

# For God's sake! Considering Religious Beliefs in HCI Research : A Case of Islamic HCI

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## ABSTRACT

HCI community believes in understanding socio-cultural norms and designing for users' values - both of which can stem from users' belief systems. Using stories from my research work in an Islamic context, I make a case for how religion can impact HCI research. In particular, I discuss a) the implications of socio-cultural norms and participants' belief (e.g. hijab or 'veil') on HCI research in these settings; b) how religion forms users' individual and collective values and socio-cultural norms that impact users' understanding, use, or perception of technologies; and c) how our presumptions about a belief system or our value tensions can impact reporting and viewing of such findings. Thus, HCI needs to look beyond engagement with populations to include the belief systems to understand the interpretations, negotiations, and enactments of these values, their implications on our research, and their results.

## CCS CONCEPTS

• **Social and professional topics** → **Religious orientation**; *Cultural characteristics*; • **Human-centered computing** → *Field studies*.

## KEYWORDS

Religion, IslamicHCI, Islam, Muslims, Autoethnography, Stories from the field, Research Methods

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## 1 INTRODUCTION

Islam is the second-largest practiced religion in the world after Christianity [13]. Islam has gotten increased visibility and attention in the past two decades. However, most of this attention has been negative [14, 16, 20]. While this has created a lot of assumptions about the belief system, I argue that there is an opportunity in HCI research for conversations between and among diverse belief

systems and how they impact technology consumption and our research.

Followers of Islam are called Muslims. Islam, like most religions, represents a set of values that impact the lifestyle, norms, and practices of its followers. These norms not only impact those who prescribe to this belief system but also impact those who live or conduct research in Muslim majority countries. Efforts like Arab-HCI [3] in CHI 2017 and *Islamic HCI* workshop in CHI 2020 [15] have tried to "bring together CHI researchers and practitioners who engage in studies and interventions within Muslim majority communities around the world". These workshops aimed to discuss and understand the Muslim identity, its cultural diversity, the unique constraints, and limitations of Muslim communities. In this work, I take these conversations forward by giving detailed examples from my work within an Islamic context to showcase the various ways in which individual and collective values impact our users, their interactions, our research, and its reporting.

HCI researchers follow a rigorous process to identify and understand their target population before designing for or understanding any underlying implications. However, the implications due to religion have been typically/traditionally overlooked. While there is HCI research concerning religion and spirituality, most of this research is focused on the use cases supporting religious practices rather than the underlying everyday religious implications.

In this paper, using personal stories from my work in an Islamic country, I share the various facets in which the socio-cultural and religious norms in such contexts can impact the research assumptions, research processes, and research contributions in HCI in general. I make a case for understanding and including religious beliefs in HCI and share details of my experience as a practicing Muslim working with Muslim populations. I share a) how fieldwork can be impacted in Muslim majority countries by socio-cultural norms e.g. due to gender segregation and hijab; b) how users' understanding, consumption, and perception of technology is influenced by their belief systems; and finally, c) how reporting and reviewing of HCI work is impacted by our own values and value tensions. While I share this narrative about my personal experiences, some of these implications might also be true for other populations or religions. Before each of these stories, I also try to provide a brief description of some Islamic concepts that are used in these stories.

## 2 BACKGROUND

Before going into the details of these stories, I share some details about myself in the form of a biography as well as the context for my research experience which forms the basis of this narrative.

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## 2.1 Biography

I am a graduate student in a Computer Science Ph.D. program in the US. I was born and raised in a conservative, educated, and religious household which meant that while religion was frequently mentioned, taught, or referred to, everyone did their own reading, formed their own understanding, and practiced based on their own preference. Many sociocultural norms practiced around me, in personal, academic, and professional life, were from religious values such as the obedience of elders, segregation of genders at public and private events including at educational institutions and government services.

I received all of my education and work experience from Pakistan which is an Islamic country and is considered culturally conservative. This education also included completing the recitation of the Quran at the personal level and being taught Urdu translations of the Arabic Quranic verses at the school level. This, along with educational programs on television and written articles which talked about and at times debated Islamic jurisprudence, differences in practices between sects like Sunni and Shiites, and reading of books like Hadith [sayings of the Prophet (SAW)] form my limited knowledge about the religion Islam.

Along with this, I also had the opportunity to visit many other countries with Muslim majority and minority populations. This also enabled me to see the diversity of interpretation and implementation of Islamic values such as mandatory covering of head or required accompanying of male chaperons for travel, etc - concepts that are not mandatory in Pakistan and not practised in urban Pakistan. This broadened my perspective on the diversity of interpretations and practices across different Muslim populations around the globe. Thus, while I considered and still consider myself a practicing Muslima because I practice five prayers (mandatory on every practicing Muslim each day) or fasting for Ramadan (30 days of fasting where the fast goes from pre-dawn meal before the fast also called the suhur, to the meal at sunset that breaks the fast called the iftar), I am considered unrecognizable as a Muslima due to the absence of headscarf.

I will also share that, like all cultures, with the propagation of media and change of practices around the world including the Middle East, many of the socio-cultural values and norms are changing. While I share these stories from my perspective, I in no way claim to cover all perspectives, interpretations, and experiences of the Muslim world.

## 2.2 My Research

The research work described in this paper is from Pakistan. Pakistan, officially named as *Islamic Republic of Pakistan* is one of the two countries formed in the world on the basis of religion where Muslims of the sub-continent wanted to form a separate homeland. This concept, famously known as the *Two Nation Theory* [18] implied that there are many differences in religious customs, traditions between Hindus and Muslims and they cannot have a common nationality. Thus, religious values and beliefs form a strong part of its socio-cultural and political identity. Pakistan is a Muslim majority country with many of its political, legal, and social systems drawing from and based on Islamic values and principles.

Pakistan, which was once a part of the sub-continent ruled by the British saw a lot more integration of values from both colonial and multi-ethnic populations in the sub-continent including Hindus, Sikhs, and other minorities. Thus, traveling to other Muslim majority countries especially Saudi Arabia made me realize the difference in implications like most, if not all of the Muslim world could speak and understand Arabic. While Muslims in Pakistan are trained to read and understand Quran, Arabic speaking and writing skill is not common.

## 2.3 HCI research

There is not an absence of HCI research concerning religion and spirituality. However, most of this research is focused on the understanding and building of use cases supporting religious practices rather than the underlying everyday religious implications.

HCI researchers have called attention to the lack of presence of literature on the adaptation and adoption of technology for spiritual practices and in spiritual environments which has been termed as *techno-spiritualism* [4, 5, 8]. The challenges resulting in a lack of research by the HCI community included lack of funding, potential sensitivity associated with the topic, perceptions of lack of scientific rigor, and risks associated with such research [5]. Since then we have seen research on understanding the techno-spiritual practices in everyday life [24], at American Christian homes [27], by American ministers [28], use of home automation by American Orthodox Jewish families [23], American Muslims [25, 26] and integration of technology with existing religious institutions by Muslims [17].

However, beyond the religious practices and research around the use of technology for religious practices, I hope to draw attention to the implications of religious beliefs and values on HCI research and its users. I also hope to draw attention to the need for exploration of the impacts of religious practices, beliefs and values on the usage of technologies and how such values might enable or limit various uses and use-cases. A consideration of the beliefs and religious values will help understand, design, and evaluate such methodologies, works, and their implications more accurately.

## 3 RELIGION, VALUES, AND HCI

The first story that I share here is that of religion's effect on the beliefs, societal, and household norms and their resulting impact on the use of technological tools.

Financial well-being and reliable access to financial services have been associated with narrowing income equality, overcoming poverty, and enabling growth [6]. With the steady increase in internet availability and smartphone use, reaching 45% of the total global population in 2020 as compared to 33.5% in 2016 [22], efforts to promote Digital Financial Services (DFS) for poverty alleviation and financial inclusion efforts have also increased. DFS is financial services delivered through digital channels and include internet banking, mobile wallets, and Over-The-Counter (OTC) transactions. Pakistan is one of the DFS ready countries - countries with the required infrastructure for DFS e.g. 3G/4G infrastructure, formalized government-issued IDs, mobile money friendly policies, etc. However, the DFS use and adoption in Pakistan remain low.

I started my research on Digital Financial Services (DFS) to explore the lack of use of financial services including DFS in Pakistan. I started with an exploration of the use of existing smartphone-based mobile wallet services in Pakistan. The research was focused on the ability of users to learn to use existing mobile wallet services offered in Pakistan [10]. During the fieldwork with men and women in Pakistan, men and women not only had a different understanding of financial services but also had different reactions to mobile wallets.

These differences were not only limited to the usage and ease of use but also included differences in participants' listing of potential uses and privacy concerns. Men appreciated the ease of use and were very easily able to map the steps in the mobile wallet applications and its various use cases to the processes that they had seen while transacting in a corner mobile agent shop where a shopkeeper (also known as mobile money agent) sends or receives money using the network of mobile operators. In the absence of mobile wallets, men would go to mobile agent shops around the corner and hand over their identification documents or information to send or receive money. With these wallets, the men noticed that the process would be easier, and save them time and effort.

However, when I inquired from women about the same transactions, women shared that they normally waited for their male family members to return from work or outside and then accompany them (observation 1). These women believed that mobile wallets would enable them to transact from the comfort of their homes. Similarly, women wanted secrecy and privacy in their transactions. They appreciated that with the help of mobile wallets, they would be able to transact from home, or even while sitting among family members without others realizing that they are transacting (observation 2). These observations made me think that gender has a role to play in financial understanding and use and I wanted to explore this further.

### 3.1 Religion, Finances, and Gender

When I explored further, I found out that men and women looked at and engaged with finances and financial transactions differently. And at times, to my surprise, women (both married and unmarried) who even earned and had financial independence gave up their earned money to the men in the family. This led me to start another study to understand the dynamics around the three important components that needed to be in place before a financial transaction could be made. These included a) Affordability - the finances required to make a transaction; b) Authority - the agency and authority to spend or receive money to make a transaction; and c) Access - which meant access to a physical bank or corner shop or a digital device like a mobile phone to make the transaction. All of these combined would enable anyone to be able to make financial transactions.

In the qualitative interviews with men and women, I learned that men and women look at financial transactions differently and there were established norms throughout the society which permeated through generations. When it came to bigger finances like property, cars, and electronics, men were considered as the decision-makers. However, when it came to smaller financial decisions which included day-to-day grocery, child care women would make these

transactions. The amount of the transaction decided the gender of the person who dealt with it.

When I explored further, I found out that it is because men are considered as the Head of the Household. Women, and men, believed that this is how religion and God have made this, and men are supposed to be the breadwinners and the managers of the house. Thus, these values were derived from the socio-cultural and religious norms. Women considered men as the ones responsible for finances and decisions related to money. Some even went to the extent of sharing their belief that when women-led the financial decisions or the decisions of the household, and its financial transactions, it would never achieve prosperity.

A deeper exploration revealed that this is derived from the Islamic principle of *Nafaqah* which denotes the financial support that a husband must provide for his wife. This includes both during the marriage and for a time after the divorce which obligates the husband to pay for his wife's housing, food, and clothing in the course of their marriage. Thus, men should provide and make decisions and women willingly wanted them to lead the financial decision-making and transactions to keep up these values and resulting norms practiced by the elders.

If I had not gone into this phased approach and made efforts to understand women's perceptions about financial transactions and the underlying values that drive these perceptions, I would have also continued to explore the financial applications as reasons for this lack of use.

### 3.2 Islam and Rights

Islam is at times associated with patriarchal values especially when it comes to women's rights and representation in religious leadership roles e.g. women are excluded from leading or speaking at religious gatherings, religious prayers where women are supposed to pray behind men, etc [2]. However, Muslim women also have many rights e.g. married women can seek separate residence for themselves and their children, and men are supposed to provide for them. Muslim women can also ask for payment for breastfeeding their babies or can seek others to feed their babies for payment as mentioned in the Quran chapter Surah At-Talaaq which translated to 'The Divorce'.

*Lodge them [in a section] of where you dwell out of your means and do not harm them in order to oppress them. And if they should be pregnant, then spend on them until they give birth. And if they breastfeed for you, then give them their payment and confer among yourselves in an acceptable way; but if you are in discord, then there may breastfeed for the father another woman. Q65:6*

The reason for listing these rights is not to provide any clarification but to review the existence of rights. Thus, when I saw a clear gender discrepancy in the understanding and use of Digital Financial Services, my first question and assumption were about women's rights. Because like many HCI researchers when I made observation 1 (about women not making bigger financial transactions) and women giving up their financial earning to men, my first assumption was also towards the oppression and patriarchy that might have forced them to act in this way.

In my research with low-income women, many women told me that they do not go out of their houses to go to the banks and the mobile money shops to transact because of the fears of harassment in the public including in public transports. Women shared that besides the acts of harassment, and they feared negative interactions like theft and mugging. Lastly, women were also fearful of society's negative reactions to their being outside without a male chaperon, and the looks and stares they might receive. Some women even reported being scared of shopkeepers' ill conduct with women.

Among these were women who shared that they were happy that the men are dealing with the finances. And since they already have a lot of house chores including childcare, they appreciate men taking some of the tasks from them and that they do not have to worry about going outside and making the financial dealings and do not have to deal with the men in the society.

#### 4 RELIGION AND CONDUCTING RESEARCH: ISLAM AND HIJAB

In Islamic countries, the concept of hijab or *the veil*, known as *Pardah* in South Asia, takes many meanings and each of these meanings is based on the perceptions, interpretations, and norms of the region [19]. The word *Pardah* is a Persian word that means curtains. This word has been used to understand the physical curtain used to separate men's and women's gatherings as well as the fabric worn by to achieve modesty. The hijab or covering by women is done in many forms from the complete coverage where eyes are visible, to the headscarves which cover the head and hair, it is also used as a *chaddar* or one big cloth to cover the head and body.

Hijab is not only the name of the fabric which is referred to as *Khimar* that is worn to cover (seen in the first verse listed below), but it means modesty (seen in the second verse). For example, in Quran, we see both of these teachings.

*O Prophet! Enjoin your wives, your daughters, and the wives of true believers that they should cast their outer garments over their persons (when abroad): That is most convenient, that they may be distinguished and not be harassed. Q33:59*

*And say to the believing women that they should lower their gaze and guard their private parts; that they should not display their beauty and ornaments except what (must ordinarily) appear thereof; that they should draw their khimār over their breasts and not display their beauty except to their husband, their fathers, their husband's fathers, their sons, their husbands' sons, their brothers or their brothers' sons, or their sisters' sons, or their women, or the slaves whom their right hands possess, or male servants free of physical needs, or small children who have no sense of the shame of sex; and that they should not strike their feet in order to draw attention to their hidden ornaments. Q24:31*

However, beyond the physical covering through the fabric, is the more important concept of modesty and segregation of genders. The later concept was observed in my research findings multiple times. Women believed that by going outside this concept of segregation and *pardah* ends. Similarly, going outside and talking to men was also seen in the same light.

Islam also includes a concept of *mehram* which means those who are related to you and cannot be married to because of close blood relationship and from whom *pardah* or concealment of the body with hijab is not obligatory. The reason is that women are not supposed to engage in unwanted interactions and communication with men who are not related to them. A woman communicating with a shopkeeper is not unwanted interaction but men and women engaging in random communication can be deemed as unwanted. All familial relationships mentioned in the second Quranic verse comes under *mehram*. This segregation of genders creates gendered norms where interaction between men and women is not as common and its impacts the physical and digital lives of these men and women. In the sections below I share how these values and norms impact research.

#### 4.1 Hijab and Fieldwork

These gendered constructs are not limited to the participants or the populations that we work with, but it also impacts us as researchers.

**4.1.1 Participants and Hijab.** When I went to conduct fieldwork, especially for the Digital Financial Services (DFS), I used the support of existing Microfinance organizations or Non-Government Organizations (NGOs) working towards supporting the lower-income strata. However, when the male members of the MFIs or NGOs used to accompany me to the participants' places, I noticed a hesitation. Women participants had to be very careful and sometimes had to be accompanied by the male members of the family to participate in the study. This meant that women were not only limited by the availability and comfort of their male chaperons, they were also conscious and at times uncomfortable with being open and detailed in their responses due to the presence of males, related or otherwise. Thus, after a few of these instances, I requested the partner organization members to allow me to conduct one-to-one interviews.

**4.1.2 Researcher and Hijab.** However, in order to support the participants, it meant that I had to be alone in their selected venues or houses or MFI offices, etc. But due to the socio-cultural norms, I could not travel to these places especially in a rural setting alone. The safety and security being a woman and the sociocultural norms of women never traveling alone both suggested otherwise. Thus, I would then take the male supporters with me who would then wait outside the interviewing venue for me to talk to the women participants.

Another dimension of my gender as a woman and researcher showed up when I recruited men for interviews. I started my interviews with the assumption that gender biases would not exist because I am introduced by the MFI as "*someone visiting from the city and conducting interviews*" and my profile would be taken as another door-to-door survey collector or similar entities. However, again the pervasive norms became visible when the men were dismissive of my questions and my interviewing of women for the research and made inquiries about my work. One even scoffed if I was any kind of social worker from some NGO trying to get women some rights when I inquired about if there were any gendered dimensions in the financial decision making.



**Figure 1: Two photographs of interviews with participants. (Left) Participant and interviewer with covered heads with headscarf; (Right) Participant has covered head while the interviewer has uncovered head with the headscarf fallen on her neck during the conversation**

In all these instances I would ensure to cover my head because all women covered their head and the uncovering of the head was disrespectful to the culture. Due to the lack of practice of covering my head regularly or due to the types of fabric, sometimes the head covering fabric would slip off my head. At one time, I observed a woman participant looking at my head as I looked up from my notes. This also pointed me to the possible distraction and abnormality of the uncovered head and thus I continued to ensure the headcover is in place.

A few of these points about gendered interactions as a researcher have also been hinted in my other works [11, 12]. However, my reason for sharing these is to draw attention to these research methods and the differences and uniqueness that can be introduced in these methods.

## 5 RELIGION AND REPORTING RESEARCH: ISLAM AND MUSLIMS

### 5.1 Challenge of Reporting:

HCI community focuses on the nuances of research questions and research populations instead of converging on a single user type, one user group, or one definition of a group. Thus, it is imperative that we consider and report the various types of Muslims, the different types of people in each Islamic country, their unique cultures, their lifestyles, and our design for them. And we do not reduce any population to one box.

Some of the nuances mentioned in this paper till now might have already pointed out the various differences in interpretations and practices of Muslims around the world. However, when I report many of these findings, I at times receive feedback that I should refer to papers on the Middle East, etc. I argue that the uniqueness and brilliance of this field are in discussing and embracing identities and user needs. And thus a realization that interpretations or practices of Muslims in Pakistan are not equal to those of Muslims in Bangladesh, Iran, Afghanistan, or the Middle East. And the same considerations apply to Muslim women as well. As I shared earlier, the laws and practices vary greatly for all Muslim women to be identified as the same.

A reviewer once inquired in one of our works the difference between the terms *Islamic* and *Muslim* and suggested that we alternate the use of Islam with Muslims. Islam is the name of the religion and those who practice it are called Muslims. The Islamic values are derived from the Qur'an and the life of the Prophet (SAW). While Muslims around the world might have various interpretations and implementations, replacing Islamic teachings by using a concept like Muslim teachings is unheard of. This also brings up the importance of local and subject expert researchers who can comment on the underlying value systems to review such works.

### 5.2 Muslim populations and Challenge of Reviewing

Another challenge faced as an HCI researcher in discussing these populations and the impacts of religion in their daily lives was in presenting those findings to the broader HCI community. I share a few of them below.

- In my works where I presented these sociocultural values and how they impacted financial decision-making, HCI researchers wanted me to add technical design recommendations to my work. How can we make more women use these financial services? A bigger question I struggled with was, why should I try to design to make these women want to give up on those values?
- At one instance where I had shared that how Muslim women were comfortable with men leading the transactions both for religious reasons as well as to avoid "*yet another chore*", a reviewer claimed that this was reinforcing the patriarchal values. Similarly, at another instance, I had recommended that rather than designing to bring these women outside of their comfort zones, into the mobile money markets where other unrelated men exist, we can design for solutions that provide services to women in places where women are the most comfortable. This was called out for reinforcing segregation.

However, in sharing these experiences my view is that these values are deep-rooted and have a functional meaning to the lives

of these individuals. While many of us do not agree or relate to the value or experiences of these women, we cannot design technical tools and challenge existing values and social setups because of our disagreements, as also hinted by recent works focusing on *design within limitations and contexts* [21].

### 5.3 Challenge of Defending:

The third challenge, which is an important one for us as researchers from the Global North, which should be kept in focus and one that differentiates Muslim populations is the recent and at times negative focus on Islamic cultures and values [16, 20]. As a Muslim researcher who is from and works with Muslim populations, I have observed hesitation among participants when sharing details about their religious beliefs or practices or how it impacts their daily life. This hesitation at times accompanied the need to clarify themselves. While it is my opinion that this constant clarification is due to the associated negative images associated with Sharia (code of life that all Muslims should adhere to) [1, 16] and Islam in the media, I form this opinion based on the similarity of all these clarifications to be more neutral or liberal.

As an HCI researcher, I have also felt the need to be more descriptive in my work as I continue to clarify and answer many questions about the faith and its principles. Feedback that equated Pakistan with Islam in Middle East or Bangladesh or reinforcing of oppressive values made me question every time that do I want to conform and have a CHI paper or should I explain what I see? Thus, as HCI researchers we need to acknowledge and understand how the pervasive global perspectives impact reporting of and reporting by the participants who are unclear or at times fearful about the reactions to their belief system or practices.

## 6 DISCUSSION

This paper presents three implications of religious beliefs on HCI research as end-users as well as HCI researchers. These implications impact researchers and participants in the collection and analysis of data impacts us as authors in the understanding and presentation of data and as HCI reviewers of papers that include the mention of belief systems and their impact on sociocultural norms, values, and use of technologies by the populations. Other researchers have already called to focus on research and design beyond the popular narratives e.g. Jewish HCI [9] and Arab HCI [3] etc.

HCI is related to research about humans and all our studies and research methods such as usability, testing, interviews, and observations are dependent on human interaction. However, belief systems that incorporate various value systems about interaction with digital systems, interaction with same or other genders, or travel and communication outside the house pose deeper understanding and even reforming our research methods to suit these populations. These values and what is permissible or not can play an important role in what kind and quality of interactions can and cannot happen between the researchers and the participants as well as between the participants and the technologies. These norms can alter our research methods and how they can be applied. Thus, such implications like the presence and absence of mehram or related men as well as same or opposite gender and its likely impact on

the participants' response are all things we need to consider as HCI researchers.

*Value Sensitive Design* recommends that technologies are not value-neutral and there are values associated with individuals, as well as groups (collective values) and technologies [7]. And we should explore these further to understand and design for them. I give detail of my work to showcase how these values are impacting Muslim users in their processes and decisions towards technology understanding and use, and how these values can also have an impact in the research process.

Presentation and reviewing of papers is an important part of HCI research. However, if we continue to establish what is unique or novel and what is similar, based on our understanding, we might be eliminating a research conversation altogether. Commentary or feedback that questions findings or recommendations as reinforcing patriarchal concepts or segregation can only make populations and its researchers feel inadequately equipped in sharing their stories or push them to further defend their stance.

## 7 CONCLUSION

Using stories from HCI research in an Islamic country with Muslim and non-Muslim populations, I share the various assumptions, challenges, and opportunities for research with these populations. I use these stories to showcase how Islamic principles, beliefs form a strong part of the value systems and lifestyles of Muslims in these countries and as HCI researchers we not to work beyond simply engaging with such populations. We need to take a step deeper to understand the underlying values that form these socio-cultural norms.

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## COMMENTARY

### Katta Spiel

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Before entering into my review proper, I want to position myself as to enable fellow reviewers and the author to understand my perspective. I was raised in a small Bavarian village with ingrained catholicism and went to Catholic schooling. However, I have left the church later on and am now not embedded in formal spirituality. So, my perspective is largely shaped through being White and being raised Christian, though not practicing. All my knowledge about Islam is second-hand.

I like what the paper is set out to do and I think it makes a very good case in terms of discussing the universalist assumptions that come from Global North institution which dominate HCI (and research more broadly). Here, I think the author would enjoy reading Serene J. Khader's book 'Decolonizing Universalism – A Transnational Feminist Ethic', which illustrates this well for feminist debates and the value dominance and judgement (inappropriately and in decontextualised form) coming from White women in the Global North. Additionally, the paper really shines when the author shares their rich experiences from their fieldwork and how to attend to participants' value systems as shaped by Islam in (rural?) Pakistan. In that specificity lies strength, but I fear at times the text verges on overgeneralising from that specificity. For example, the author illustrates how Computer Science is 'not a topic for women', which I do not want to question as the author's experience but this might not be the case for all Islamic countries – as seen by the high percentage of women in Science and Engineering in Iran (see <https://www.forbes.com/sites/amyguttman/2015/12/09/set-to-take-over-tech-70-of-irans-science-and-engineering-students-are-women/>). Hence, I struggle to attribute this disparity to Islam as such. On a smaller note, while I appreciate the biographical sketch, I found myself missing information on the author's positionality regarding their religion. I fully understand if this was a choice and am happy to leave it at that, though I think the paper could be understood better if the author would disclose whether they themselves are a Muslimah or not. Further, I found the examples given on related work a bit one-sided citing predominantly from a single (group of) authors. As I am not intimately familiar with this research, there might just be a small group attending to these topics, though that could be specified. However, the main argument from the abstract, namely that religious values shape the engagement

with technologies has been made recently in a Jewish context at this very venue and, I think, warrants acknowledgement (Hammer, 2020). As a reader with little background knowledge regarding Islamic culture, I stumbled over the sentence ‘The teachings shared from the Quran also in this work is what forms Islamic teachings and cannot be replaced with Muslim interpretations.’ I am honestly just not sure what this means.

Reference:

Jessica Hammer. 2020. Envisioning Jewish HCI. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20)*. Association for Computing Machinery, New York, NY, USA, 1–10. DOI:<https://doi.org/10.1145/3334480.3381818>