

# (Whose) Value-Sensitive Design? A Study of Long-Distance Relationships in an Arabic Cultural Context

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## ABSTRACT

This paper describes a qualitative study of how 11 Arab individuals use technology in the context of their long-distance romantic relationships. Our participants' communication practices bear similarities to previous findings on the mediation of intimacy in the West, but also highlight key differences. We show how these differences relate to expectations of men and women in Arabic culture, and describe how our participants used technologies to enact conventional roles according to these expectations. We note implications for cross-cultural research and value-sensitive design, demonstrating how our participants' practices relate to Islamic values of support and protection of women. We apply various analytical lenses, including Islamic feminist theories, in interpreting the data.

## Author Keywords

Intimacy, culture, values, communication, feminism.

## General Terms

Human Factors

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## INTRODUCTION

The HCI literature has predominately focused on Western applications and deployments of technology, which in turn inform design practice. As HCI becomes increasingly global, this becomes more problematic. Here we present a qualitative study of 11 participants, all originally from the Arab world and all in long-distance romantic relationships. We report how technology was used to maintain these relationships, and explore associated challenges bound up with technological infrastructure and design. While our findings show some similarities to research on how Western couples sustain remote relationships [e.g. 43], we also describe how, in this study, technology was used in accordance with, and indeed as a way of enacting, specific

Arabic gender roles and relationship stages. Specifically, the data show how the Islamic values of support and protection, which center on women, played a key role in the use of technology to maintain relationships at a distance.

In addition to providing insights into how Arabic couples use technology in long-distance relationships, this research might also be considered a case study of the difficulties of examining values when interpreting findings from another culture. We show how our participants' accounts of their communication practices would be interpreted differently through various analytical lenses, including Western and Islamic feminist, and consider the implications this raises for value-sensitive design [18]. First though, we put this study into context, by describing existing work on the technological mediation of, and design to support, intimacy.

## RELATED WORK

The topic of intimacy has been explored from a number of angles within the field of HCI, with researchers considering how it might be supported in family homes [e.g. 41], across friends [e.g. 13], and between couples [e.g. 43]. For the purposes of this paper, we consider our remit to be related to the latter, and focus on studies of, and efforts to design for, couples in long-distance relationships. Early work within this space incorporated the use of technology to support simple but sensuous experiences. For example, Gaver [20] highlights a number of provocative ideas designed to support an emotional connection between lovers at a distance, and *The Bed* [14] was designed to warm pillows and gently circulate air in response to a remote lover's actions. Themes of ambiguity and peripheral awareness, seen in this early work, continue to resonate through more recent research in the area; designs such as the *Via Lia e Objec* [26], *Le C* [12], and the translocation of rooms across paired homes [22], all aim to support connectedness while allowing for interpretation.

While much of the work in this area has focused on design rather than deployment, Grivas [22] reflects on his and his partner's living in the merging of their homes, and Kaye [26] reports how simple exchanges, when interpreted in the context of mutual understanding and knowledge, support feelings of connectedness and a sense of intimacy. In complementary work, Vetere et al. [43] used findings from a study of six cohabiting couples as inspiration for design, highlighting various factors that comprise its antecedents (self-disclosure, trust and commitment), constituents (expressive, reciprocal, emotional, physical and public &

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private), and yields (presence-in-absence and strong-yet-vulnerable). Other projects drawing inspiration from fieldwork include King and Forlizzi’s [28] study of five remote couples, which illustrates that communication acts such as letters, which require an investment of time, are consequently viewed as special. In contrast, fieldwork undertaken by Lottridge et al. [32] emphasized the potential to draw on the routine ‘empty moments’ in a couple’s day. Projects like these demonstrate how ephemeral contact can be built into daily routines, while being complemented by richer ways of maintaining contact.

Further reflections on the work that goes into sustaining remote relationships can be seen in recent studies of videochat. Kirk et al. [29] consider how this supports a sense of propinquity, reporting on the use of video to maintain open connections between couples, or to share in their usual routines when a partner is away from home. Implicit in this study was the use of video by expatriates, but differences between expatriates and others were not emphasized. Indeed, while the importance of culture in design is recognized within HCI [see e.g. 48], and studies of expatriate communities have been undertaken [e.g. 27], the treatment of culture tends to be sidelined in research on the mediation of intimacy. This is despite its notable effects on the use of communication technologies [e.g. 45] and on practices to maintain relationships [e.g. 11].

In this paper we take a first step towards exploring some of the cultural issues relating to how technology plays a role in the maintenance of remote relationships. We describe a study that focuses on the use of technology by Arab individuals in long-distance relationships, with the aim of understanding not only how couples use technology to express their emotions, but also how their relationships are sustained through the appropriation of communication tools. In an extension to previous work, we pay particular attention to how usage was a factor of the cultural settings in which technology was employed. Furthermore, we show how communication practices that had emerged in this context support the enactment of specific roles and responsibilities, traditionally associated with man and wife.

## THE STUDY

### Participants

Eleven Arab individuals were recruited to participate in this study, comprising five males and six females, aged from 22 to 35 (average age 26). All participants were in long-distance relationships, although at different points in the stages through which Arabic relationships traditionally progress. Seven participants were recruited as individuals and four as couples; in other words, for four of the participants, both partners within the relationship were interviewed. Seven participants lived within the Arab world (for the purposes of this paper, they will be referred to as ‘home’ participants), while the remaining four lived in Europe or the US (they will be referred to as ‘expatriates’). The participants consisted of Muslims and Christians with various levels of orthodoxy, and they varied also in terms of

level of education. These details are given in Table 1. Participants were recruited through snowball sampling, starting with the first author’s extended social circle, and through adverts written in Arabic and English, which were placed on social networking websites and in forums. None of the participants knew each other, except for the couples.

No	Sex	Age	Origin	Education	Marital Status	Location		Religion	
						Participant	Partner	Participant	Partner
P1	F	22	Yemen	UG	Socially engaged	Egypt	Yemen	Muslim	Muslim
P2	M	35	Iraq	PhD	Married to P6	UK	UK	Muslim	Muslim
P3	F	24	Egypt	BA	Religiously engaged	Egypt	Qatar	Muslim	Muslim
P4	M	32	Iraq	Some UG	Married	Egypt	Iraq	Muslim	Muslim
P5	M	20	Iraq	UG	In a relationship	Sweden	Sweden	Christian	Christian
P6	F	30	Iraq	PhD	Married to P2	UK	UK	Muslim	Muslim
P7	F	23	KSA	MA	In a relationship	Egypt	KSA	Muslim	Muslim
P8	F	22	Egypt	BEng	Socially engaged to P9	Egypt	Dubai	Muslim	Muslim
P9	M	26	Egypt	BEng	Socially engaged to P8	Dubai	Egypt	Muslim	Muslim
P10	F	24	Palestine	MSc	In a relationship	Egypt	Gaza	Muslim	Christian
P11	M	27	Syria	BA	In a relationship	Sweden	USA	Muslim	Christian

Table 1. Demographics of the participants.

### Methods

To understand our participants’ communication practices in the context of their relationships, we conducted an initial semi-structured interview, asked them to keep a diary, and then used this to ground a second interview. Interviews were conducted using Skype or MSN to allow us to include participants from a range of geographical regions. While these technologies support full video, we used an audio-only connection, as the first author, an Iraqi citizen who studied in Egypt, recognized an Arabic cultural taboo associated with discussing relationships and intimacy [see also 30]. This resonates with reports that Iraqi college students are more open to discussing love, relationships and intimacy in online forums than in a face-to-face context [33]. Accordingly, voice-only links were used in the hope of diminishing the cultural hesitation and embarrassment participants might feel when discussing relationships and emotions; in anthropological terms, the use of full video would have made it difficult to create rapport. Interviews were conducted in English and Arabic, with appropriate dialects of Arabic being used; again, this helped ensure rapport as well as reducing the likelihood of dialect-specific misunderstandings. Similarly, participants could choose to fill in the diary using either English or Arabic.

In the first interview, we aimed to discover the means by which participants made contact with their partners, how frequently they did so, and what a typical day was like in terms of their communication practices. The participants were also electronically sent a diary along with instructions regarding its completion. For the week that followed the first interview, they were asked to log every communication that occurred between them and their partner, recording the time, communication media, general topic and their associated feelings. Additionally, open-ended questions were asked regarding their overall impression of each day, and their reasons for contacting their partner (or not, if applicable). A second semi-structured interview was conducted after completion of the diary (7-10 days after the

first interview). In this interview, the diary was used as a prompt so that we could understand in more detail the ways in which participants communicated with their partners, and their feelings about these communication acts.

### Data Analysis

The interviews were transcribed, and these transcripts analyzed in combination with the diaries using grounded theory techniques. Open, axial and selective coding were employed to identify parts of the data that were similar in meaning and could formulate possible themes, before focused coding was undertaken to consider these themes and compare them across the transcripts of the various participants [40]. The coding process was recursive, and was brought to a close once themes were considered to have stabilized and new themes were no longer being generated.

### FINDINGS

#### Normative Relationship Patterns in the Arab World

Before we discuss our findings, we wish to provide a brief orientation to the reader regarding common cultural practices amongst our participants. The focus of our study was on Arabic culture rather than religious grouping, and so our participants included Muslims and Christians. Clearly, there are significant cultural differences between these two religious groups, as well as variations within them. We do not seek to generalize our data, but rather as ethnographers discuss the specific cultural practices we saw enacted by our participants. We take seriously Afshar, Aitken and Franks' cautioning of the tendency "to conflate all Muslims as belonging to a single nation and aspiring to a single political aim" [5, p 262]. Indeed we recognize tensions in the community regarding orthodoxy, as well as particular cultural practices that center on women, for instance, the issue of veiling (or more precisely, whether to wear the *hijab* or not) [24, 34]. However, we need to provide an introduction to readers less familiar with Arab culture in order to contextualize our data, particularly with regards to the behaviors of men and women. In doing so, we draw on our data and on scholarly sources, but we do so cautiously, recognizing the difficulties of generalizing across such a culturally and politically complex region.

Much of Islamic life is regulated by interpretations of the Quran, and in particular the *ikh i a* which literally translates as 'mixing and blending' but more generally refers to cultural conventions that regulate mixing between the sexes [34]. The roots lie in Quranic verse, which instructs that women should behave modestly in public; conventions such as veiling stem from this. While veiling practices vary widely throughout the Arab world, it is agreed that those who wear the veil should take it off only when in the company of other women and men to whom they have immediate kinship ties. These kin are referred to as *ah i* [34] and consist of father, husband, brother, son, son-in-law and father-in-law. Additionally, women are often chaperoned when interacting with men other than *ah i*, so as to help prevent 'un-virtuous' conduct [34]. Generally speaking, Arabic women are encouraged to

behave in a modest fashion so as not to attract male gaze or make eye contact with men, and female chastity historically has been strongly encouraged [34, 15].

The emphasis on *ikh i a* continues to influence courtship practices, which are formalized as stages that denote the transition from dating to marriage. For the participants in our study, the courtship practices that were described are broadly similar to those discussed in anthropological texts, but there were also some differences. Ethnographic texts on this topic [4, 15, 16, 17, 30, 44] primarily focus on the ritual of marriage, with little discussion of the engagement process (indeed, according to these accounts there is little delay in the move from engagement to marriage). As even the most recent of the English language ethnographies that discuss marriage are nearly fifteen years out of date, it is perhaps not surprising that differences are evident between prior research and our participants' accounts; Arab courtship conventions in general are undergoing significant changes [15, 33]. It is worth noting also that these changes may have been more evident in this study, given our sample of relatively young, well-educated and well-traveled Arabs, coming from a variety of degrees of orthodoxy. Thus, in what follows, we describe the discrete stages of the marriage process, relying heavily on our participants' narratives regarding their experiences of courtship, marriage, and the pace of progression from one to the other.

The transition from dating to marriage is usually undertaken at the initiative of the groom's family, and comprises negotiations surrounding marriage arrangements and the marriage contract [15, 16]. However, in our data it was clear that a couple could progress through the various stages of engagement over a much longer period of time than is typically reported, and in a way that has implications for communication practices. Therefore, we feel it is necessary to clarify the different relationship stages.

The first stage following a successful negotiation of the marriage contract is one in which the couple is said to be 'socially engaged'. During this stage, the groom is not considered *ah i*, and so the bride is expected to not appear unveiled before him, or to be in his company without a male relative also being present. The second stage is when the couple signs the legal marriage contract and is announced as husband and wife [15, 16]. At this point, the groom is considered *ah i*, which means that the couple has the full rights of a husband and wife, including spending time alone and being sexually intimate. Yet, the couple does not have to live together at this stage; due to financial issues or housing shortages they may delay moving in together until they can afford to do so [15]. For simplicity and to distinguish this stage, in which the contract has been signed, from the previous one, we will refer to it as being 'religiously engaged'. The final stage is the wedding, which is usually characterized by a celebration after which the couple starts living together. It is essential to note that some couples go straight from being

socially engaged to signing the contract and living together, while for others this process takes a number of months.

In addition to these traditional stages, some participants reported being in a relationship without the knowledge of their parents. This reflects similar findings reported by Mark et al., who discuss how dating has changed in Iraq due to the use of internet and online forums: Couples may be in a relationship for some time before the marriage initiative between the two families begins [33]. We will refer to these couples as ‘in a relationship’.

Having given some background to the ways in which relationships are formalized in the Arab world, we will now discuss our findings regarding how they were mediated over a distance. We will begin by reporting how the technological infrastructure available to our participants influenced their communication practices, before noting how these communications helped sustain their relationships as well as supporting the enactment of conventional gender roles.

### Infrastructure

Our participants’ accounts of their technology use revealed a number of difficulties associated with the design of technology and its supporting infrastructure. Unsurprisingly, these were influenced by where in the world participants were located; the problems that expatriates faced, for example, were different to those reported by participants in the Arab world. In particular, the stability of the underlying infrastructure, and access to Arabic language support, tended to be experienced differently by these groups, and had consequences for how communication was mediated.

#### *Technology Stability, Reliability and Cost*

Issues of technology readiness were particularly noted by participants living in the Arab world who, due to limitations associated with the technological infrastructure, had relatively fewer options available to them in terms of communication with their partners. In an extreme case, one participant was limited to the telephone as a way of reaching his wife in Iraq. As another example, Skype was blocked in Dubai, forcing reliance on MSN calls. Even when the necessary infrastructure was in place, technical difficulties were commonplace, with internet connections being slow and unreliable:

P1-F: *M fia c a a h a e d i g i c e c h a a e a e e  
g i e i e a j a i g c a h e a e?*

P10-F: *A h g h I h a e i g I M a d e f e h e a i g h i i c e,  
e e i e e d i g i a i c e c h a i e e i a b e.*

Another problem reported by participants in the Arab world was the financial burden associated with long-distance communication. Expatriates often had better access to international VOIP calling cards and to mobile phone contracts incorporating free calls and messages. In contrast, participants in the Arab world frequently selected communication modes to reduce their financial burden, missed calls being a common example of this:

P9-M: *I g i e h e a i e d c a e e d a h e I e a e a d g e  
b a c k h e f k [...] i i c h e a e a d f a e h a e d i g a  
e e a g e a h e k h a I i b e a i i g a d h i i e  
f h e d a .*

Thus, reliability and cost had ramifications for how participants communicated with their partners, with missed calls being appropriated and more reliable modes being adopted, even when these modes were not preferred.

### Arabic Language Support

In contrast to infrastructure and cost, one of the issues raised by expatriates was having access to devices that offered support for the Arabic script:

P6-F: *I g b i e h e f h e e [ h e U K ] f e e f c h a g e  
i h c a c ; I c a e i h e e a d i e A a b i c c i .*

P5-M: *A h g h I i k e e A a b i c i h g i f i e d h e e  
c h a Y a h e e g e , a h a h e E g i h a d  
S e d i h e e [...] I c a e a d h e A a b i c c i h g h .*

As a way of overcoming problems such as these, our participants used a style of writing known as Franco-Arabic [cf. 38], which evolved within the Arab world when Arabic keyboards were not readily available and QWERTY keyboards commonplace. This script is formed using Roman letters to represent their phonologically similar Arabic counterparts, and numbers for sounds that cannot be represented in this way (for example, ‘lover’ would be written as ‘7abib’; the number 7 here represents the Arabic sound “ح”, which is pronounced as a heavy H). While it makes sense that expatriates might adopt Franco-Arabic as an alternative to Arabic, we also found that participants within the Arab world frequently wrote using Franco-Arabic. These participants reported that they used Franco-Arabic because they could type faster and more conveniently using a QWERTY keyboard:

P10-F: *I a a i e i A a b i c i g h e E g i h c h a a c e , i  
d a k e e a g e i g e i A a b i c [...] I c a f i d h e  
i g h k e f e a c h e e [...] i a c e e i g h a e e .*

Although Arabic language support seems to be a typical infrastructure problem, the use of Franco-Arabic by home participants gives it a social dimension. This may reflect the age and education of our participants; it has previously been suggested that younger and more highly-educated members of the Arab world are more familiar with QWERTY keyboards because college work tends to be completed in English [38]. So while we have shown cost and reliability to influence choice of communication media, the motivation to use Franco-Arabic is driven by a combination of the technical problem of Arabic language support and issues such as speed and comfort.

### Maintaining Relationships over a Distance

Nevertheless, for all of our participants, factors in addition to those discussed above were evident in their selection of communication media. For example, missed calls were used not only because they were cheap, but also as a way of being non-intrusive at busy or inappropriate times:

P7-F: *S e i e I j i g h i a H i [...] i i k e I h i k i g f e a I k h e i b a d a b e e a k e h e h e .*

As this implies, the maintenance of long-distance relationships is a much richer activity than straightforward arguments for an effective infrastructure would imply. Practices were enmeshed in routine, with communication modes being selected to support feelings of intimacy and presence-in-absence. For many of our participants, contact was routinely made at specific times of the day, regardless of what else might be going on:

P6-F: *N a e h b e a e , e h a e e a k e h e h e h e g e b a c k h e [...] I c a e e i a g i e d a i h h a i g h i h e c a .*

This type of contact was maintained even during arguments, with only one participant reporting that he avoided contact during a dispute. In general, routines were preserved even if the couple was in the midst of a quarrel:

P9-M: *E e i f e a e a d a e a c h h e , h e i a k e e i h e i g ; I e d h e a e e a g e h e I h e a d e d e a k e h e h e b e f e g i g b e d .*

P2-M: *B e i g a d h a h i g d i h d a i c a a d e a g e [...] a b e h e d a i f h e c a a d h e e d a , b e h a e g e i c h .*

Also evident was the use of technology to support presence, through the leaving open of video or audio channels:

P8-F: *E e d a , e d a M S N [ i c e ] c a f 1-2 h , e e i f h e i e e e b a d I a [...] L i e i g h i i g h i k e [...] i h e e a k i g i e g h e .*

P11-M: *I c a e e h e h e e b c a h i e h e e a , a , a h e d i h e [...] W e f e e e c a a T V c h a e a c h g e h e h i e a i d e c f e e c e [...] e i e I f g e h a e b c a i a e e a e i e a d e d a k .*

These findings suggest that technology was used to mediate intimacy in a fashion that shows strong similarities with previous research in this area. In particular, the yields of intimacy identified by Vetere et al. [43] (presence-in-absence and strong-yet-vulnerable) are clearly apparent.

### Findings on Gender and Relationships

Moving beyond these parallels with work conducted in the West, our findings also highlight how technology use was influenced by practices that are specific to Arabic culture. Most notably, communication media were adopted in accordance with the different relationship stages that we have described, and the different expectations that relate to the behaviors of men and women.

For example, our data show how technology introduced new challenges for observing *ikhia*. The use of webcams meant that women could talk to men in a manner that bears some similarities to the situation of being non-chaperoned when face-to-face, and further, they offered the potential for men to see women unveiled. Some participants modified their use of such technologies according to relationship stage and their parents' expectations:

P10-F: *W e d e i d e c f e e c i g [...] e a e i c e c h a a , k , f a i d a e d h i e e a e i e g a g e d [i.e. e e i g i e g a g e d] .*

P6-F: *h e i a i a d i f f e e , e e i d e c f e e c i g h e e e e i k e [...] I e e b e i e g a g e e d a I e d a k a e e i i d i d e c f e e c e [...] I h a d a g a f h e a e e e h i h e c a e a . . .*

In contrast to this, some participants used communication technologies to thwart restrictions regarding the use of video calls prior to religious engagement. These participants chose to use video calls, but did so secretly:

P7-F: *I h a e i a e , I c a e a h e e a d e h i e e e e i h h e e i [...] f c e a e d k a b i [...] h e d b e e e e e i f h e e e k h a I a c h a i g i h a g .*

P8-F: *I e a k f i a c e h e h e a d f a h e k a b i a d h e i a f i e i h i [...] b f a h e d e k h a I h a e a e b c a i h e f i a c e h e d a e d i d e c f e e c e i h f i a c d e i e b e i g c i a e g a g e d .*

Conventions were also adopted with other technologies, so as to ascertain whether it was safe to talk:

P11-M: *I g i e h e a i e d c a h a I k h e h e i i a f e c a h e [...] h e c a e a k e h i e h e i h h e a e [...] i f h e i g e b a c k h e i e a h a i i a f e c a .*

P11-M: *W e h a e b e e g e h e f i e a a d h e I c a a d h e i i h h e a e , h e e a k E g i h e i h a I a h e k a e [...] h e c a e h e a e h a h e i i e a k i g a g .*

In these instances communication technologies were appropriated so as to challenge the practices of *ikhia*, revealing how the same technologies can allow for different treatments of related cultural practices. On the one hand they were used in accordance with traditional norms, while on the other they were employed so as to usurp them.

### Support and Protection of Women

A consequence of the practices surrounding *ikhia* is an emphasis on a separation of spheres according to gender, with women being associated with the domestic space and men with the commercial realm. This was reflected in our data, in that participants expected that men should pay for phone calls, especially international ones. These expectations had ramifications for who could initiate contact, and again, missed calls were used to signal a desire for contact, as the male partner was not expected to answer calls that would cost his partner:

P8-F: *H e d e a e c a h i i g a a g c e d i ; h e e j e c c a a d c a e b a c k .*

P9-M: *I a a b e e h i a , h e g i e e a i e d c a I d e a d h a h e a e c a h e I d .*

These quotes illustrate how women used missed calls to signal they wished to communicate, thus giving them agency but without financial burden. However, an

additional consequence of this was that men were perceived as having more control over the duration of calls:

P2-M: She k i he I a : , d eed a hi ge e? I  
ea ha I i e d he ca [...] I ha e d a I a he e  
h i a i g f he ca .

P8-F: He ha ca e e Th da , e eak f a hi e a d  
he he e d he ca , I ha e e e e ded he c e a i e e if I  
a b i a h , he d ake i a I d a hi .

In addition to the male role of financial provider in Arabic culture, men are also expected to act to support and protect women, allowing women in turn to act as carriers of family honor (see also below) [16]. Our findings show how expectations relating to protection were enacted through the use of technology. For example, some of our female participants used texts or emails to keep their partners informed of their whereabouts; in other cases, they sought their permission before leaving home. Men and women alike felt that such communications allowed the male to offer protection to his partner:

P3-F: e e if he i a a , I fee afe e hi he e I a g i g  
i ca ea hi g g e g .

P9-M: I k ha I c d h ica ec he hi e he i  
[ ] I c da ea ca he fa i fie d a k f he i  
a e e g e c .

Here our participants were explicitly describing text messages as affording a substitute for physical protection. The feminine counterpart to the masculine role of protector is that women are seen as the “guardians of male honour”, and consequently “they themselves need to be guarded” [37, p 107]. This was most evident in spaces that are highly visible, such as online social network sites. Women were careful about the associations that they made in these sites, and the interactions that they engaged in:

P8-F: I e e add a g Face b k fi e; fia c  
d e acce i a a .

P3-F: I c e fia c ic e Face b k if I  
fi d e f hi i e a fa i e be ha I k c e ed,  
a e , he i e I d .

P1-F: Y eed ha e e i ac he i e ac i g i h  
fia c [...] I d fee fee c e i g hi e feed he e,  
a e e a e a chi g a d he ca eada ha I a i i g .

Exerting control over one’s female partner’s friends list while at the same time having female friends could be seen to sustain an asymmetry of power. Such asymmetry was also evident in other aspects of communication, for example, some of the male participants had access to their partner’s online accounts, but did not make their own accounts available to their partners to quite the same extent:

P9-M: I k a he a d f he e ai acc a d  
Face b k fi e [...] e he k he a d f e ai  
acc e ce he a d f MSN e e g e .

P11-M: She d e k he a d f e f e ai  
acc ha I e f i e f , he d e k ha hi  
acc e e e i I a i g he ab i , he k a  
a d f he e ai acc ha he k ab .

Five out of six of our females reported that their partners knew the passwords to all of their online profiles, email and instant messaging accounts, whereas this was the case for only one out of the five males. In this case, passwords might be viewed as shared resources, the usage patterns of which reflected aspects of the relationship.

These findings with regards to initiating calls, accepting social networking contacts, and password sharing are less typical of prior research, which has been primarily undertaken in Western countries. In the discussion, we will begin to consider how we might interpret accounts such as these, which in a different context might be viewed as the patriarchal taking of control of women, rather than as the provision of protection to them.

## DISCUSSION

Since Friedman and Khan’s early call for value-sensitive design (VSD) [18], researchers have taken various approaches to considering the role of values in HCI [e.g. 9, 19, 31, 35]. For example, Harper et al. posit that a future agenda for the field should reflect human values [23], and work by Kaye has discussed the importance of experiential ‘small-v’ values like intimacy, while also highlighting the difficulty of determining if an interface is successful in supporting these [6]. Values such as support and protection are logical extensions of this argument.

More recently, studies of technology use by Kirk et al. [29] and Ames et al. [6] have shown how videochat can be used to support a sense of closeness and to cement family values. Indeed, Ames et al.’s description of the various types of social ‘work’ required in the making of a video call, noted by them as reinforcing family identity, offers an analytical approach that could also be adopted with our own data. The work that our participants described could similarly be said to have reinforced their status as a couple while allowing them to enact aspects of the conventional roles expected of men and women in the context of their relationships. In this section, we will unpack in greater detail how our participants’ communication practices reflected specific Arabic cultural expectations, and draw on our findings in considering implications for VSD. Before doing so, however, we will describe how their use of technology also bears similarities to previous research.

We wish to begin, then, by emphasizing that our participants described a number of behaviors that accord with prior accounts of the mediation of intimacy, including those derived from research in the West. Indeed, if we use Vetere et al.’s [43] analysis of intimacy as a way of examining the practices described by our participants, we can see how issues relating to the antecedents, constituents, and yields of intimacy were all reported. For example, we have described how some women allowed themselves to be seen via webcam in a way that would be frowned upon by their parents. Such behaviors might be thought of as a way of exhibiting the antecedents of intimacy; self-disclosure, trust and commitment are all apparent, in that these forms

of contact are predicated on an expectation that they constitute a shared and secret moment, undertaken on the assumption that the relationship will last. Similarly, constituents of intimacy such as reciprocity underpin the routines surrounding early morning or late night communications, and the conveying of emotion was apparent in the use of missed calls to signal ‘I’m thinking of you’. Coded messages like these also serve to illustrate how participants communicated private meanings within public spaces. Finally, the yields of intimacy are manifest in our data. Participants worked to protect the potentially vulnerable nature of their relationships, maintaining routines even during arguments, and presence-in-absence was supported through open video links, as well as being evident in smaller gestures, such as the wake-up call that one woman delivered to her partner every morning.

In addition to these parallels, our study has also shown how the particular cultural values of our participants were expressed through their use of communication technologies. For example, while Vetere et al. [43] discuss how couples present a public face to the world, some of our participants were uncomfortable conducting their relationship in a public forum. This is not to say that their online behavior was not affected by their relationships; indeed, the behavior of women in social networking sites demonstrated a particular mindfulness of their partners’ expectations. However, their public expression of commitment was more subtle than the changing of their Facebook relationship status to ‘engaged’, for example; instead, it was reflected in choices such as to have few male friends listed online. The choices surrounding technology use also allowed for other expectations to be met and roles enacted. We have discussed how, in an Arabic cultural context, men are expected to offer support and protection to women, while women have a duty to preserve their family’s honor. These roles interlink; in the context of a long-distance relationship, neither partner can meet these expectations without the compliance of the other. So for example, while men cannot offer a source of physical protection to their partners, they can maintain an awareness of their whereabouts. To achieve this, their partners must keep them updated of their movements, and so the communication practices adopted by some of our female participants allowed these expectations to be met.

This point highlights the difficulties of interpreting practices such as the ones that we have described from a Western perspective. From a liberal feminist standpoint, our findings might be interpreted in terms of an imbalance of power according to gender, made manifest through restrictions on how women express themselves, control aspects of their lives, or are able to keep certain things private. A multicultural feminist approach would yield a different perspective however, one that cautions against the interpretation of gender practices of other cultures through a Western feminist lens [42]. For instance, individual privacy has been observed as a decidedly Western concept [7]. In

this case, we feel it is important to interpret our data from a standpoint that may reflect the values of our informants.

Accordingly, we draw on Islamic feminist<sup>1</sup> interpretations of the topic of *agec* in interpreting the different gender roles made explicit in our data. This concept has been addressed by Mahmood from an Islamic perspective, drawing on anthropological data [34]. She refers to Giddens [21, p 55], who describes agency as a property representing an individual’s capacity to engage in action, being a “continuous flow of conduct”. Having agency, however, does not mean one acts in a dominant fashion, indeed Mahmood argues that,

*Thi i i g f age c a c b a ia i h e i a c e  
e a i f d i a i , a d i c c i a a a f f e e d a a  
c i a i d e a , I d a g e i a d c f f e i i d a  
c h a a c e a b h a a a i c a a d a i c a e c i i e  
j e c* [34, p 206].

Instead she posits that there are forms of agency that are not about being dominant, but instead could be regarded as being docile. Offering the example of a virtuoso pianist who submits herself to a grueling apprenticeship, she notes that this is not so much oppression as a sacrifice for art; agency is centered on one’s ability to be taught, “a meaning that carries less a sense of passivity and more that of struggle, effort, exertion, and achievement” [34, p 210].

According to this argument, it is possible to have agency with regards to piety. For religious women who seek to observe the Quran, they can act as ‘virtuosos of piety’. Much in the same way, Woodruff reports how manipulating the intricacies of home-automation systems give Orthodox Jews an enhanced sense of spirituality [47]. In this case, adhering to the precepts of *ikhia* gave our participants similar opportunities; technologically-mediated communication gave some of our orthodox women the agency to act in a pious fashion in the context of support and protection. For other women it gave them the opportunity to reinterpret their culture in terms of their own sensibilities and values. So while all of these women had agency, some chose to exhibit it in a more docile fashion, so as to behave in keeping with the Islamic virtue of *ikhia*. Indeed, our findings highlight how the same technologies could be used in a manner that either supports, or usurps, tradition.

It is worth highlighting also that again, these behaviors find parallels in the Western world. Rode argues that *e e a i f age c* is one of three components of women’s Technical Identity [39], proposing that while women have agency with regards to technology, they vary in terms of whether they accept responsibility for their technological actions. She gives an example of American women minimizing their technical knowledge to encourage

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<sup>1</sup> We use this term here for brevity with an apology, recognizing that there is a separate debate as to whether ‘Islamic feminist’ and ‘Islamic and feminist’ constitute different positions [36, 46].

displays of male Digital Chivalry, and argues that this simultaneously allows women to feel attractive, cared for, and encourages an equitable distribution of domestic work across themselves and their partners [39]. Thus, Rode argues that her Western participants yield dominance in exchange for support and protection.

### Implications for Value-Sensitive Design

Returning to the question of VSD, various questions might be raised in relation to methodology and the harnessing of different theories. Friedman and Kahn discuss how, while others argue that values can be embodied by technology, the position taken in VSD is that they are an interactional product of technology and society, produced in the socio-technical gap [1, 18]. The process for instantiating values in design includes both *ce a i e iga i*, or the “philosophically informed analysis of the central construct and issues under investigation” [18, p 1187], and *e i ica i e iga i*, or social science studies of the technologies in question. Le Dantec et al. emphasize the importance of conducting empirical work first, so as to avoid the reification of particular value sets [31]. However, a close reading of the VSD literature suggests that these two stages do not need to be performed in sequence, rather they are “iterative and integrative” [18, p 1187]. As an example, in [19] values were identified (the conceptual investigation) through grounded theory analyses of data (as part of the empirical investigation). An additional challenge associated with philosophically informed analyses is that of including all potentially relevant philosophies. This raises two questions for VSD applied to ethnography: (a) which theories or philosophies should be used and (b) when in the design process should these theories be engaged.

The application of Islamic feminist theory to our own data is not something we had anticipated when commencing this research. We expected privacy to be an issue, being a topic that is bound up with intimacy, but did not specifically look to this literature before completing our empirical investigations either. Instead, we engaged with our data first, adopting grounded theory methods in order to allow a theory of our participants’ practices, and the values they ascribed to them, to emerge. Close readings of the data, and a careful consideration of what we, as researchers coming from Iraq, the US, and the UK, took for granted in our own notions of privacy, alerted us to the need for some alternative theoretical lenses with which to interpret it. It was clear that Western notions of privacy, that is to say individual privacy as opposed to privacy for the family unit [7], were inappropriate for our data set. Accordingly, we sought to understand Arabic norms relating to the *ikh i a*, and drew on Islamic feminist theory in interpreting the data, having read multicultural feminist critiques against inappropriate application of Western feminism. It was critical that we went into the field prior to researching or applying this theory, so as to ensure that cultural biases derived from existing theories did not influence our engagement with users. Thus our conceptual investigations

(finding theory) were done iteratively with the analysis portion of our empirical investigation. This iterative approach to theory was key to applying VSD to reflexive cross-cultural anthropological praxis.

Beyond the adoption of VSD for anthropological fieldwork, we would raise a third question: Whose values are considered in VSD? We have shown the importance of considering cross-cultural theory in doing VSD. Additionally, Borning et al. distinguish between *e i c i ed a e* (those that are deliberately designed for), and *akeh de a e* (which relate to those of a variety of stakeholders, including the users) [9]. Further, they state that explicitly supported values need not be the values of the designers. Of course, we cannot always tell from a technology whether values have been explicitly designed for or not, but we can interpret policies, such as that expressed in the Facebook terms of use<sup>2</sup>, as an example of explicitly supported values. These prohibit account sharing, a view that is embodied in the design decision of creating single user accounts, but which conflicts with stakeholder values bound up with using account sharing in accordance with the *ikh i a*. In this study, we have shown how users appropriated Facebook, and other technologies, so as to align them with their own value systems. This highlights three points. First, values are often unconsciously embodied by technology when VSD is not employed, with the result that designers’ values become explicitly supported values. Second, designer and stakeholder values can conflict; in these instances we can use methods like ethnography to defamiliarize our own values and highlight these tensions. Third, we need ways to reconcile value systems when designer and stakeholder values conflict; in other words, we need to answer the question of whose values we should design for. Methods such as the ‘values dams and flow’ technique [35] have begun to address this, but not in a cross-cultural context.

Of course, designing to support the type of appropriation seen in this study offers one possible answer to these questions. By designing for openness, we might support Islamic feminist values that posit women as having agency, but also as operating under a set of Islamic cultural assumptions. However, proponents of VSD might argue that only by carefully considering values while designing can we avoid inflicting our own moral code on others, sidestep difficulties in designing for cultures that are unfamiliar to us, and circumvent the possibility of trying to underpin traditional practices that are evolving or in flux. Using examples presented here and considering our participants’ own reported values, it seems that to meet their needs it would be inappropriate to design for either the Western feminist values that would demand equality, or the patriarchal values that underpinned some of the communication practices that we have reported. An

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<sup>2</sup> <http://www.facebook.com/terms.php>



adoption of the former, for example, would amount to what Abu-Lughod has called ‘colonial Feminism’; she notes that attempts to ‘save’ Muslim women imply a superiority of those doing the saving [3]. Researchers writing on post-colonial HCI [25] have argued that this sort of power relationship needs to be held carefully in check. To illustrate this further, we contrast design decisions that might be taken to accord with Western values with those drawing on two alternative models, in the context of an imagined social networking site for the Arab world:

- **Western model:** individual privacy is valued. This is reflected through individual accounts, passwords, and permissions. Relationship status is displayed in a way that could be taken to signal availability or otherwise.
- **Traditional Islamic model:** *ikhia* is valued, and so interactions between men and women are expected to follow certain conventions. This could be reflected through features such as friend suggestions prioritizing females as friends for women, or using kin relationships to suggest appropriate male friends. The changing of relationship status could allow a man to connect online with a woman who is not kin, whilst also giving him access to aspects of her account (for example, through shared passwords or privileges to edit profile and posts). Although controversial in a Western context, this could be interpreted as a means of protecting a woman’s honor.
- **Islamic feminist model:** *ikhia* is valued but female agency is also supported. Again, the changing of relationship status could result in some linking of accounts but here women would retain a degree of control over what is shared, while also having control over whether she shares this decision with her partner (i.e. plausible deniability is supported). Women have agency in that they can choose to be pious, giving up their privacy in line with the view that by doing so they are protecting their partner’s honor. Alternatively, they can retain their privacy. Additional features could include a private mode of interaction between a couple, allowing them to make comments, ‘likes’ and wall posts from their partner visible only to them. This gives the female freedom to interact with her partner, while publically conforming to the cultural norm of modesty.

This clearly demonstrates how different values result in markedly different approaches. Only the Islamic feminist model takes into account cultural context while at the same time avoiding colonial values in design, recognizing women’s agency, and potentially empowering women.

The above highlights the difficulties of cross-cultural design, and emphasizes how critical it is to fully understand a culture when designing for it. In this case, a balance of the use of ethnographic and other scholarly texts, with careful engagement with participants and a lead researcher from the culture under study [2], was crucial. These arguments also raise implications for technology design for disenfranchised groups within one’s own culture. Methodologies associated with participatory design and recent attempts to ‘democratize’ design [31] offer alternative approaches to

creating technologies for these groups. Regardless of the approach used, it is critical to gain and validate an understanding of the participants’ value system.

Finally, it is worth considering further how this research raises implications for designing technologies for communication and for the mediation of intimacy more generally. We have noted that while some of the communication practices reported differ from those highlighted in prior work, they also show much in common with them. By comparing and contrasting such findings, we might go some way to defamiliarizing [8] results reported previously and consider new opportunities for design. Even the thornier issues raised in this study find parallels in Western households; for example, Brown et al. [10] demonstrate how knowledge of one’s whereabouts is not deemed an invasion of privacy in a family context, and Kirk et al. [29] report how a teenage girl felt it inappropriate to engage in a video-chat with a boy who was not her boyfriend. Similarly, we have cited Rode’s work on the digital identities of American women, noting parallels between their actions and those reported by our participants in terms of a desire to elicit support and protection in the form of digital chivalry. Not only did this work give us understanding of a novel domain, it allowed us to defamiliarize aspects of our own values.

## CONCLUSION

We have presented findings from a study of the maintenance of long-distance relationships in an Arabic cultural context. Beyond overcoming problems of infrastructure, we have shown how various communication media were used to support conventions and role expectations, while also allowing these to be occasionally usurped, in a context that fits descriptions of the technological mediation of intimacy [43]. In accordance with VSD, we have argued that it is necessary to understand users in terms of their own values and priorities, and suggest that a critical theoretical stance grounded in literature is key to supporting this. To conclude, we posit that designing for our participants would mean supporting agency, not in terms of initiating calls or protecting privacy, but in allowing them to enact particular cultural roles in the context of their relationships.

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