages: "*that whole bilingual thing is a myth ... kids really favor one language.*" But, P18a and P18b saw it as a key part of their cross-cultural identity: "*I speak to him in Spanish, and my wife speaks to him in English. That's very fundamental.*" There were similar tensions in whether families saw religious practices as additive or exclusive. For P17's family, they were exclusive:

*There's a baby naming ceremony for girls in Jewish religion. But to my father, babies should only get christened ... you can't have both. It's impossible.*

On the other hand, P4's family was able to successfully integrate diverse religious beliefs into their daily practices:

*We don't raise our kids on a specific religion. On [my wife]'s side she has Jewish background. So we explain to our kids, and we have taken them to the temples. I've taken them to church. And [my wife] is now a Buddhist, so every week she goes to meditation. She has taken the kids many times and they love it.*

Understanding and negotiating which cultural practices could be added and which were exclusive was both a challenge and an opportunity for the families in this study.

### Theme 5: Diversity of Perspectives Normalizes Decisions and Reduces Parenting Anxiety
While cross-cultural families face many challenges, there were also benefits of parenting in a cross-cultural way. In particular, many of these families also found a great deal of value in the multiple perspectives available to them, partic-

ularly in reducing anxiety around the one "*right way*" (P18a) to parent. As P16 explained:

*You see that a lot of people have really different perspectives on how to do things, and so it just makes everything feel a little bit more acceptable like, "Okay. I'm not doing things the wrong way, because there isn't really a wrong way except for the obvious extremes." (P16)*

Parents felt released from obligations to follow the parenting practices of their previous cultural traditions:

*You can see other sides of other parenting styles that you wouldn't be exposed to them otherwise, and then you can choose whatever suits you. (P1)*

Even on issues that were of great emotional significance to the parents, cross-cultural parenting allowed them to be more open to compromise:

*I have a baseline sort of security that however you do it, you'll be okay; the kids will be okay. Even on circumcision, which is painful to me. It's like, "Well, you know what? There's like actually millions of men who are fine who are circumcised." … Also, on some things like vaccinations, I think I might have gone way more on the scale of anti-vaccination, had I not had [the father] as a kind of counterpoint. Had I not had that kind of third-world perspective of: "Are you kidding me? Thank God we have vaccines!" (P3)*

It was clear that many cross-cultural parents gained value and confidence from the variety of perspectives offered by their families' cultural contexts.

Technology played a big role in access to the diverse perspectives valued by these families and seven of the participants cited "diversity of opinions" as the best thing about the Internet. As families benefited from integrating multiple perspectives from their own culture, they also sought out additional diversity:

*I'm not just always looking in Germany and the U.S., I also look at what other cultures do … because I'm from another culture already I'm very sensitive to it … How about the Spanish or the French people? And I always ask people from other cultures and see how they do it … just to get ideas. (P2)*

This theme points to opportunities for technology to expand access to parenting approaches and the diversity of perspectives of other cultures.

## TRANSLATING THEMES INTO IMPLICATIONS AND OPPORTUNITIES FOR DESIGN

Parents use a variety of practices to navigate and negotiate raising children in multiple cultures. While parents report going online to find information and support in this study and in prior work [21], they have few tools and technologies at their disposal to support the specific needs of cross-cultural parenting. As families become increasingly diverse [59] and as they increasingly rely on technology to communicate with one another, developing new technology to support cross-cultural parenting becomes critical. Drawing on our findings, we explore three design opportunities for supporting the cross-cultural parenting practices reported by participants in our study. Though building specifically on

our empirical work with cross-cultural families, these designs could speak more broadly to families seeking to integrate multi-cultural perspectives in parenting.

## Support Additive Cultural Practices

Theme 4 of our interview study reveals that one of the ways that participants manage cross-cultural parenting is by combining additive practices (e.g., food, holidays, media) of multiple cultures. However, blending traditions in ways that do not compromise existing values can be difficult, and some participants described situations where their partner or other members in the community were unaware of particular practices that might be a "big deal" in the other culture. A major challenge is reconciling which practices can be additive (e.g., eating different types of cuisine on different nights of the week) versus exclusive (e.g., practicing multiple religions each of which require that no other religions be practiced). As interest in cross-cultural parenting increases [20,23,26,33], even among families who may not explicitly identify as "cross-cultural," identifying potentially "additive" cultural practices can provide a way for parents to incorporate multiple cultures in their daily practices.

We propose leveraging technology to help families identify additive practices, provide specific recommendations, and help families to develop an appreciation of important traditions in other cultures. Consider an example of a digital technology we call the "Cultural Care Box." In considering this design, we connected to previous successes of physical periodical care boxes (e.g., Birchbox[1]) and of periodic packages of information delivered to users in "slow technologies" like Photobox [46]. The Cultural Care Box would allow a user to identify one or more cultures they identify with, or might like to learn more about, and aspects of that culture they are particular interested in. These aspects would need to be considered "additive", such that families could incorporate them into their existing practices. Parent may be specify which practices are additive explicitly or these features may be learned implicitly by the system by asking parents to rate various components of the care box on how appropriate they were for their families. Families would receive periodic Cultural Care Boxes to explore together; for example, if P17's family wants to stay connected with their Russian cul-



**Figure 1. The Cultural Care Box is a periodical digital collection of additive cultural practices parents can integrate into daily life, such as recipes and descriptions of holiday traditions.**

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[1] https://www.birchbox.com/

ture, they may receive a digital collection containing an animated short, an article about the history and importance of New Year's Eve in Russian culture, and a recipe for apple bread (see Figure 1). The Cultural Care Box would also help parents to teach their children about the values and cultures of others, an important lesson for the next generation of multicultural children.

**Identify Areas of Shared Values and Potential Conflicts**

In response to themes 3 and 4, we propose a design idea focused on helping parents identify areas of shared or conflicting values. From theme 3 in our interview study and prior work, we know that prior knowledge and comprehension about cultural differences between spouses may mitigate conflicts and help them avoid taking issues too personally [42]. Most cross-cultural families in this study anticipated conflicts on the "big" issues such as the child's religion, language spoken at home, and the appropriate balance between cultures, but many conflicts described by our families were surprisingly quotidian. Everyday questions like when to start solid foods, how long to breastfeed, whether to co-sleep, whether to vaccinate, and how to discipline a child, can be very polarizing for parents. Though couples tend to be advised to think about where they want to live, how many children they want, or in what religion they will raise them before they decide to have children, the details about how to raise them are often seen as secondary. We propose designing a web-based platform to encourage parents of a child to consider how they want to raise the child that draw on the parents' particular culture, region, and values. We propose a design (Figure 2) that incorporates four important components that focus on cooperation rather than conflict:

- **Celebrate** cases where both parents strongly agree on a fundamental issue. A cooperative orientation to conflict is productive for families [56]. Celebrating similarities is a good way to identify as being on the "same team."

- **Identify** cases that can benefit from explicit discussion where the two parents strongly disagree on a fundamental issue. Families that discuss these issues ahead of time have generally better outcomes at resolving this conflict (e.g., [42]).

- **Suggest** cases where there can be an easy compromise. Issues where one or both parents do not have a strong preference can be great opportunities to compromise or include extended family by asking for advice. This is consistent with our findings in theme 3 on how cross-cultural parents currently find opportunities for low-cost compromise.

- **Connect** parents with others similar families for support. Our findings in theme 2 suggest that such support of be welcome and most effective if it could connect families that lived close enough that they could periodically meet in person for a hybrid support group.

One form of motivation for parents to proactively participate in such questionnaires would be by framing the activi-
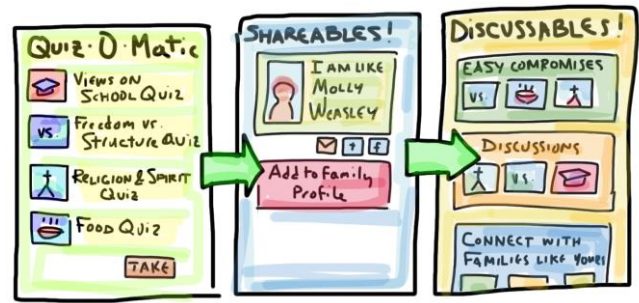


**Figure 2. Quiz-o-Matic helps parents celebrate shared values and resolve areas potential conflict by answering playful quizzes, sharing answers, and connecting with similar families.**
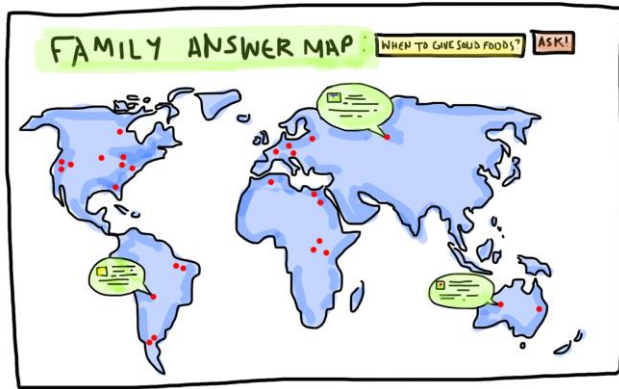
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ty as interactive quizzes. Parents would receive periodic invitations to fill out engaging online quizzes that ask them about their ideas on parenting, their childhoods, and how important each specific practice is to them personally. To motivate participation, Quiz-O-Matic would also generate shareables such as "Which parent from *Harry Potter* are you most like?" as a reward for completing each quiz (similar reward mechanics have been successfully used for large-scale uncompensated studies online [50]). Data from parents' quizzes would be analyzed and shared with other family members in a digest that includes: "Let's Work This Out" issues, "Easy Compromises," and "Shared Values." Parents can submit new questions and quizzes that are added through community curating (e.g., similar to OkCupid[2]). Aspects of this system would be crowdsourced through platforms like Mechanical Turk, by taking into account previous lessons on structuring HITs and incentives to support meaningful contributions [55]. Though the target demographic of this design would be cross-cultural families, all families may benefit from an understanding of potential conflicts and compromises in their parenting values.

**Reduce Judgment and Anxiety among Parents**

In response to themes 1 and 5, we suggest a direction for design focused on reducing judgment and anxiety among parents. Theme 5 of our interview study revealed that witnessing the wide diversity of parenting approaches helped cross-cultural families feel less anxious about finding the one right way to parent their child. Other families can benefit from the same experience. However, some ways of presenting this information may be more effective than others. In general, prescriptive and unsolicited advice often made parents "*feel threatened, or attacked, or judged*" (P18a) rather than supported. From theme 1, we know that parents appreciated seeing parenting approaches as personal narratives that empowered them to be able to decide whether or not to adopt someone else's parenting practice. Most cross-cultural families already have opportunities to see some diversity of perspectives on child-rearing as they compare the practices of their parents to those of their partner's fami-

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[2] https://www.okcupid.com/

**Figure 3. Family Answer Map shows parents the diversity of approaches to common parenting questions by highlighting responses from other cultures.** © Svetlana Yarosh

ly, developing intuitions about what will be best for their child. In fact, this experience was so positive for some cross-cultural families that they actively sought out advice from other cultures (those not currently included in their family). Supporting this process and providing the same opportunity to other families through technology would help reduce some of the anxiety faced by modern families to find the one best "right" way to parent. We suggest a technology called the Family Answer Map (Figure 3). A parent may go to the Family Answer Map website and to ask a question, such as "When did you start feeding your child solid foods?" A map would be displayed with callouts of narrative responses to the question from parents around the world. Family Answer Map would encourage sharing personal experiences (which might support or refute the existing narratives). Such a platform would motivate participation through the opportunity to learn about other cultures and engage in social comparisons [51]. This idea connects to a significant amount of previous HCI and Social Computing work in different contexts by extending enterprise Q&A systems (e.g., [1,2]) to address the need of cross-cultural families. Similarly, map-based discussions are not new [62], but have not been attempted at the suggested geographic scale. Challenges would exist in generating and curating questions and answers in a culturally-appropriate way, but previous research does provide guidance on integrating heterogeneous information [31] and managing diversity through social curation (e.g., [12]). Additionally, many aspects of parenting are universal and could provide an opportunity to highlight shared experiences around the world.

## CONCLUSION & CONTRIBUTIONS

Parenting is a challenging endeavor. Increasingly, parents turn to diverse online and offline sources for advice. Cross-cultural families are a particularly salient demographic for understanding how parents integrate advice from diverse sources, as for these families this process is frequently an explicit high-stakes part of everyday family life. In our interviews with these families, we found that they are sensitive to judgment about their choices and may filter infor-

mation and get support by finding like-minded parents, especially in hybrid online/face-to-face groups. For cross-cultural families, it is important to provide inclusive and accepting spaces that expose diverse opinions and approaches while supporting parents in discussing and negotiating decisions. Insights from this cross-cultural context may help us design for other families as well.

This paper makes three contributions to the field of HCI. First, we contribute an understanding of the **specific needs and opportunities for technology to support the growing demographic of cross-cultural families**. Due to geographic mobility and more pervasive access to parenting practices of other cultures, families are becoming more culturally heterogeneous on dimensions like ethnicity, race, religion, and values. As this demographic is only likely to grow as globalization increases, we interviewed parents from cross-cultural families to consider the current and future role of technology in this context. We identify five themes focused on how these families find and evaluate advice, connect with social support, resolve conflicts, incorporate cultural practices, and seek out diverse views.

Second, while a body of previous work has investigated parenting challenges, our findings highlights that parenting occurs in a cultural context, where multiple family member must negotiate and make decisions together. We **contribute a cross-cultural lens to the larger thread of HCI work that examines how parents integrate information from diverse sources** ([22,43,54]). While many modern parents have many available information sources both online and offline (e.g., [4,49]), cross-cultural families are uniquely well positioned to elaborate on how they find, evaluate, and integrate advice and perspectives from multiple sources in their lives, as they must frequently negotiate this process explicitly within their families. Indeed, we found in our interviews that cross-cultural parents were able to articulate a number of strategies, challenges, and approaches to including diverse practices in their everyday parenting.

Finally, one aspect that separates our work from most previous investigations in the field is that we take a design-focused perspective to interpreting our findings. Based on insights from cross-cultural families, **we contribute three design ideas that may help all families** (1) integrate additive cultural practices, (2) explore, discuss, and connect around the values held by their families and (3) learn about the diversity of parenting approaches around the world to reduce parenting anxiety. While created with cross-cultural families in mind, these design directions may help support other families in integrating multi-cultural perspectives.

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