Involving Syrian Refugees in Design Research: Lessons Learnt from the Field

Reem Talhouk
Open Lab
Newcastle upon Tyne, U.K.
r.r.talhouk2@ncl.ac.uk

Madeline Balaam
Royal Institute of Technology
Stockholm, Sweden
balaam@kth.se

Austin L Toombs
Purdue Polytechnic
West Lafayette, U.S.A.
toombsa@purdue.edu

Andrew Garbett
Open Lab
Newcastle upon Tyne, U.K.
andy.garbett@ncl.ac.uk

Chaza Akik
Hala Ghattas
Center for Research on
Population and Health
Beirut, Lebanon
ca36, hg15@aub.edu.lb

Vera Araujo-Soares
Balsam Ahmad
Institute of Health & Society
Newcastle upon Tyne, U.K
vera.araujo-soares@ncl.ac.uk
balsam.ahmad@ncl.ac.uk

Kyle Montague
Open Lab
Newcastle upon Tyne, U.K.
kyle.montague@ncl.ac.uk

ABSTRACT
With the Syrian crisis entering its 8th year, refugees have become the focus of research across multiple disciplines, including design and HCI research. While some researchers have reflected upon designing with refugees, these accounts have been limited to conducting design workshops in formal spaces. Through reflecting on our experiences of conducting design research in informal refugee settlements in Lebanon we unpack lessons learnt, design practices and research approaches that facilitate design engagements with refugees. We highlight the value in participants configuring the design space, using a dialogical approach as well as creating a safe space for both participants and the researcher. We also reflect on the roles that researchers may take on when conducting similar research. By doing so we contribute specific design practices that may be transferrable to other similar contexts.

Author Keywords
Design Practices; Refugees; Informal Settlements;

CSS Concepts
• Human-centered computing ~ Interaction design ~ Empirical studies in interaction design

INTRODUCTION
The United Nations High Commissioner for refugees (UNHCR) estimates that there are 65.8 million forcibly displaced people worldwide [39]. Within Design Research and Human-Computer Interaction (HCI), researchers have begun investigating the role of technologies in addressing refugee needs [1,28,32]. However, studies reflecting on the use of design methods with refugees are few and limited to workshops conducted in formal spaces or spaces (i.e. a room in a school [13,15]). Conducting design research with Syrian refugee women residing in informal settlements in rural Lebanon precludes the use of such spaces. Informal settlements are lands and infrastructures occupied by refugees without the support of a United Nations agency [38]. Settlements (figure 1) do not have space dedicated to community engagements as the entire space is used for living. Furthermore, there are several factors that limit Syrian refugee women mobility, making it difficult to conduct design research outside the settlement. These factors include: (1) the limited accessibility of transport [26], (2) cultural assumptions about safe travel distances without male guardians [46] and (3) fear of government check-points querying the legality of their presence in Lebanon [20]. While there has been increasing interest in designing with refugees, there is limited reflection and guidance on how to conduct design research in refugee settlements.

Syrian refugees in Lebanon are continuously engaged in research as part of academic initiatives [5] as well as by multiple Non-Governmental Organizations (NGOs) conducting needs assessments [47]. Our previous experience has shown that participants view such engagements as an

outlet for expressing grievances. The multiple needs of refugees make it challenging to identify the scope of research projects [30] and difficult for refugee participants to progress from reflecting on challenges experienced towards co-designing solutions [8]. Working within such contexts calls for design researchers to consider participants beneficence [9] and the roles that researchers and designers must take on in order to benefit the community. It has been argued that community-based research approaches, in which researchers engage over prolonged periods of time with a community to identify their context specific needs and design to respond to them, contribute to community and societal benefits [14,18]. Therefore, we adopt a community-based approach in our research with refugees in settlements and reflect on the design practices warranted when designing in this space.

We present two case studies conducted in refugee informal settlements. We unpack lessons learnt and provide guidance for future design research. Our experiences shed light on the difficulty in balancing participant beneficence with their multiple basic unmet needs. Furthermore, we reflect on the role of the design researcher when engaging with refugee communities as well as how the design process creates a safe space for both the researcher and participants in a context where space for meaningful work [14] is difficult to find. Lastly, our experience shows the value given by refugee participants to dialogical design methods, over traditional qualitative methods. Through this account we aim to better inform design researchers engaging in refugee contexts and similar contexts where physical space for meaningful work is difficult to find and researcher safety is a concern.

RELATED WORK
While a few studies engage in design research with refugees, little reflection has been given to the process of engaging in such research within settlements. We provide a synthesis of literature on engaging with refugees in formal spaces and draw parallels with literature on designing with vulnerable communities and with a community-based approach.

Designing With Refugees
Fisher et al [16] and Almohamed et al [2,3] have used interaction design and co-design methods to engage with refugees and asylum seekers in workshops in Jordan and Australia, respectively. The studies indicate that the use of such methods successfully taps into the imagination and creativity of participants [16] as well surfaces experiences and challenges faced by refugees [2,3]. Brown & Choi [8] transformed probes into creative kits given to refugee participants prior to engaging in co-creation workshops to gain insight into participants' lives while inspiring creativity.

Role of NGO Workers
The aforementioned studies all emphasize the role of NGO staff in facilitating design workshops and contributing to building a trusted relationship between the researcher and participants. This practice echoes recommendations within design literature on engaging with vulnerable communities [23]. Fisher et al and Brown & Choi [8,16] reported on NGO

staff supporting the facilitation of workshops and Almohamed [2] piloted methods with NGO workers before conducting the research with participants. Brown & Choi [8] also sought the support of NGO staff in developing the creative kits to be used by refugees.

Creating Safe Spaces for Refugee Participants
HCI community-based research has previously indicated that design research is best conducted in spaces in which the community already engages in meaningful work [14]. When designing with refugees the need for creating a safe space where refugee participants feel comfortable is imperative [8,15]. The involvement of NGO workers that refugee participants are familiar with has been indicated to facilitate the creation of a safe space in which refugees can engage with the research team [2,8,16]. Brown & Choi report on the creation of a safe space for engaging with refugees by conducting the research in a meeting place were refugees usually met with NGO workers and their research institution [8]. However, in some cases distancing the research from service providers may prove to be a valuable exercise in creating a safe space. Duarte et al [15] created a safe space through reiterating that engaging in the study would not lead to repercussions from the school in which the workshops were conducted. Design researchers have also briefly reflected on the sharing of their own personal identities as a contributor to the formation of safe spaces for refugees. Duarte et al [15] recount how researchers sharing their own experiences of migration and their motivation for conducting the research contributed to young forced migrants feeling more comfortable in voicing their experiences. The sharing of attributes of the researcher's identity has also been indicated to enhance designer/researcher acceptance by communities in community-based research [14].

Flexibility in the Design Process
Design research conducted with refugees also draws parallels with design literature highlighting the need to adopt flexible ethics and research processes to accommodate the various challenges that arise when engaging with this community [24,40]. Duarte et al [15] highlight how language barriers makes obtaining informed consent from refugee participants difficult and call for more flexible ethics procedures that utilize audio-visual resources. Such notions build on previous calls by HCI researchers [41] highlighting that current ethical practices are not enough when engaging with vulnerable communities. Unexpected challenges may arise and alter the study design and therefore require more flexibility [41]. Flexible consent, that addresses changes in study designs, has been described as essential in ensuring that researchers' presence and interests are clearly defined to participants and not to confuse participant expectations [23]. Flexibility is further called for when engaging with refugees to account for the ongoing need for participants to negotiate the intersectional challenges they want to design for [8]. Indeed, the design process should accommodate the varying needs and pace in which refugee participants individually and collectively are comfortable working in [8]. This is

echoed by community based research where LeDantec & Fox [14] highlight that flexible research processes should extend to the co-creation of the research study design.

Meaningful Design Outcomes
There is a need for establishing meaningful relationships and outcomes when designing with vulnerable communities [41]. Clarke et al call for design researchers to account for being socially engaged with participants and to value relationships built with participants [12]. When engaging with rural communities partaking in social practices, such as sharing of food supports the building of relationships [6]. While design research with refugees has yet to account for the creation of meaningful relationships, consideration has been given to providing refugee participants with meaningful outcomes. Duarte et al [15] and Brown & Choi [8] both identified that refugee and migrant participants found value in engaging in design workshops as it gave them opportunities to work with host community members as well as to be heard, respectively. The creation of technological designs that address refugee needs has also been considered as a meaningful design outcomes [8,32]. However within the space of technological design, Vines et al [40] highlight how the failure of technologies may lead to participant feelings of frustration and lowered self-confidence among participants. Design research with refugees has yet to reflect on the consequences of failing to successfully deploy technologies.

INITIAL DESIGN RESEARCH APPROACH
In this section, we define our research approach by drawing on the aforementioned literature, and other literature that engages with vulnerable populations that we view is relevant to the context of designing with refugees in settlements.

A Community-Based Approach: Knowing from previous experiences the multitude of needs of refugee communities and our own resource constrains, we opted for a community based approach that would enable us to build meaningful relationships with participants, understand their needs and attempt to respond to them [14,18].

Meaningful Outcomes: Within our research approach we aimed to attempt to balance research contribution with community benefit [14] by quickly designing and deploying a technology that would address their needs. Additionally, while refugee participants in Brown & Choi's study [8] found value in being heard we were wary that surfacing community needs without addressing them may prove to be frustrating for participants. We therefore adopted the approach of Bidwell et al [6] where we aimed to utilize our social capital to respond to some of the community needs that are not necessarily within the scope of the research project. Lastly, the local ethics review board advised against providing material aid to refugee participants to avoid coercion. Only providing snacks was permissible.

Empathy: We drew on design literature that highlighted the importance of empathy in building trust and relationships with participants [11,33,45]. We dedicated engagements to empathetically listening [12] to the community's grievances and exploring how we may respond to them. Grievances that were surfaced throughout the study were equally explored and discussed. Empathetic practices also aimed to contribute towards creating a safe space for participants.

Researcher Roles: Light and Akama [22] have highlighted that flexible roles are essential as they respond to communities aims as well as the multiplicity of actors within a community. Therefore, the main researcher conducting the field work, Reem, was encouraged to explore the multiple roles she may play within the community including a liaison between the refugee community and NGOs.

Researcher Identity: Cultural understanding is necessary when engaging in refugee contexts as participants may originate from countries and cultures that are disparate from that of the researcher [35]. Reem is from Lebanon, a neighboring country with a similar culture. Therefore, we did not expect differences in cultural understandings to pose a challenge. We did however consider that the nature of the conflict in Syria, where religious divides brewed [25], as well as the political and social tensions between Lebanese communities and Syrian refugees [36] may lead to feelings of distrust and wariness towards her. This is especially true as the religious faith Reem was born in to, Druze, has played a controversial role in the Syrian war [25]. Indeed, one of our ethic review boards called us to consider how such factors may put the researcher's safety at risk. It was decided that Reem should refrain from sharing aspects of her personal identity that may put her at risk and/or lead to animosity. Instead, she should share her professional identity (e.g. her research interests and motivations [15]) as well as her familiarity with Syrian culture. Furthermore, we drew on anthropological literature [4] and identified that sharing relatable aspects of the researcher's identity (e.g. being a caring daughter) to be pertinent in establishing relationships with participants and overcoming barriers that are rooted in the differences in their identity (e.g. socio-economic status).

Researcher Safety: To ensure researcher safety we utilized the lone researcher protocol provided by our local collaborators. The protocol included (1) seeking approval to conduct the fieldwork from governmental agencies, (2) Reem sharing her location with others in the research team when in the field, (3) a local NGO selecting the community with which she was to engage with based on their knowledge of the safety of the settlement and (4) a local NGO employee accompanying Reem during her initial visits.

Continuous Reflection: Design literature on engaging with communities call for the provision of reflexive accounts that consider our interactions with participants and community groups [14,21,41]. Consequently, Reem adopted an auto-ethnographical approach [19] in documenting and reflecting on the design engagements. She kept a journal where she reflected on her engagements with participants as well as note certain interactions and experiences that related to her methodological approach.

Data Collection & Analysis: Data in which participants reflected on the research process was tagged in transcripts of audio collected during engagements. This data and Reem's reflections were collated and thematically analyzed [7].

The existing literature did highlight how our design process and approach should attempt to create safe spaces, and possibly leverage NGO workers in doing so. Additionally, the design process should produce meaningful outcomes. The limited in-depth reflection and analysis of experiences of designing with refugees that reflect on conducting the design process (1) in spaces in which refugee live and experience their day-to-day challenges, (2) with a community-based approach and (3) while accounting for researcher participant interactions and relationships left us with several questions. Primarily, *what are the different roles that researchers and designers may take on as they conduct the research in a refugee community rather than with a refugee community*? Additionally, *what other flexible design practices should the design process adopt as it is taken out of the setup of design workshops in formal spaces*? Lastly, *how does the design process influence researcher participant relationships and vice versa*? We aim to answer these questions through our reflection on designing with refugee communities in settlements. We do so by unpacking how our experiences led to adapting our initial design research approach as well as the design practices we found to be invaluable in successfully engaging in design with refugee communities in settlements.

CASE STUDY ONE: PILOTING A TECHNOLOGY FOR ACCESSING HEALTHCARE

Research Goals
Motivated by humanitarian organizations highlighting the challenges refugees are facing in accessing reproductive healthcare, we aimed to explore refugee experiences of accessing healthcare services and how technology may aid in overcoming barriers to accessing said services [31]. Based on the exploration, we piloted a technology that would improve access to health services [29].

Methods
The local NGO employee selected a Syrian refugee settlement for Reem to conduct the research with. 15 refugee women (CS1.1…15) in the settlement consented to participate in the study for a year. Over three months Reem spent three days a week in the settlement, sometimes accompanied by another female researcher. During the rest of the year contact with participants was maintained over WhatsApp. We identified the below as the five key engagements within the design process.

Exploratory focus group: A focus group was conducted with all participants in which they indicated that distance to health clinics and feelings of low agency when engaging with healthcare providers are barriers to accessing reproductive healthcare. Reem also took note of the other community needs that included clean water and sanitation.

Tailoring a technology to meet participant needs: Based on the data collected, the research team explored the technologies available to the research group and decided to re-appropriate a technology, Citizen Radio (CR), they had previously developed. CR is a synchronous Interactive Voice Response system that allows a participant, the host, in the community to run community health talk shows in which healthcare providers would be guests.

Pitching the Technology: CR was described to participants and Reem asked for feedback regarding the technology and how the shows should be conducted (i.e. who would be the host). Participants also provided feedback on which health topics they would like to discuss through the shows.

Deploying the Technology: Initially we intended to fully deploy CR in which each participant would receive a phone call. Participants would be able to listen and participate in the health shows. However, while testing it with the community we discovered that due to telephony restrictions we would not able to fully deploy the technology. Therefore, we shifted the study design so that participants would congregate in one tent around a phone while the guest connected to the listener phone remotely. This shift in study design entailed the use of paper mock-ups to facilitate functionalities that would have been mediated through the technology such as listener queuing to ask the healthcare providers questions. Focus groups were then conducted, after each of the four shows, to evaluate participant experiences engaging in the shows. This community was later approached to partake in other studies as part of the community-based research approach adopted.

Methodological Findings
Throughout the engagement, participants indicated that they appreciated the long-term engagement that was part of our community-based approach. One participant indicated that, *"You are the first people that come back to visit us"* [CS1.3]. This was contrasted with other researchers that participants have engaged with, *"People come and ask us questions and leave us"* [Cs1.13]. Despite this positive feedback, several challenges arose while conducting the study.

Researcher's Personal Identity
During the engagements, Reem conversationally shared aspects of her identity, including information regarding her family and her belief that technologies may be leveraged to

Figure 1. Image showing a refugee settlement in rural Lebanon. All the tents in the settlement are living spaces.

support refugees and marginalized communities. However, participants' questions were sometimes unexpected and difficult to respond to without highlighting nuanced cultural differences between herself and participants. One participant who is of the same age, 24 years old, as Reem and is married asked her why she is not married. Reem was wary to navigate the conversation as best she could without being dishonest and without blatantly surfacing the drastic differences between her beliefs and the cultural and social practices of the community. Reem responded by saying that she is currently focusing on her studies, rather than voicing her beliefs against marrying at a young age. In a frustrated tone the participant responded saying that becoming a refugee hindered her from studying law and proceeded to recount her previous academic success. Reem empathetically listened and responded wishing that the situation was different. This experience indicated that while sharing aspects of the researcher's identity allowed for the formation of relationships that participants felt comfortable asking her personal questions. However, responding to certain questions brings to the forefront cultural and social differences that may also highlight the drastic changes in participants' lives that resulted from becoming refugees.

Reem's and her openness to answering personal questions instigated further questioning. During one of the engagements a participant recited a line from the Qura'an and asked Reem about her religion. Considering her safety and the possible animosity that may arise if she divulged that she is Druze, Reem diplomatically responded saying *"we are all brothers and sisters in the eyes of God"*. That response ended the conversation abruptly as Reem became conscious of participants' wariness and scrutiny, expressed through their body language. It was obvious that she was avoiding answering the question. Le Dantec et al [14] had previously highlighted that responding to personal questions, including the researcher's religious faith, made researchers feel vulnerable. In this case the question not only made Reem feel emotionally vulnerable but also physically given the religious tensions present within that context. Her avoidance of the subject led to participants continuously asking her *"Where are you from in Lebanon?"* [CS1.15] and *"Where is your accent from?"* [CS1.4] in attempt to discern her religion. This is possible in Lebanon as it is quite geographically divided based on religion.

Frustrations in the Failure of Technologies
Participants saw value in engaging with CR as they explained that they can use it to ask health questions and from there decide whether to go to primary healthcare clinics and seek subsidized care. Given the fact that CR responded to one of their pressing needs, when it failed participants expressed their frustration. During the initial testing phase debugging the system took more time than expected and participants expressed their frustration with one participant angrily saying *"Hasn't Jad [the app developer] fixed it already"* [CS1.6]. Vines et al [40] have thoroughly discussed how technological failures with vulnerable communities may

result in feelings of frustration amongst participants towards the technology as well as a decrease in self-confidence. Here we highlight how since the technology was developed by the research team, participant frustrations were directed at Reem thus instilling an overwhelming sense of responsibility towards making the technology work for the community. Additionally, another participant highlighted that the most important aspect of the project was talking to healthcare providers and therefore suggested, *"Can't we just have a simple phone call and we all talk"* [CS1.10]. Such a response led us to reshape the research study to maintain the balance between our research goals and the community's goals.

Frustrations to Lack of Response to Grievances
Initially, participants asked for material aid from Reem, *"Instead of bringing snacks with you, can you bring us shampoo?"* [Cs1.3]. Given that the provision of such aid was viewed to be coercive, Reem distanced herself from the NGO employee [15] accompanying her by highlighting the difference between her role as a researcher and the NGO employee. Reem made it clear that the only benefits she can provide are (1) connecting them to healthcare providers through the technology we are deploying and (2) relaying their grievances to the relevant NGOs. However, leveraging our social capital was more challenging than expected. Reem and the research team contacted a fellow researcher who was developing and installing semi-dry latrines in refugee settlements [48]. However, they were culturally unacceptable to participants as they would not be installed in private tents. We also communicated the community's need of winter aid and clean water to local NGOs however at that time the NGO had run out of supplies and the NGO supplying water in that area did not respond to the request for a water quality check. Previous accounts of leveraging social capital to benefit communities have been proven to be successful [6] but in our case the inability of the local NGOs to respond to the needs of the community relayed through us reflected badly on us. Participants held us accountable for the lack of response and asked, *"What are we getting from all of this"* [CS1.1].

Participant Fatigue & Community Tensions
After the first piloting of the technology the researchers took two months to rework the system. Despite continuous contact with participants, participants were reluctant to further engage in the study. When discussing this reluctance, it became apparent that over the course of the study participants' lives were compounded by many complications that made them feel overwhelmed and engaging in research became less of a priority. One participant stated, *"we are tired"* [CS1.11] and another elaborated saying that *"The winter was harsh"* [CS1.10].

Community tensions started to influence engagement in the study. Since Reem would be preparing the shows with the host before running the shows all the design engagements took place in the host's tent. However, Reem came to realize that was a mistake as the design space became associated

with the host rather than with the design engagements. During one of the later visits, in which Reem wanted to explore next steps with participants, a participant took Reem aside to explain the hesitance in engaging by attributing it to rising community tensions, *"The settlement has changed. A lot people are not getting along"* [CS1.10] and the host also explained to Reem, *"They are not coming to my tent anymore so don't expect them to come for the study"*. Both participants did not disclose the cause of the tension but Reem understood that there was a dispute amongst participants. The lack of a safe space in which the research was to be conducted became a major barrier to conducting the research and consequently resulted in the community withdrawing their participation in the research. Indeed, while it is recommended that design research be conducted in places where meaningful work takes place in the community [14], such spaces are lacking in refugee settlements. Spaces are exclusively associated with community members and therefore are influenced by community tensions that may have been difficult to address in design processes [17].

ADAPTING OUR RESEARCH APPROACH
Based on the methodological findings from CS1 we adapted our research approach to address the challenges we faced.

Rethinking Meaningful Outcomes and Researcher's Role
One of the main lessons learnt from this case study was that technological failure can lead to feelings of frustration among participants that are directed towards the researcher. This is especially true when the technology responds directly to the needs of participants and is considered the most valuable part of engaging in the research. We realized that we should have better communicated the effort and process involved in developing technologies to participants. Additionally, adopting the role of being a liaison between the community and local NGOs proved to be difficult in providing meaningful outcomes for the community. The inability of NGOs to respond went towards discrediting the beneficence in engaging with the research. Consequently, we decided moving forward that we would co-construct and define with participants the possible outcomes and roles Reem may feasibly and ethically provide.

Need for More Dialogical Methods
Participants' expressed frustrations with parachute researchers, reiterating the need for long-term community based research. However, several of the methodological findings from this case study support the need for having a more dialogical approach with participants that contributes towards reaching a common understanding of the research's identity as well as finding cultural and social common grounds. We had opted to engage in focus groups as part of the exploratory phase of the study so as to quickly inform the design of a technology. We viewed the quick turnaround necessary to produce a technology that would be the main benefit for the community. However, we realized that we should have opted for more dialogical approaches in our exploration even if they were more time consuming. We therefore shifted our approach towards an Experience Centered Design approach in which empathetic and dialogical methods encourage the creation of a space for both participants and Reem to engage in dialogue. By doing so we hoped that dialogue would evolve from Reem responding to personal questions, in a way that does not encourage further conversation, towards her responding with sharing of experiences that would allow for conversations. We hoped that such an approach would allow her and participants reach a mutual understanding of each other.

Creation of a Safe Space
Our experience highlighted two things in regard to the creation of a safe space. Firstly, while safe spaces for refugee participants is important we also view that the safe space should not be exclusive to participants but also encompass the researcher. Secondly, conducting design research in the settlement highlighted the lack of a space that can be associated with the design research and the consequences of that. We therefore aimed to leave the configuration of the space where the research is to be conducted up to participants in order to explore how that may enhance the design process and possibly overcome previous challenges.

Flexible Methods that Account for Community Tensions
The last meeting with this particular community surfaced the needs for our methods to account for possible community tensions that would disrupt the design process. Therefore, we endeavored to present participants with methods that can be used in individual and/or group settings based on participant preferences and comfort.

CASE STUDY TWO: DESIGNING FOR FOOD SECURITY
The second case study (CS2) was conducted 4 months after the previous one. We aimed to engage with a different refugee community due to (1) the hesitance of the previous community in further engaging in our research and (2) the refugee settlement disbanding due to the landlord reclaiming the land. We requested from the local NGO to identify a refugee community considered safe for the researcher to engage with as a lone researcher. Previously our clearance by governmental agencies and the support of the local NGO gained us access to refugee settlements. However, a new informal process of accessing settlements led to a local municipality representative conditioning our access to the settlement with providing some form of benefit to the Lebanese community, which can be attributed to political rhetoric debating how Lebanese living in austerity should receive aid similar to that of Syrian refugees [34]. Therefore, Reem used her public health background to take on one of her flexible roles as public health educator. She provided 10 health education sessions, based on a curriculum developed by one of the other co-authors, to three local schools.

Research Goals
We aimed to explore the experience of food insecurity with a refugee community living in rural Lebanon. The study aimed to investigate how the community is collectively coping with food insecurity, how they are using technology to do so and the potential for technologies to improve their

food security. The research questions were motivated by findings showing that 91% of Syrian refugee households in Lebanon have been found to be without reliable access to a sufficient quantity of affordable, nutritious food [37] and an increasing humanitarian interest in using technology to address refugee food insecurity [33,34].

Methods

The community, approached to participate in the study, resides in two incomplete neighboring buildings that are enclosed by a surrounding wall. 13 women (CS2.1…13) of the 20 households consented to participate. Only women were recruited because (1) men are usually outside the settlement working/seeking work during the daytime and (2) women in refugee households more easily respond to food related questions when compared to men [10]. The overall research was conducted over 2 years in which Reem spent four days a week in the settlement over 9 months. Continuous contact with the community was maintained over WhatsApp during the times she was not visiting the community. We identified the below as the 7 key engagements within the design process.

Figure 2. Examples of dialogue cards used

Introductory Engagement: This was conducted individually with each participant to provide an overview of the possible methods that we can use and topics to be discussed. Methods included traditional focus groups and interviews, dialogue cards, diaries and the co-designing of an artefact that would reflect their work in the design process. Participants provided feedback regarding which methods they preferred and this resulted in the use of dialogue cards for narrative building. It was agreed that the research process can cumulate in the co-design of a booklet that would reflect the data that they have shared and be used by the community to discuss food insecurity with NGO representatives that are assessing their food insecurity. The booklet was not intended to be a research contribution but rather a contribution to the community that would reflect their efforts in the research project. Three participants also indicated that they would like to fill in diaries of their experiences of food insecurity.

The dialogue cards were intended to facilitate dialogue around the intersectional nature of participant experiences of food insecurity and were created based on the Arab Family Food Security Scale [27]. The cards were color-coded by category including (figure 2): (1) Food coping strategies, (2)

People within the refugee community, (3) People within the host community, (4) Aid Organizations, (5) Types of food & dishes that range in cost, (6) Seasons that are known to have an impact on refugee food security, (7) Resources needed for the preparation and preservation of food, (8) Technologies commonly available to refugees. Participants could also create new cards which resulted in 10 new cards being made. We saw the dialogue cards as an opportunity for Reem to partake in the discussions and use the cards to construct narratives reflecting her grandparents' and parents' experiences of food insecurity during the Lebanese civil war and her food experiences while living abroad.

Some participants indicated that they do not know whether they wanted to engage with the design process individually or in a group setting as they were still unclear on the different aspects of their experiences that the research would surface. Therefore, Reem suggested to participants that she can run an introductory design engagement individually, in which some aspects of experiences of food insecurity can be discussed. This was to give participants a better sense of the conversations that may take place during the study. Lastly, Reem and participants agreed that her fluency in both Arabic and English enables her to directly benefit the community by becoming a tutor for the children, her second flexible role. In order to avoid such a form of beneficence becoming coercive, Reem offered to tutor all the children in the settlement regardless of the participation of their mothers in the study. This resulted with Reem tutoring 20 children, 5 of which their mothers did not participate in the study.

Introductory Follow on Engagement: Only the food coping strategies cards were introduced in this engagement and participants were asked to sort the cards based on the strategies they are engaging in and reflect on their choices. It was at the end of this engagement that five participants indicated that they prefer to continue their participation on an individual one-on-one basis and 8 participants said they prefer group engagements.

Configuring a Space for the Design Engagement: After refining the tools and design process to match the preferences of participants, Reem further discussed the design process with participants including the frequency of her visits both for the design engagements and to tutor the children. She showed them the different materials they will be using (e.g. big cardboards to take notes of their discussions, place the dialogue cards when co-constructing narratives and to present back findings from other participants). Participants engaging in an individual capacity indicated that the design engagements can take place in any room in their homes, depending on what other household activities they may be engaging in (e.g. in the kitchen if they were preparing food). Participants engaging in a group said that they meet for coffee every day so the design engagements may be part of that social meeting. Participants also agreed that they would manage rotating where the engagements are physically hosted amongst themselves.

Narrative Building Engagement: In the group engagement, the cards were divided amongst participants and they placed the cards in relation to one another in order to construct individual and collective narratives that reflect their experiences of food insecurity (figure 3). In the individual engagements, all the cards were presented to the participant and Reem would prompt the participant to build narratives of food insecurity around the cards. Throughout the engagements Reem would reflect on their narratives and share how they relate to her experiences.

Figure 3. Dialogue cards used to co-construct narratives

Validation Engagement: As some participants opted for individual engagements Reem conducted a Validation Engagement to collate anonymous quotes reflecting emergent themes, from both the group and individual engagements and presented them back to participants. Participants then critiqued, added and removed data. The engagement also aimed to reflect to participants that their experiences are being accurately heard and understood.

Content-design Engagement: Participants used a white cardboard to prescribe how the data should be divided in to different parts of the artefact. It is important to note that at this point we had reached data saturation in regard to this community's experiences of food insecurity and the focus was to produce a booklet that was of value for them. Three participants volunteered to draw images to be used in the booklet. In a second engagement, the final content for the artefact was validated by participants.

Wrap-up Engagement: During this engagement Reem, instigated evaluation discussions regarding the design process through individual interviews and a focus group. The research is still ongoing and informing future projects.

Methodological Findings

Flexibility in the Design Process
Through being flexible regarding the data collection tools, Reem was able to circumnavigate community tensions as well as provide participants new modalities of engaging in research. When selecting the use of dialogue in the introductory engagements participants highlighted that the method was *"different than the methods other researchers have used with us"* [CS2.13]. Fisher et al [16] and Almohammad et al [3] have indicated that co-design methods tap in to refugee experiences and creativity. In our case presenting participants with alternative methods to traditional qualitative research methods, they have been engaged through before, sparked their interest in the study. Further to that, accounting for participant individual preferences entailed that participants expressed themselves in the way and the space that they felt the most comfortable.

Participants that opted to use the diaries highlighted that it would allow them *"reflect on the things we are discussing"* [CS2.10] as well as express themselves through literature that they felt represents them, *"I can write a poem by a Syrian poet that talks about being a refugee"* [CS2.1]. Previous literature has highlighted the need for methods to account for the different pace in which participants want to engage in the design process (i.e. transitioning from exploring challenges to designing solutions) [8]. We also found that preferred forms of expression should also be accounted for. Additionally, by allowing participants to decide on how they would want to engage in the design process also allowed for us to adapt to existing community tensions. This is particularly true as Reem realized that there have been community disputes that have resulted with some women not socializing with others.

Participant Configuration of Design Space
Reem leaving the setting up of the space in which the research was to be conducted to participants resulted in the space conforming to their customs in that the research was conducted while sitting on the floor. Unbeknown to Reem by abiding to how participants had configured the space she was conforming to their customs that they saw value in. Participants compared that aspect to the research to other researchers they have previously engaged with, *"We offer them [other researchers] chairs to sit on because they are Lebanese... but can you imagine they don't sit with us [on the floor] ...When you first knocked on our door we thought you might be like them and we did not want to let you in but now we know you are different"* [CS2.4]. In some cases, the configuration of the design space by participants entailed them including other daily activities as part of the design engagement. This included food preparation as well as threading of eyebrows. This further opened up a space in which Reem was able to converse with participants regarding the activities and sharing similar experiences.

Sharing Research Identity Through Sharing Experiences
The use of the dialogue cards and engaging in conversations around the activities that the women were engaging in while participating in the design process aided Reem in overcoming the challenges she faced in sharing her identity. During an engagement where one participant was threading another participant's eyebrows, the women discussed how when they first moved to Lebanon they were shocked at the prices for such services. Reem then explained that in the U.K. it is also expensive so she does not go to a professional to shape her eyebrows. One participant responded by saying, *"See you are like us, what happened to you when you moved there is like what happened to us"* [CS2.3]. Previous accounts of designing with rural communities have regarded community activities, separate to the design process, as a means of closing the power gap between researchers and participants [42]. We view that integrating such activities in to the design space allowed for Reem to share her experiences with participants and consequently establish commonalities across their experiences despite the

differences in their financial situations. In another instance while one participant was preparing food for her children she said, *"Reem, I am your age and I have two children, how come you are not married?"* [CS2.11]. Wary of the experience she had in responding to this question in CS1, Reem aligned herself with the new research approach and opted to respond through sharing her experiences. She shared details of her previous failed relationship that conflicted with her career ambitions as well as how her parents had encouraged her to attain higher education. The sharing of this experience instigated participants to discuss how a woman should always do what she is most comfortable doing and the influence parents have on their children's values.

Similar to CS1 the women questioned Reem regarding her religious beliefs. From the name of the bakery from which Reem had brought snacks and her dialect participants discerned the area in Lebanon where Reem is from and asked, *"Are you Druze?"* [CS2.6]. After some hesitance Reem indicated that she is Druze but her parents' dislike toward the religious tensions that arose during the Lebanese civil war has contributed to her belief that religion should not influence her relationships with others. Three participants proceeded to recount how in Syria they were happily living in a community of Muslims and Druze. This triggered Reem to use the dialogue cards to share her experience of fleeing to Syria in the 2006 Israeli-Lebanese war as well as how her mother's family fled to Syria during the Lebanese civil war. In the retelling of both experiences Reem emphasized her appreciation of the hospitality shown to her and her family by the Syrian community through the sharing of food. Through these discussions participants indicated that her and her parents' experiences might be the reason she understands them more than other Lebanese. Reem using the dialogue cards to talk about living abroad and food as well as conversing on household activities taking place during the engagements facilitated in sharing her own experiences. Consequently, Reem established her identity not through simply responding to participant questions, which she had previously found intimidating, but rather through dialogue in which everyone identified similar experiences and developed a shared understanding of each other. Upon further reflection, Reem identified that sharing her experiences contributed to the creation of a safe space for her.

Dialogical Methods towards Meaningful Relationships
The overall feedback of the design process was positive as one participant highlighted that *"It is fun and something we have not done before"* [CS2.1]. The dialogical nature in the engagements fostered through the dialogue cards was indicated to allow participants to fully express the complexity of their experiences of food insecurity as well as reflect to them that they are being heard by the researcher. One participant stated that, *'At least with you we were discussing logical things! In a humane way where there is respect!'* [CS2.8]. Another participant highlighted that the use of the dialogue cards *"was good because we can see what we have discussed and what we missed"* [CS2.4] thus further

enriching their reflection on their experiences as well as ensuring that Reem got a full understanding of their experiences. The dialogical nature of the design process greatly contributed towards the formation of meaningful relationships with participants as they indicated, *"Don't think we let just anyone come sit with us like you do"* [CS2.12], *"you [Reem] have become like one of us"* [CS2.1]. Participants even indicated that engaging in the design process has become part of their daily routine, *"We have gotten used to having you here"* [CS2.3]. Such statements further gave value to the research's approach of long term engagements with the community, which is typical of community-based research [14,18].

Meaningful Beneficence
Negotiating with participants the roles that Reem may take on during the design process provided an added value to the design research as this time addressing their need for an English tutor was within her capacity to provide. Additionally, participant knowledge of the role she had to adopt just to access their community was appreciated, *"We always say no one has visited us who has been as loyal to us and towards working with us like you have"* [CS2.2]. Another form of beneficence expressed by participants was the designing of the artefact throughout the research engagement. They not only saw the booklet as a tool to be used when engaging with NGO representatives about food insecurity but also as a means of sharing their experiences. Participants expressed that they would like a digital form of the booklet to be made so that they can share it online through social media. An online version was made and Reem is communicating it to relevant humanitarian stakeholders. Furthermore, the design process contributed to participants shifting their views on research. When revisiting the settlement for the continuation of the study participants informed Reem that they no longer engage in research projects in which they are to be just interviewed and/or surveyed. They highlighted that after engaging with the design process and co-creating the booklet they now value research in which the researcher aims to fully understand their lives as well as produce meaningful outcomes.

Successful Design Practices
The lessons learnt from CS1 and our experience in CS2 allows us to highlight design practices that we view are essential in the success of CS2.

Creating a Safe Space Through Experience Based Dialogue
The first case study emphasized the need for the design process to create a safe space that also accounted for the researcher's safety and comfort. Our reflections show how this was successfully done through the use of dialogical methods in which Reem shared her experiences, thus avoiding situations in which she felt continuously interrogated. It also allowed for the formation of a shared understanding of her identity and how it relates to her participants. Adopting an Experience Centered Design Approach in which the data collection tools and engagements facilitated dialogue and empathy proved to be successful

when engaging with this refugee community. Indeed, facilitating continuous dialogue about experiences allowed the researcher to understand participants experiences and in turn visibly empathize with them through documenting their experiences in a codesigned booklet that they felt reflected their experiences of food insecurity.

Creating a Safe Space Through Participant Configuration of the Design Space and Process

In the first case study, we found that establishing a safe space where participant always felt comfortable was difficult. Leaving the decision of where the group engagements would take place resulted in participants rotating where the engagement took place depending on their comfort and daily social interactions. Consequently, the design space was not confined to a physical space (i.e. someone's home) but rather the design process became an independent space in itself. Moreover, flexibility of the mode of engagement, individual vs. group, meant that community tensions did not hinder participants from feeling comfortable during the design process. Lastly, having participants configure the space where engagements took place in regard to seating allowed the researcher to naturally conform to participant's customs, which further enhanced participant-researcher relationships. Additionally, participants in group engagements integrated the design process into their social activity of having daily coffee. This further integrated the design process and the researcher into their daily social routines.

Balancing Research and Community Contributions

In refugee contexts it is important that the design process produces meaningful outcomes that are not fully reliant on the successful deployment of a technology. Where being heard has been previously identified as a valuable outcome by refugees engaging in design activities [8], our experience showed that empathetic listening to grievances is not always sufficient and the surfacing of such grievances through the research engagement requires some form of response. However, failing to respond to grievances has proven to negatively affect the participant-researcher relationships and in the context in which we were working with leveraging our social capital to respond to participant needs was more difficult than expected. Consequently, we need to consider that designing technologies may be more of a long-term benefit and therefore design researchers should strive to produce outcomes, such as the booklet, throughout the design process that participants find valuable. In our case, participants found outcomes that document their experiences and can be used to engage with other stakeholders in the humanitarian system to be of value. Additionally, negotiating with participants the different role the researcher may take on, in this case a tutor, to successfully contribute to the community was essential. Lastly, it is important to note that having a dialogical approach contributed to making participants feel heard and consequently shifted their views on how they would prefer to engage in research and their interactions with other researchers. This may be considered as a form of empowering refugees in research through their engagement in design processes [8].

CONCLUSION

We would like to revisit some of the questions we had on conducting design research with refugee communities in settlements. *What are the different roles that design researchers may take on as they conduct the research in a refugee community rather than with a refugee community?* Working in refugee communities' places pressure on design researchers to take on multiple roles. Throughout CS2 we saw Reem flexibly adopt three roles: a public health educator, a tutor and a design researcher. Adopting these roles requires a lot of consideration of what the researchers' qualifications are and what they can feasibly offer refugee communities. Additionally, the roles that they adopt may have to be distinct from the role of a technology designer as he/she would be evaluated on that role based on the success of a technology. This is especially true when technology development is not one of the qualifications of the researcher engaging with community members.

What flexible design practices should the design process adopt as it is taken out of the setup of design workshops? Moving the design process out of design workshops into refugee communities entails flexibility regarding how participants are to engage in the design process as well as in the configuration of the design space. Tailoring the design process to account for participant preferences not only allows for participants to engage in a modality they are comfortable with but also avoids community tensions that may hinder the design process and even marginalize certain community members. This flexibility should also extend to allowing participants to configure their design space as it contributes towards the creation of a safe space.

How does the design process influence researcher participant relationships and vice versa? We found that adopting a dialogical approach throughout our design process brings value to the research and creates the basis for participant-researcher relationships. Furthermore, when participants engage in their day to day activities within the design space it blurs the lines between engaging in design research and engaging in normal every day activities thus integrating the design process and researcher in to daily community interactions. Lastly, there is potential for dialogical design research to even change participants' views and relationships with research as a whole.

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