Refugee Entrepreneurial Trajectories

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[1]The global population of refugees as recorded by UNHCR is at an all-time high of over 90 million people forced to find new homes in a foreign land. Starting a new life can be unsettling for refugees and asylum seekers during the resettling process in their host countries, particularly when it comes to gaining financial independence. This paper used an interview-based study to engage with fifteen refugees and asylum seekers to learn how they achieve entrepreneurial success as they navigate refugee specific barriers in a new economy. The insights showed refugee entrepreneur specific barriers that align with resettlement challenges and the technical and social resourcefulness of this under-resourced community. Our contributions to the CSCW research community are an understanding of how low-socioeconomic entrepreneurs such as refugees, function in their ecosystem and design implications for developing technology to further the efforts of refugee entrepreneurs.

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1 INTRODUCTION

The consequences of political tension and conflicts are evidenced in the number of people forcibly displaced from their homes, a population of over 90 million refugees and asylum seekers (RAS) as recorded by UNHCR [64]. As a result, host countries are also seeing an increase in forced migrants seeking safety. Australia has hosted nearly 1 million refugees since World War II and has formed a systematic approach in their program for receiving forced migrants. This program has nomenclatures ranging from "people offshore, people seeking asylum, people in detention, boat arrivals, boat turnbacks, and refugees" according to the Refugee Council of Australia [61]. After the trauma of involuntary migration, this population is now faced with challenges in resettling [15,19] making a new home in a new country and navigating a new economy. Some of the challenges including loss of social capital [6], mutual distrust between refugees and locals [40,59], isolation [12], labourious employment as well as unemployment [40], language, and cultural barriers [3,5]

are well documented the in CSCW literature. The psychological distress experienced by refugees and asylum seekers can sometimes be compounded by difficulties faced post migration. Considering this drastic circumstance, some refugees and asylum seekers have been able to overcome economic hardship and achieve financial independence in their new ecosystem.

The discourse on refugees is an axiomatic declaration of resettlement challenges [3]. This existing narrative conceptualizes people involuntarily displaced and the challenges they face from a sort of aggregated perspective. We intend to add to this domain by looking at refugees at a deeper level and in multiple dimensions such as refugees arriving as adults, refugees arriving as children, refugees who first arrived as asylum seekers, and people who've arrived by boat (or without any documentation). We contribute asymmetries to the challenges they face from this multidimensional outlook within an exploration of refugee entrepreneurial trajectories.

Several refugee-centric studies [1,16,36,50,51,60] have been helpful to understand the journeys of refugees and their plight in refugee camps [2,53] or during resettlement [39]. With their lack of local education and language barriers, getting an employment in mainstream industries becomes a challenge for the RAS community. Often, starting their businesses and income generating opportunities are the only available ways. There isn't sufficient research done in the CSCW field around refugee entrepreneurship, their ecosystem, and the roles and interaction with technology towards starting refugee specific businesses. This study aims to address this research gap by helping to understand the trajectories of starting RAS businesses, identifying refugee-specific barriers to entry and how technology could be leveraged to further their endeavours.

The entrepreneurship domain, particularly with respect to members of disadvantaged communties, highlights the challenges of venture labour, lack of opportunities for upward mobility, and the lack of formation of economically beneficial social relationships [13]. This speaks to social capital—or the lack thereof—that is present in the ecosystem of low socioeconomic groups as well as the use of technologies to overcome some of these challenges. Furthermore, entrepreneurship studies [22,47] discuss the effort of entrepreneurs from vulnerable communities in that there is a continuous investment to improve oneself through self-directed learning and skill development to meet the ever-changing economic demands of the societies in which they function. In addition, observing refugee-specific barriers to entrepreneurship and uncovering the important details to arise from these subgroups (that is refugees arriving as adults, refugees arriving as children, asylum seeker arriving by boat) will provide helpful insights for future research and design with RAS. We also aim to contribute to the CSCW discourse around designing for refugees and thus furthering technology design solutions to meet the challenges refugees face during their entrepreneurial journeys.

We used a qualitative research approach to best understand our participants. Through guided interviews, we were able to reach 15 refugee entrepreneur participants (refugee status was appointed at different periods after arriving in the host country and thus we were able to capture the journeys of all subgroups previously mentioned) to share their journeys from arrival to entrepreneurship. We were able to get mapping-description of a sort of non-linear trajectory to their success. The contributions to CSCW includes 1) the motivation to start a business in response to economic restrictions specific to the RAS demographic, RAS- specific barriers, 3) strategies related support network, self-efficacy, and the growth mindset, 4) evidence of cultural synergy from RAS businesses and 4) the role of technology We will describe these nuances in more details in the Findings section followed by a discussion and design implications for future work in CSCW that will focus on this domain.

2   RELATED WORK

For background context, we framed the need to investigate refugee and asylum seeker entrepreneurship and ways to support this pathway by referring to previous work on refugees' challenges in resettlement discourse; entrepreneurship to emerge from disadvantaged communities; and the technologies among other resources that further entrepreneurship. Firstly, we will look at previous studies that identify the challenges faced by refugees and asylum seekers in the resettlement process. Secondly, we explore existing work on entrepreneurship activities to emerge from disadvantaged and vulnerable communities supported by self-reliance and self-improvement. This includes the literature in CSCW around use of technology that enables entrepreneurship related activities, particularly for the under resourced, marginalized, and vulnerable communities. Thirdly, we discuss the related work of designing digital tools that advances entrepreneurship and technological steps towards improving refugee experiences during resettlement in the host country.

2.1 An Unsettling Resettlement for Refugees and Asylum Seekers

The refugee resettlement discourse in CSCW and other research communities commendably identifies hardships faced by refugees as they try to integrate into a new society, including a loss of dignity [54]. For example, Ignacio et al discuss how practical, social, and emotional isolation negatively impacts refugees' access to health care [12]. Similar refugee-centric studies have also identified isolation tendencies of this population from the local/native people of the host country, attributing this behavioural response to differences in language and culture, as well as having a lack of trust and mutual distrust in an unfamiliar socio-ecological system [12,40,63]. Taking into consideration the vulnerabilities, issues of trust and mistrust, and triggering atrocities attached to war and persecution, there is a more tailored approach that maximizes the sensitivity and care to be considered when engaging refugees in fieldwork. This approach is coined by Fisher's "People First, Data Second" framework [30].

Other studies in CSCW found language is notably a significant impediment to a smooth reassimilation [58]. There have been instances in research where it has been beneficial to participants and the study being conducted where members of the research team and participants speak the same language [3,6]. The nature of fleeing home doesn't give refugees and asylum seekers the opportunity to be as selective as other immigrants, but instead surviving transitional refugee camps, struggling with asylum seeking processes, not being able to communicate because of not speaking the languages of countries through which they transit and finally capitalizes on the first country willing to receive them. As a result, considerations such as native language of potential new home country is not a priority over one's immediate need for safety, shelter, and food. Although that can be seen as a justified priority, this however leads to language barriers during the resettlement process and makes it difficult for refugees to interact in the local society [52]. Previous work in CSCW has identified that language barriers negatively impact refugees' ability to enter the local job market [40].

Existing work has identified the limitations of a refugee's background when it comes to finding a job in their host country [40]. Previously acquired degrees, certifications, or proof of level of education is often not available given the involuntary circumstances around the departure from their home country. In cases where these documents are available, they are frequently not recognized or valid for use in the host country. This limits the jobs available to this population usually to earning a low income and participating in labourer roles. Both the income level and job positions available to members of this community contributes negatively to their goal of seeking a better life for themselves and their families, especially after escaping traumatic experiences that led to their displacement. This has led to the need to understand the motivation(s) behind RAS entrepreneurship: Is the participation in venture labour as open and voluntary for refugees, often

holding a low socio-economic standing? We used this as one of the guiding research questions in uncovering knowledge about RAS entrepreneurial trajectories.

Trust is a big factor in how well refugees assimilate into a new culture, given that betrayal plays a big role in their involuntary migration. Evidence of past betrayal continues to impact social integration in a new country says North Korean defector "...can't tell friends from enemies" [63]. Some previous work has identified that it is not just a lack of social capital but also an unwillingness to rebuild this resource due to the severity of past betrayal [6] and current mutual distrust [8,40,63]. Living in a new country and not speaking the local language, some refugees are provided with translator services to assist with healthcare. Some refugees were able to migrate with family members and usually members of the older generation can rely on a child or grandchild to help with translation services [12]. Others suffer severely, however, from family fragmentation [6] due to the significant and often extremely violent conditions in which they fled their home countries. As a result, when sharing personal information about their lives and family history, refugees experience serious distrust with a translator (human) in the room who is actively listening on their consultation. Instead, this study shows the trust is greater in technology than people in this context when participants preferred a robot translator present not a person. [8].

With such great levels of distrust, there is a clear challenge to acquiring and further building a necessary resource in the entrepreneurial ecosystem, namely, social capital [7,24,48]. Our research sought to understand *what are some of the refugee entrepreneur's experiences with the local community and how did they prioritize trust when it comes to starting a business?* We will learn more about this in the findings section on strategies of RAS entrepreneurship.

While previous work has covered some of these challenges around the resettlement process [3,6,56,58], communication can be seen as one of the overarching themes that functions as a separating factor between the RAS community and the local community. Communication barriers, sometimes classified as a lack of language [12], or language barrier [40] is one of the variables that has led to social and emotional isolation of refugees from members of the host country. For example, Atwel et al. show how older refugees recently arriving in Australia are facing health and well-being risks. Furthermore, not only did they experience much difficulty in accessing aged care support, but it was also challenging to access information that would lead to receiving said support [12]. In addition to other challenges to be disclosed in the following section, communication barriers have also negatively impacted refugees' opportunites, economic position, and access to information on the local job market. Local government websites provide details on opportunities and organizations lending support to this vulnerable population. However, this sometimes does not amount to getting a feeling of home, belonging, or actively contributing to the local society economically. As a result, communication barrier is a compounding element of an already tough situation. Subsequently, some are determined to to be successful entrepreneurs and to some extent have already achieved this goal. Our study then seeks to understand how some members of the RAS community have pushed through the communication barriers to start and run a successful business in Australia.

2.2 Entrepreneurship from disadvantaged communities

Self entrepreneurialization has become a normalized way of adjusting to new economic demands [13]. The focus of some previous studies captures the autonomy and creativity factors that influence members of the workforce towards venture labour while entrepreneurial ventures were deemed a necessity for under resourced/ disadvantaged communities [13,37,65]. In a study of entrepreneurs in the Global South (USA) [38], the authors found that immigrants are more likely to be entrepreneurs than natives. To complement this finding, The Refugee Council of Australia have

further found that refugees are two times more likely to become entrepreneurs out of all immigrants in the country [62]. Given the challenges of finding a suitable job (that is employment fitting for their level of academic achievements) immigrants lean more towards venture labour and entrepreneurship to attain financial stability to provide for themselves and their families. This is quite similar with other under resourced groups situations as Vyas et. al found with the daily economic decisions such as thrifting furniture, freezing leftovers, and using discount coupons contribute to the survival of low SES members who attend a community care centre for support [57]. Furthermore, refugees in the involuntary flight from their countries are not afforded the luxury of having documentation of educational background, or even in instances of having this documentation they are deemed to be invalid in the host country. Refugees then resort to labour intensive jobs for which they are overqualified [40]. Out of this need to provide, there is an opportunity to look at technologies to support RAS entrepreneurship pathways. Policy makers and researchers have identified a niche for migrant businesses as they add to the cultural vibrancy and as well as finances of the local economy.

Previous work has shown that immigrants are more likely to become entrepreneurs than natives [38], and further work by policy makers in Australia has identified that refugees are twice as likely to become entrepreneurs [62]. This could be tied to the difficulties and stereotypical perspectives leading to refugees of professional background such as doctors and lawyers to take labour intensive jobs in the host country [41,42]. As a result, necessity-based entrepreneurship [37] seems to be the basis of motivation for most refugees. However, there is not sufficient information surrounding refugee entrepreneurship as existing work has focused on the broad group of refugees rather than how the motivation towards entrepreneurship varies and that there are dependent desirable alternatives available to the entrepreneur. Within the subgroups of refugees there are different opportunities and risks that are founded on the person's status upon arrival in the host country and as a result they have an impact on their motivation towards entrepreneurship. Our work aims to uncover these nuances and inform the research community on considerations to be given to this vulnerable group, including those having the most limited opportunities.

2.3 Digital Technologies, Refugees, and Entrepreneurship

Self-improvement is a continuous effort for the entrepreneur as a strategy to stay relevant and innovative to meet economic demands. One such existing support for business-centric skill development is SPARK at Google that promises "customer relationship building, problem-solving, growth marketing, and digital transformation." [66]. As the entrepreneurs develop professional among other skillsets necessary to sustain their businesses notwithstanding the level of technical competency required to effectively engage with such tools. For some marginalized entrepreneurs Arvila et al. observed a lack of understanding of the crowdfunding paradigm where they first required an introduction or enlightenment before developing the skills to properly leverage this resource [10]. It is not uncommon for entrepreneurs from low socioeconomic groups to have side businesses that are laborious to meet the financial demands of their households [13]. Similarly, is the use of technology as a tool for members of distressed communities to achieve some form of economic mobility [26]. Previous work in CSCW discusses entrepreneurs' use of social networking sites to seek the opportunity to cultivate and sustain business relationships for themselves [29]. It is impressive, however, that workers participating in venture labour take on additional roles for their side businesses and therefore having to learn and develop new skills to meet those demands.

In a refugee-cantered context, mobile phones and computers are proven to be just as handy as seen in Aal et al.'s Come_In@Palestine Scratch project, which used technology to express the feelings

and emotions of children towards violent incidents in and around the refugee camp in which they live [2]. Combining 3D-Printing with this vulnerable group [49] can be seen as empowering to engage in this kind of interaction at an early age as well as a "capacity building" exercise as Fisher et al. describes [32] in the promotion of self-reliance attained through studies of a Syrian Refugee Camp. Other studies [53] show some limitations with the use of technology such as using a mobile phone to call and inquire about healthcare and communicate with family. Initially this seems a widespread and appropriate use of the technology, except studies have shown pregnant women in a Syrian Refugee Camp primarily use WhatsApp to stay in touch with other female members of the refugee camp as well as use the mobile phone to call the closest healthcare facility to inquire about antenatal care [53]. A part of this limitation is due to the internet service provider plan/ agreement the women signed up for. This is also, however, a device that provides access to the internet at their fingertips. This study shows that with cultural and other factors, the women mainly relied on each other about reviews and feedback about care as well as to call the doctors to inquire about care, in contrast to similar studies with Syrian refugees and building a trustful relationship with health care provided through IVR Radio [50]. Anderson et. al. also explored how refugees used social media and online forums during their integration process [9]. Not only in modern society but in refugee communities [23], and refugee camps such as the one explored by Karen et. al [31], a mobile phone with internet capabilities can lend seemingly infinite access to information at your fingertips on all things including antenatal care, facilities, online reviews, guidelines, etc. Furthermore, this study also demonstrated that women mainly used the voice note feature to communicate since typing navigation can present a cognitive overload on them due to language and technical literacy barriers. This strongly coincides with the work of Almohammed et al. [8] where refugees designed a supportive technology to help them communicate effectively, citing the voice command feature in their native language would be useful to help them in communicating.

Language presents such a significant barrier to the resettlement process that any refugee assimilation pathway being supported by technology should consider and account for this constraint. For refugees to whom this support is applicable, local government provides access to learning basic English Skills to help with integrating into society. However, in addition to learning the language, further considerations have indicated a strong need to integrate with the local community to learn the language instead of the current practice, learning the language to communicate with the community [8,58]. In our study we will see which of these practices were actually applied on the RAS entrepreneurial journey and the tools and strategies used to navigate restrictions in search of venture opportunities.

Entrepreneurship studies have shown the use of technology to support self- learning, self-marketing to meet the demands of the economy [35]. Continuous development and learning innovative strategies are well explored in entrepreneurship as well as with entrepreneurs from low socioeconomic groups [13]. This however is not yet sufficiently explored in the context of refugee research. We hope to use our work to contribute insights into how refugees and asylum seekers navigate the self-learning approach to entrepreneurship in a new home, new country, and new culture.

3 METHOD

The researchers conducted an interview-based study by recruiting entrepreneurs from the refugee and asylum seeker community in Australia. The researchers reached out to organizations that support refugees (among other immigrants) such as Catalysr and Thrive to find out the kind of support they provide as well as to recruit members through their organization. The researchers used

interviews to capture data for this study. Interviews were guided by open ended questions that allowed the participants to share as much as they want about their journeys to entrepreneurship. Interviews were initially conducted face-to-face however, in light of imposed COVID-19 restrictions, interviews were also conducted online as to include some participant operating businesses in multiple states across Australia.

Although we focused on the journey to entrepreneurship in an Australian context, participants did share having prior experience of growing up helping in family businesses in their home country. Some expressed the relaxed regulations such as selling goods at their local market (in country of origin, Iran) without the need to register a business or gaining a license to sell. For more formal businesses, there was a close-knit relationship with suppliers and lending agencies and an experience of mutual support between the business and the community. Family members each had a role in the business, primarily participating in the making or selling of goods. From a culture where business is a family affair to a new country without family (for some participants), demonstrated entrepreneurial resilience even more. We will explore the impacts of lack of social capital and the motivations for entrepreneurship more in the findings section.

3.1 Participants

This study recruited participants 18 years old and over, from a refugee or asylum seeker background, who currently own and operate a business in Australia. It includes a diverse group of participants, that is both male (n=10) and female (n=5) and age ranges from 24 to 50 years old. The table below captures a more detailed overview of participants of this study.

The participants of this study are highly motivated to learn and speak English as this furthers their entrepreneurial endeavours. While their English was not at a mastery level, it is proven sufficient for successfully running a business in Australia. Furthermore, recruitment was aided by third party organizations such as Catalysr, Welcome Merchant, and Thrive, as they provide entrepreneurial support to these businesses. As language barrier is a known problem within this marginalized community, we further narrowed down a group of 65 entrepreneurs to 15 based on entrepreneurs expressing: 1) they can communicate in English; and 2), they are able to use a computer or mobile phone to connect with the research team over ZOOM. The latter recruitment criteria were in response to a state-wide lockdown to manage a COVID-19 outbreak at the time interviews were being conducted. Since this study was conducted with COVID-19 restrictions, some interviews were face-to-face while others were conducted using ZOOM. This presented the unforeseen opportunity for the primary researcher to observe technological literacy with the use of web based conferencing for interviews.

Table 1. Refugee entrepreneurs who participated in this study

Partici pant	Age & Gender (M/F)	Arrival Status	Country of Origin	Educational background
P1	35 M	Arrived by boat	Iran	University
P2	38 M	Refugee	The Democratic Republic of Congo	University
P3	37 M	Arrived by boat	Iraq	University
P4	35 M	Arrived by boat	Iran	University
P5	37 M	Arrived by boat	Sri Lanka	University
P6	35 M	Arrived by boat	Iran	Diploma
P7	42 M	Refugee	Iraq	Diploma

P8	26 F	Refugee	South Sudan	University
P9	34 M	Refugee	Iran	University
P10	24 F	Refugee	The Democratic Republic of Congo	University
P11	28 F	Refugee	The Democratic Republic of Congo	University
P12	50 M	Refugee	Iraq	University
P13	46 M	Refugee	Syria	University
P14	37 F	Refugee	North Sudan	Diploma
P15	50 F	Refugee	The Democratic Republic of Congo	Diploma

3.2 Data Collection

The primary researcher contacted organizations offering support to refugee businesses. Some of these organizations provided business mentorship, financial aid, marketing, and access to an entrepreneur network. We reached out to entrepreneurs who are listed on these organizations' websites as owning and operating a business from a refugee background. We used interviews as a primary way of gaining insights about the journeys of these entrepreneurs. This was deemed the most appropriate qualitative method by the research team as an introduction to understanding this domain including the strategies and challenges of RAS entrepreneurs and the role of technology in advancing their ventures.

Interviews were initially conducted face-to-face. Participants gave their consent to being recorded and for pictures of their products to be captured. However, during this process, the project was impacted by COVID-19 restrictions. The research team then required participant's engagement over ZOOM. This presented a list of challenges of its own and demonstrated participants overcoming computer literacy challenges compounded by language barriers. As a result, we were only able to engage with participants who were comfortable to communicate effectively in English. This communication allowed the research team to guide the participant by instructing them on the installation and use of the ZOOM application. This task varied depending on the people support and technology resources available to the entrepreneur to facilitate their participation in this study.

The online mode of interviews also required a digital signature/ consent from participants, and this was aided by the researchers' instructions as well as people support—usually the friends and family members of the entrepreneur.

Throughout interviews, it is important to note that initially, participants weren't explicitly asked about digital tools that aided their endeavour. The main focus was to understand the resources of their ecosystem and to be guided on their entrepreneurial journey from arrival in Australia. The researchers were informed through this journey of the different stages at which technology was introduced, and how it was utilized. We did not assume the levels of digital literacy and technological input on their businesses.

3.3 The Analysis

The data was analysed using thematic coding [55]. The coding was systematically done in three rounds like the works of Hui et al. [37] however, our analysis aimed at identifying themes around the challenges faced by refugee and asylum seeker entrepreneurs in Australia and strategies they've devised (be it informed by culture or childhood experiences) to arrive at entrepreneurial success.

The first round of thematic coding outlined a clear difference in the pathway to entrepreneurship, a correlation between status in Australia and the organizational support to aid entrepreneurial endeavours, and entrepreneurship being a choice vs. necessity. The second round of coding more directly informed our research question *What are some strategies for entrepreneurial success for*

refugees and asylum seekers? This round had two umbrellas: 1) Refugee Specific Challenges in relation to their arrival status and 2) Building a Business Support Network. Sub-themes within these two main points were overall challenges faced such as not being permitted to work and study in the new environment, no sense of home or belonging, and not having organizational support. The Positive Points sub-themes shows the contributions of refugee businesses to their communities, the welcoming culture of the local people.

The third round went more in-depth to uncover What are some challenges unique to refugee and asylum seeker entrepreneurs and what role does technology play in their endeavours? We were able to identify themes around navigating emotional stress and trauma, language barriers, the challenges of new culture and "foreign" technologies (e.g., not knowing how to use bus system or operate a crosswalk) to leveraging organizational, familial, and communal support for business, and employing social media strategies that demonstrated an unmitigated determination to achieve entrepreneurial success.

4 FINDINGS

This research was conducted to gather insights about refugee entrepreneurs and their strategies to successfully start and operate business in a new country, along with the experiences they have had on this journey to success. In our findings we get to see that some refugees and asylum seekers fled persecution, experienced emotional stress, and trauma, and navigated the troubles of a new environment and culture to achieve entrepreneurial success. In their navigation we see a necessity for entrepreneurship in response to the demands of their self-reliance. To aid their self-reliance our findings show support actors in the make-up of their entrepreneurial ecosystem. Further to the challenges faced on this journey— regardless of language and cultural barriers—we also get to see the use of technology to aid in business and skills development as well as bridge gaps of loneliness for people whose environment, community, culture, family, and life as they knew it was displaced.

4.1 Motivation to start a Business

The motivation to embark on entrepreneurship for participants of this study can be grouped into main categories, necessity vs. opportunity based. As the name suggests necessity-based motivation is seen among participants a lack of working rights as well as for those granted work rights having experienced stressful working conditions due to their backgrounds. Participants motivated by a necessity to start a business fall within the asylum seeker and refugee arriving as adult groups. Opportunity-based motivation is evidenced where the entrepreneur has other stable income and working conditions and voluntarily participates in entrepreneurship as an additional activity. Mostly refugees who arrived as children fall within this group except for two refugees arriving as adults.

4.1.1 Necessity-based Entrepreneurship. Our study has found diverging motivations that drive the start-up of refugee and asylum seeker businesses however they can be broadly categorized into necessity based or opportunity driven. Like the findings of Hui et al in their study of low socioeconomic groups and their challenges with the job market, entrepreneurship was a necessity to provide an income to support their families. In our work we've identified that entrepreneurship is also a necessity for some people whose arrival status was "Arrival by Boat" further evolving into an Asylum Seeker. People with this status experience the most restrictions where they are not permitted to study or take classes, geographically confined to a government assigned community (referred to only as Community throughout interviews), as well as previous academic achievements

from their home country are not recognized as accredited in Australia. For example, P4 explains this well in his interview excerpt below.

P4 " I'm trying to work hard to stand on my own two feet. That's my target...I couldn't work...use my skill. [I couldn't use]. My work as a pathologist, as a microbiologist and I don't like [to] get money from CentreLink...I have 16 years [of] experience and I find myself, I'm very useless…"

For people who arrived with Refugee status, they received organizational support with resettling including social events, training, or some form of education, as well as job search assistance. P15 arrived as an adult and was able to find jobs through organizational support. She currently owns and operates a grocery shop selling imported goods. In the interviews, for example P15 explained that English is her second language, and it was difficult for her when she worked as a receptionist at a factory. The language barrier presented challenges that resulted in an unbearable working condition. This motivated her to start a business. In her interview excerpt below she explains.

P15 "I used to work from one of the company and was not treated good because of my skin colour and my accent. And I have to resign. Yeah. I Start my own business… Um, as I said, I never wished to start my own business, but the way I was pushed out with all the stress, and I didn't want my life to continue in the stress. It's why I started my own business. I just decided one day I resigned from the receptionist job, and I spoke to my husband and decided to start and to open an African shop because there were no African shops. everybody was looking for African food."

Furthermore, there were other factors of discrimination in the workforce that has resulted in entrepreneurship as the last resort as is the lived experience of P3. P3 arrived by boat and was an asylum seeker for years before being granted refugee status. His business involves buying, refurbishing, and delivering furniture; a one-man business as he calls it.

P3 "Try to find a job as a. accountant. I had some successes [referring to his academic achievements]. I couldn't go there. And I had many applications being refused based of my religion beliefs and based on my ethnicity and non-Kurdish background"

For several reasons including, unfair treatment in the workplace, P15, discrimination in employment due to religious background, P3, or simply being unemployable in the field of training due to lack or paperwork, P4, refugees sought entrepreneurship as a necessary activity to earn an income. Entrepreneurship in these instances is deemed a necessity for members of this population to provide for themselves and their families. The nature of this motivation is contrasting to opportunity-driven entrepreneurship as well will see in the next section.

4.1.2 Opportunity-based Entrepreneurship. Refugees arriving as children however also received organizational support that helped with the resettlement process. Without disregarding the traumatic events that led to being forcibly displaced from one's home country, refugees arriving as children benefit from an early assimilation process. This includes going to school in Australia, forming friendships with schoolmates, learning the culture, including the business culture during High School as a part of education. Our research identifies that there are opportunities available to this group that simply can't be available to those arriving as adults even more so those arriving by boat

P10 is a recent university graduate and has been in full time employment for two years. However, the circumstances around her upbringing are strongly impacted by the trauma of living in refugee camps, separation from family and lack of financial support among other resources. She started her cake baking business while working full-time and was motivated by challenges she faced growing up. Her interview excerpt is below:

P10 ". I grew up in such a big family. There was no such thing as birthday cakes or, you know, you know, it's your birthday. You did like maybe, you know, get a special meal. And you know what? Not but growing up, I actually can't remember if I'm getting a cake for my birthday. So, seeing that, I mean, during that time, I really never saw it as like a something that actually be sad about. But now that I think about it, I see like other kids or other people going through the same thing that I went through. I just feel like it. And like, if maybe if I start baking and if I see someone you know, if I come across someone who's birthday, like, who has a birthday, I can be able to provide that for them."

Here we see contrasting motivations to be an entrepreneur though participants are members of the vulnerable group. Participants arriving as adults (including refugees, and asylum seekers) are unfamiliar with the local culture and job market. Furthermore, they sometimes lack the required documentation or face discrimination that hinders their employability. Therefore, entrepreneurship is a necessity for their financial self-sufficiency. This is much different in refugees who arrive as a child and have acclimatized to the culture and local job market. They had the opportunity to be educated locally and thus certifications, educational background, etc. are easily accepted. Entrepreneurship is then opportunity-based as they tend to have desirable alternative ways of earning an income.

4.2 Refugee Specific Barriers

After refugees have decided to embark on business as a means, but not the only one, to financially provide for oneself, they are met with several challenges. Embarking on entrepreneurial journeys comes with many barriers but this section focuses on those that are specific to starting a business on the periphery of being forcibly displaced from one's home country and resettling in a new one. The barriers presented in this study are a lack of language and skill sets (for example technical/ basic digital navigation), a loss of social capital, work/ operational restrictions, and cultural differences in conducting business.

4.2.1 Language and Skills. This study was conducted in Australia, an English-speaking country. However, English is not the first language for participants of this study and thus presented several challenges when it came to conducting a business. The businesses and their entrepreneurs at the time of this study were doing well financially, growing in clientele, receiving positive online ratings and were successful by the entrepreneur's standards. They therefore have ways of navigating this hardship. In the case of P13, he and his family fled Syria almost a decade earlier and have since started a health business in their new home. His children, particularly his older son, was able to attend study in Australia and became fully integrated with the use and understanding of the language. P13 also studied English as a part of the resettlement process through programs available to refugees, however this was not sufficient to communicate in detail with clients. As a result, his family plays a big role in communication for the business. Although P13 is the entrepreneur of the business his son sat in and aided the interview with his permission:

P13: "Of course, let's say, if a client comes in, and he struggles to speak, he tries to translate some time. You know what I mean? And if sometimes I'm with him. I, of course, sit down and they explained it to me, and I translated it to my dad and so on."

Acquiring the language as well as other skills needed to sustain the business is done while actively managing the business. We see this with P13 and other entrepreneurs of this study who expressed they cultivated business friendships through English language learning classes.

4.2.2   Lack of Social Capital. Social capital is beneficial to entrepreneurship for building a network of business associates as well as growing clientele. When refugees and asylum seekers are forced to uproot their lives, they leave behind communities, friends, and family. Relearning societal rules and pathways to belonging are setbacks the entrepreneur faces on the way to financial self-sufficiency. Not having a supportive *business network* from one's community, friend, or family which they trust poses a challenge. P2 arrived as an adult refugee but his family was forcibly displaced when he was a teenager. Growing up, restricted to refugee camps, he was still able to build and be a part of a community. However, most of his family members were accepted to The United States leaving himself and his brother who was later accepted to Australia. When asked about how this affected him starting his business his response can be seen below:

P2 "..." I'm here by myself, and I would, I had to build everything from zero. So, trying to find in my ways and trying to my old friends trying to find, you know, transport and jobs. And it was quite a lot, quite a lot."

Attracting new clients to a new business in a new culture requires skilful navigation of a new culture, trust in one's ability, and patience. In the case of P13 who had his immediate family members (wife and children) with him in Australia, a lack of social capital did affect the business at start-up in terms of a\\\\\\\ttracting clients to their healing practice. In addition to having family members, they were also able to identify a community with which they identify through language and shared culture. However, their ways to healing can be seen as uncommon and unfamiliar to the majority when their business started years ago. Due to this unfamiliarity, there was a negative public and community perception at the outset.

P13 "Since you come here to Australia, it's not easy to establish a business. And neither is easy to get that client...I'm gonna be straightforward with you. Like as we're like, you know, Syrian, perhaps. Let's say or Arab. Um, so at the first beginning, when we came to Australia, they thought of not the friends, the community, the Arabic community. Perhaps or the doctors et cetera. Uh, they thought that my dad's work is not within the religious, uh, stuff to do. Um, but that's why they started to not support him from the beginning."

4.2.3   Business Culture Differences. The practices and norms of conducting business in one country doesn't necessarily translate to the same practices in another. For example, P3 and P15 didn't understand or know without the assistance of a friend about "the paperwork" as they call it. This presented a smaller and guided way to setting up a business. However, there are some unacceptable behaviours in business, even for small businesses, that may be met with negative consequences for entrepreneurs if they don't know and apply this understanding. For example, artisans and other sellers at a market require a permit approved by the city council to sell. This

might be a new protocol in comparison to the culture in which the RAS member. P4 arrived by boat to Australia and in response to the no study and no work rights as an asylum seeker imposed on his arrival status, he did not learn about the requirements for starting a business. After 11 years he was granted refugee status. He struggled to gain any employment and was motivated to establish a business. His local friends encouraged him to package and sell the pastry treats he would make for them at the weekend markets. During his first attempt at selling at the market was almost fined for not having a permit however, he was advised and let off with a warning from the city council.

P4 "I didn't have any idea about market. I want I want to tell you something. It's so funny. When I started, I went to market, no registration, no insurance. Just I called the market "Hey, I make this stuff, this stuff, this stuff can I come to market? And they said, "Oh, come" I went to market last week. I have a very good day and next day again next week again. They came and said "Hello". I couldn't speak very perfect English. . I didn't have any idea how I make business. I thought it's like my country, take yourself go to market and sell. And when they ask, "Can you show me your registration?" [P4 said,] "Show what?" Then what's your business name or so... No, I'm just I'm making them [referring to his products] (at) home. [He called his friend] can you come help this big happen here and she teach with me how you have to register your business. You have to have insurance."

4.3 Support, Self-Efficacy, and the Growth Mindset

Refugee businesses have managed to thrive with the help of a support network, proven self-efficacy, and the cultivation of a growth mindset. We will look at how entrepreneurs in their resettlement have formed friendships, joined communities and form bonds that are beneficial to starting and sustaining a business. There are also organizations who focus on nurturing refugee businesses through financial support, business resources, and mentorship. In addition to receiving assistance from friends, family, communities and organizations, RAS entrepreneurs over time demonstrate considerable self-efficacy in their efforts towards achieving their goals and thus cultivating for themselves a growth mindset.

4.3.1 Family Friends and Community. As mentioned previously, there is a loss of social capital when refugees and asylum seekers arrive and resettle in a new country. After arriving in Australia, P5 met and married his now wife and they have two children. He studied and practiced in the country for three years before he was able to successfully secure a painting license to operate his business. Initially he was the main person painting in his business but when his business began to grow, and the painting jobs increased it was difficult to find and employ other painters. As a result, he taught his wife the techniques and this is currently one way of sustaining the growth as they complete painting jobs together.

P5 "I'm married one year with my wife, and I'm everything teach my wife and how to do the paint and how to prepare is in the house and everything. My wife with me, I my wife, come with me and we do together.

The family, friends and community contributions towards RAS businesses occupy multiple roles such as providing encouragement and advice as in the case of P4 but also as validation as explained by P10. P10 is a recent university graduate who works for the government. She runs a catering business and was gifted equipment from family and friends. This type of support is vital for business

owners and is evidence of belief in the entrepreneur's abilities and motivated even more business activities.

P10:"It just started off as a hobby... then that encouragement from my sisters from people in the community, I started taking photos, and I'll post them and get really good feedback. And that just, like, boosted my self-esteem, I guess, and made me realize, like, you know, I could do this, and I can turn it into something into a business."

   4.3.2   Organizational Support (Refugees).   There are dedicated organizations in Australia such as Thrive, SSI, DR. Refugee Enterprise, Welcome Merchant, and Catalysr just to name a few that understand the difficulties of starting a business as a refugee and foster growth and development for those already owning and operating a business. SSI, for example, sets up regular meetings with their members scheduled every 4-5 months to provide help with business, business cards, pictures, etc. and P6 has benefitted from this program.
Some of these organizations cater to specific needs such as providing loans for these businesses. Lending organizations available to the public, assess information such as credit score, borrowing history, and a salary. Upon fleeing their countries not only is this information not available but also the career and academic history of adult-arriving refugees as well. Therefore, the required documentation to consider these entrepreneurs eligible for business loans are unavailable and would require new metrics for the loan eligibility.
Organizations such as Dr. Refugee Enterprise goes a step further and assesses the RAS entrepreneur's business and in the case of P3 provided a financial loan.

P3 "They send these emails, say a few interesting likes, let's say we have tax workshop. We have Social Media Workshop and I attend. I attend many of them." " I got loan from organization as well was the name is Dr Refugee Enterprise. They gave me a loan to start like was $10,000...they gave me even my mentor, lovely lady...She helped me a lot. Like, based on monthly meeting and even fortnightly meeting, she told me what to do, what not to do, how to advertise."

4.3.3   Self-Efficacy In entrepreneurship self-efficacy is the belief in one's ability/ capacity to do or achieve something. The risk of failure in entrepreneurship is almost guaranteed and therefore a progressive encouragement in the field is to "fail hard and fail fast". However, the RAS population has, at least one time, lost everything including home, land, money, family, friends, positions, status, etc. To have resettled in a new country and regained some of what was lost, participants of this study are actively participating in entrepreneurship despite the discouraging barriers to entry. Some entrepreneurs whilst in a secure full-time role, stable income, and opportunity for upward mobility veered into entrepreneurship as a matter of autonomy optimization. In the case of P9, he joined a landscaping franchise and now owns and operates a lawn mowing business. He chose to believe in his abilities to succeed and resigned from a stable income.

P9 "I stopped my job. I have the permanent job. I surrendered and come into own business. It's very hard. Then my manager told me You are crazy. Don't do like that. You have a permanent job. I say no, I'm going to better job."

4.4   Training and the Role of Technology

Each participant in our study expressed there was a need for skill development at the initial stages of their business. In addition to learning English, participants needed to develop skills specific to the

products and services they offer as well as learn to use the technological tools that will help their business to grow. In this section we will look at how RAS entrepreneurs use available technological resources to learn a new skill, market their business, and build a social network that benefitted their business.

4.4.1   Intentional Self-directed learning. Learning English, finding jobs etc. are a part of the resettling process in Australia. When starting a business 13 of the15 participants were using skills they acquired from childhood, cultural experience, structured education, and generational practices within their family. In addition to these skills further development was needed to provide unique and professional grade products to start a business. This is the case for P10. Similarly, P2 having no knowledge of sewing or being a part of the fashion industry. He initiated these skills through free online learning media, as number of participants.

P2 "started with no skills of fashion design but a lot of passion and that motivation. I started learning with a lot of good resources on YouTube."

4.4.2   Marketing. As expected, social media is widely used as a marketing tool. RAS entrepreneurs capitalized on the use of Instagram, and Facebook as a way of conducting market research. P2 used this to identify types of traditional African garments that are popular amongst his target audience. P10 created a dedicated Instagram page for her cake business (keeping her cake business separated from her personal social media accounts) and used it as a tool to validate likelihood of acceptance of cake designs as well as showcase some of her unique creations. In addition to the use of social media as a marketing products and services, some entrepreneurs set up (or have setup on their behalf) business websites. The goal here is to reach a wider audience. Interestingly, social media and business websites did not successfully attract new clients as the entrepreneurs anticipated. P13 and P7shared that most of the clients came in initially through word-of-mouth advertising but then as the business grew, they started to have more clients coming in from Facebook and their website.

P7 "We set up a website and Facebook. But at the beginning, they didn't know, like from the social media [did not get initial clients from use of social media], just like friends to friends. But now Yeah, like, half of the order is from the social media."

Google business ratings is used to measure online presence and documented public feedback. P3, P7 and P13 use the ratings as a reflection of business performance. This is used to indicate to entrepreneurs how their business is performing, how the public/ customers perceive the current products being offered. Furthermore, the positive feedback and ratings are publicly available and is self-advertising of the business' performance to potential customers as well.

P13 "On our Google reviews we're still five stars, over 70 ratings, over 70 reviews which is great. And of course, we had the business awards finalists. So, we're still waiting on the award. Let's see who is, you know can get the business award for 2021."

The role technology (more evident in Table.2) proved very useful as an inexpensive way of marketing and demonstrated knowledge sharing for entrepreneurs' upskilling. This not only saved on financial resources pouring into the business but also enable the entrepreneurs to reach a wider

audience. Most importantly, it extended their reach beyond the community in which they function. This is particularly insightful as members of RAS communities have expressed a distrust of the local communities in which they live.

There were several benefits of RAS businesses presented in this study in terms of their cultural and economic contributions to the wider communities in which they operate. Firstly, some of these businesses contributed through a cultural synergy, adapting some of their traditional cultural techniques and tailoring them to include Australian resources. Secondly, a transfer of cultural and generational knowledge to future entrepreneurs embarking on their own journeys. Thirdly, there are economic benefits such as job creation for the local community as well as fostering a culture of entrepreneurship within members of this society.

4.5.1   Cultural Synergy. For the purposes of this study, cultural synergy in this research context is referring to RAS entrepreneurs who have adapted a cultural product from their home country to be inclusive of cultural aspects of the local economy of the country in which they have resettled. When it comes to food for example, goods from the entrepreneur's home country may not be readily accessible. Some participants such as P15 now operates a grocery shop by importing goods to meet this need. However, there are others such as P4 who saw this an opportunity for cultural blend. The benefits of this can be two-fold; 1. The entrepreneur now has immediate access to locally produced ingredients, eliminating importation costs and wait time, and 2. The entrepreneur's products are more marketable and tailored to the local population. The solution P4 came with is seen in the excerpt below:

P4 "...my idea. I said OKAY, [I will] make a bridge between two cultures. Not Iranian, not white culture. Bring them together. Half-half...Iranian food. And like a sweet treat with Australian ingredients."

4.5.2   Transfer of Cultural Techniques. Our study has shown that RAS entrepreneurs also facilitate a transfer of cultural techniques and practices through their businesses. Some entrepreneurs harness talents from skills they learnt as a child in their home country to start a business as in the case of P4, P7, P8, and P12. This is sometimes because of the accreditations achieved in their home country being invalid in their host country. These skills are engraved with cultural and generational traditions that are useful for business in Australia. Some of these techniques become transferable as the RAS business grows and the entrepreneur then teaches this technique to members of the local economy such as P4 did when he sold his business in one state before relocating and opening another store.

Other entrepreneurs offer this knowledge as a product and teach classes imparting cultural techniques as in the case of P12 and P13. P12, due to illnesses, is sometimes physically unable to etch designs in glass and make his paint work and one aspect that he is now looking into to sustain his business is to teach the technique he learnt as a child. The details surround the background of where he learnt this glass etching techniques is seen in the interview excerpt below:

P12 "before in Iraq and I was a child, we had a shop. My father had a shop. So, I grew up and help and learn how to do the etching and engraving on gold and like a jeweller...Then I started (etching on glass) then people surprised when they saw that artwork when I came here [in Australia] and just look more and more and more so, I became a professional in the positive engraving way."

4.5.3   *Economic Front.* As with the general benefits of starting a business. RAS businesses also contribute to the local economy through job creation. RAS businesses sometimes benefit from a family effort and thus as the business grows family members learn the craft and occupy open positions. However, family members are not always available, and some entrepreneurs are in a new country completely alone. That is, without relatives and friends. As their business grows this creates an opportunity of employment for members of the local economy as in the case of P4. As his business and clients grew, he saw the need to make a website to reach an even wider audience and offer delivery service for his products. He tried but was unable to learn at depth the features he would want to include into his website. He outsourced this job by hiring someone locally to build and manage his website. The interview excerpt can be seen below:

P4 " A young lady, she come and work with me and I pay her $20 per hour. Another couple, they have another stone every week they got another market and I give them my products and any money they make it half of they make $1000. 5, 500 for them, 500 for me."

These were the main findings from this project that were helpful to understand the ecology of RAS entrepreneurship and the varying trajectories towards business goals. The progression from idea to entrepreneur observed was non-linear, where self-reliance and self-improvement were key strategies at the beginning of the journey, but it remained a continuous project that enabled growth in building social capital, and digital skills. These will be discussed in the following section building on previous work with entrepreneurship in marginalized communities as well as ICT and entrepreneur.

To provide an overall summary of the findings, Table 2 below shows the types of business established along with the overall challenges, strategies, and support on the journey to entrepreneurial success.

Table 2. Refugee Entrepreneurship Study Summary

Types of Businesses	Challenges	Strategies	Support
Clothing	• No fashion design skills • No technical skills • No entrepreneurial experience • Lack of social capital	• YouTube tutorials • Fiverr recruit tech support • SkillShare to build technical skills • Facebook for marketing • Facebook for joining local communities	• Refugee Support (govt. org) • Local entrepreneurship network
Catering	• Limited baking Design Skills • Lack of entrepreneurial experience	• YouTube baking tutorials • Instagram for marketing	• Friends, Family, Religious Community • Mentorship from bakery owner

Furniture	• Language barriers • Lack of social capital • Religious background discrimination • Ethnic background discrimination • Can't finance basic living expenses	• English classes • Facebook for finding people with similar ethnic background. • Gumtree Registered (rating) • Kerbside Collection (used furniture for refurbishing)	• Refugee Support (private org.)
Art/ Teaching Art	• Language barriers • Lack of social capital • Feelings of isolation • Debilitating ailments from trauma	• English classes • Googled meetup up groups • Living close to hospitals	• Refugee Support (private org.)
Gardening Services	• Accounting background not recognized	• Joined a gardening service franchise	• Refugee Support (private org.)
Health/ Pranic Healing	• Initial healing practice faced discrimination • Language barriers	• English classes • Online Pranic licensing	• Refugee Support (private org.) • Family support
Grocery Store	• Workplace discrimination • Language barriers	• Import Permit online research and applications	• City Council Support • Family support
Dessert Restaurant	• Language barriers • Ailments from trauma • Unable to participate in English Classes	• Relied on previously acquired entrepreneurial experience • Google Registered (rating)	• Refugee Support (private org.) • Family support
Sudanese Restaurant	• Language barriers • Lack of social capital • Feelings of Isolation • Lack of social media awareness	• English Classes • Relying on cooking skills	• Refugee Support (private org.) • Family support
Pastry	• Pathologist Background not recognized • Lack of social capital • Language barriers • Feelings of Isolation	• Source pastry ingredients from local neighbourhood • YouTube tutorials for web development training	• Local Community Members • Refugee Support (private org.)

Make-up Artist	• Lack of entrepreneurial experience	• Relied on family expertise for business registration • Instagram for marketing	• Friends, Family, Religious Community
Painting Company	• Language barriers • Feelings of isolation	• Painting Apprenticeship	• Refugee Support (private org.)
Theatre Production	• Feelings of isolation • Financing theatre project	• Appealing to local conflict resolution programs	• City Council Support • Refugee Support (govt. org)
Handyman Services	• Language Barriers • Qualifications not recognized	• Mechanic apprenticeship	• Friends, Family, Religious Community

5 DISCUSSION

Altogether, our findings showed that entrepreneurship pathways for refugees and asylum seekers can be necessity driven or opportunity-based, depending on the severity of the impact of arrival status in the host country. Secondly, regardless of the motivation, the evidence presented here showed refugee specific barriers such as language and cultural differences, loss in social capital, and loss in financial resources similar to challenges experienced by refugees in other parts of the world during the resettlement process [5,6,12]. We build on previous works' findings [14,22] that digital technologies play an enabling role for upskilling, socializing, and marketing to meet the demands of the new economy.

The contribution of this work is that insights from field data show a dichotomy within the refugee population. That is, those arriving as children vs. those arriving as adults, and how this contrast affects the entrepreneurial trajectory impacting education, training, employability, social capital, interaction with technologies, and access to financial resources. There are barriers to entry when starting a business, particularly requiring under-resourced communities to labour in self-improvement. Furthermore, the RAS entrepreneurial self is influenced by barriers that rest on being at the periphery of assimilation into society and that when faced with pervading exclusions refugees and asylum seekers cultivated strategies adapting to and capitalizing on technologies to build support networks and skill development.

Immigrants are more likely to become entrepreneurs than natives based a study conducted in the USA [38]. Despite the obvious trauma and growing population of refugees, they are most likely to start businesses [62] that service their communities towards their goal of self-sufficiency. It could be beneficial for the researchers to explore design opportunities to support entrepreneurial pathways for refugees and asylum seekers. Our work also suggests design implications for RAS entrepreneurship pathways.

5.1 RAS Entrepreneurship influenced by the resettling process

The entrepreneurial journey is riddled with challenges and a key practice to achieve success in this field is the inevitable, fail fast practice. However, there are unique challenges to refugees and asylum seekers in their venture for a better life in host countries [4,12,43] similar to findings uncovered in the previous section on "Refugee Specific barriers". On the periphery of resettlement, entrepreneurs

are dealing with the loss of social capital, a quintessential factor necessary for building business network, relationships, and partnerships. Furthermore, circumstances around their forced displacement significantly impact their ability to prove a background of good financial standing along with the ability to occupy high paying jobs for which they were accredited in their home country such as P4 was a Pathologist and P3 an accountant This has led to financial loan exclusions from major lending agencies such as banks restricting the RAS entrepreneur ecosystem to limited availability of support in this capacity by private organizations considering the special circumstances.

In addition to indirect earning power restrictions from unrecognized degrees and certifications from their home country, entrepreneurial refugees and asylum seekers are impacted by the gap in business cultural differences which can result in legal ramifications. Fail fast practice tied to entrepreneurship is incomparable to the consequences of failing to comply with the legal requirements (considering RAS backgrounds and if even out of ignorance) to set up and conduct businesses in a new economy.

A key variable and common challenge faced by refugees in their host country is language barriers. This also poses a challenge in bridging business cultural differences, willingness to build social capital [46], and understanding and communicating effectively with the limited lending resources available for RAS entrepreneurs. These insights can help future CSCW research intending to support the pathway of RAS entrepreneurship to explore ways to address some of the challenges of building a business just on the outskirts of resettlement and assimilation into a new economy. Previous work has looked at entrepreneurs from disadvantaged and under-resourced communities [14,28] however, those entrepreneurs were residents/locals of their economy and have varying access to and are acclimatized to the ecosystem they navigated. To support RAS businesses, it could be beneficial to explore a unified tool that addresses breaking language barriers, bridging business cultural differences, building social capital, and reformed validation process for verifying RAS entrepreneurship financial standing in the new economy.

5.2 Strategies of RAS Entrepreneurship

Self-reliance and self-improvement are central to entrepreneurship when it comes to establishing, sustaining, and innovating in business. Self-reliance for the RAS entrepreneur has roots in family separation during childhood, adapting to methods of survival in refugee camps, detention centres, confined communities. Statements in interviews such as "I don't want Centrelink (govt.) money and I want I can make my own." Show the initiative of the entrepreneur to rely on their skills and talents to provide for themselves and their families.

Where gender plays an integral role in some cultures, female empowerment in refugee camps can be transformative for the initiation of entrepreneurship. Fisher's "Seeking the Syrian Stitch" project contributes insights for countering language barriers (in this case through tactile and visual learning) and the need for digital literacy training to support entrepreneurship [30]. Self-improvement enabled by digital technologies is seen in previous studies [11,14,47] as a natural component when working towards entrepreneurial goals. It is essential for the entrepreneur to grow, acquire new skills in business as well as new skills in adapting to a new economy with rules and requirements that they ordinarily would not have been accustomed to in their home country.

Additional support is seen in this study as equally important. This support, though varied, is not available to all entrepreneurs. Family, friends, and communities support RAS businesses as evidenced in financial investments, lending professional expertise (for example friends who are lawyers, software developers etc.), supplying manufacturing equipment, supplying inventory, as

well as support for product sales. Organizational support is selectively available to RASs and is dependent on their status upon arrival in the host country. This type of support is usually structured, and policy guided with some flexibility in consideration for absence of credit history and other standard requirement evidence for business loans. Again, there is a wide range of support present within the RAS entrepreneurial ecosystem that, depending on the circumstances around displacement and arrival into Australia, entrepreneurs were able to progressively access and capitalize on resources at different stages of the journey.

Beyond the usual barriers to entry when it comes to entrepreneurship, RAS entrepreneurs must navigate the new economy overcoming language and cultural barriers, loss (and for some a complete loss) of social capital, as well as societal mistrust and negative stereotypes associated with being refugees and asylum seekers in the host country. To enlighten society on the traumatic experiences of this population, previous works have used the lightness of games such as Refugeology [44] to communicate the seriousness of their lived experiences. Similarly, there is an opportunity here to explore design solutions that not only help a wider audience to begin to understand the challenges of RAS entrepreneurs navigating the new economy, but also a tool that also inspires and informs future entrepreneurs to emerge from this group on how to use their ecosystem to their advantage. A tool that could be helpful to motivate, inspire, inform, and encourage entrepreneurship amongst this group as one of the responses to a globally recognized crisis of rapid increase in the population of forcibly displaced people due to wars and other political conflicts.

5.3 Implications for Digital Technologies: Support for RAS entrepreneurship

On the one hand, our study is informed by research identifying challenges around refugee resettlement and the design of humanitarian technologies to aid their cause [52]. Refugees along with other low socio-economic groups have been observed to demonstrate considerable self-reliance in response to their circumstances such as limitations on and otherwise restricted employment. One such manifestation of self-reliance is seen in this study as pathways to refugee entrepreneurship. Immigrants are more likely to start businesses than a native of similar educational background [38] and of all migrants in Australia, refugees are twice more likely to become entrepreneurs. Align the results of that study with UNHCR recording over 90 million people forced to leave their home countries, that is more than double the population size in the last decade. The process of resettling in another country poses several challenges for this population and has attracted much attention in the research community towards identifying challenges of resettlement [2,6,18,20,56]. Under-resourced communities have used entrepreneurship as a pathway for economic mobility [37] and so too have refugees and asylum seekers. There is a need to pave entrepreneurial pathways for this population to aid with resettlement and support this effort by designing digital technologies to support RAS entrepreneurial activities.

On the other hand, we also draw on previous studies of entrepreneurship among under-resourced [14,25,27,37] and disadvantaged communities as well as the use of digital technologies in supporting the continuous need for self-improvement towards achieving entrepreneurial goals [11,25,45]. In a social entrepreneurship space, it has taken on the role of social networking and information sharing but also for upskilling and self-directed training for entrepreneurs from marginalized communities. Building on this previous work we find that RAS entrepreneurs also used digital technologies for personal and business skill development, upskilling to expand business' digital presence, also to join communities to help bridge language, cultural, and socio-technical barriers.

Whether it is marketing, building social and business networks, or digital and professional skills development, digital resources such as social media platforms, Fiverr (for recruiting digital freelance expertise), Skill Share and YouTube have played an enabling role towards achieving entrepreneurial goals. Furthermore, the needs and goals of the RAS entrepreneur push the techno-entrepreneurial boundaries into language and cultural brackets. According to the findings of this and previous study [38], it holds true that there is a niche for immigrant businesses. Furthermore, our work identifies additional labours for the RAS entrepreneurial self to recover from the inescapable people and financial resources exclusions, further restricted by isolation in society, language, and cultural barriers.

CSCW literature shows entrepreneurs from low socioeconomic backgrounds employ digital and social technologies for upskilling [14,37] and expanding their social network outside their geographical boundaries [65]. We seek to build on this work by exploring the refugee specific barriers to entrepreneurship and their use of technology to support entrepreneurial ambitions. In pursuit of business goals and financial stability, RAS entrepreneurs have overcame language barriers [4], feelings of isolation [12,53] and continuously work towards rebuilding social capital [7]. Our studies show the RAS entrepreneurial journey and use of digital technology to overcome challenges and meet business goals.

Therefore, considerations for design technology solutions for RAS entrepreneurs should incorporate tools for learning the local language and culture of economy alongside creating opportunities to form communities and build networks and business. For example, language apps such as Duolingo exist independently of applications targeting career network building such as LinkedIn, again independent of platforms for upskilling such as Skill Share. Language barrier is a major impediment and captured the efforts of CSCW designers [21] who used Rivrtran to explore the impact of transient use of communication technology between refugees and Americans not sharing a common spoken language. This enabled refugees to extend their communication to people outside of their cultural background. To the extent that this paper looks at supporting entrepreneurial pathways, one potential solution could involve recreating a social aspect of the RAS entrepreneur ecosystem in an immersive application such as VR and include features of learning language and culture within this context. To alleviate problems of communication during reassimilation Weibert et al. further acknowledges that while communication aid services might be available, it is not necessarily visible to the people for which it is intended[58]. As a result, conducted a study designing a language wizard to address communication challenges. To support entrepreneurship pathways among refugee communities future work could also explore ways for effective visibility of these tools.

While there are publicly available socio-technical tools such as crowdfunding that is popular in the entrepreneurship community as seen in previous studies [17,33,34] this was not found to be a tool used by any members of this study. Participants primarily sought traditional financial support through banks, government agencies, and family members. Further design insights are informed by the lack of awareness and use of crowdfunding tools among RAS entrepreneurs of this study. The obvious benefit is financial investment however similar to the use of Instagram as seen in this study, crowdfunding also offers a social validation on entrepreneurial self- efficacy as identified by Harburg et al. [34]. The design for future digital solutions for RAS groups should also consider 1) the level of digital literacy being designed for [30], 2) diversifying financial awareness for entrepreneurs and, 3) ways to continuously support professional upskilling to sustain business growth.

There is call to support refugee entrepreneurial pathways in Australia [62], as evidenced in emerging organizations to provide entrepreneurial mentorship and financial support to these businesses. Although this research is being conducted to explore refugee specific barriers to entrepreneurship in Australian context, CSCW research [46,58] shows refugees in border countries across Europe face similar resettlement challenges and restrictions. For example, the works of Weibert et al. [58] conducted a study in Germany exploring the use of a language course wizard to aid the overall resettlement process for refugees. We hope to motivate an exploration of refugee specific barriers to entrepreneurship in other contexts and contribute insights to inform designers working towards supporting this pathway.

6 CONCLUSIONS

In summary, we've engaged fifteen RAS entrepreneurs to learn about their trajectories from arrival in Australia to owning and operating their own businesses towards financial independence. In addition to refugee-centric studies in CSCW, our study suggests researchers and designers give special attention to arrival status as this has an impact not only on the general obstacles faced by refugees but also the opportunities and resources to navigate said challenges. For example, loss of social capital made resettlement and starting a business more difficult for refugees arriving as adults and asylum seekers (who arrived by boat) than for refugees arriving as children. Refugees arriving as children had little recollection of their home and culture in their home country, while those arriving as adults have maintained some identity of their home country and were able to apply this to their businesses contributing to cultural transfer techniques in their host country.

We have seen the discomfort of unfamiliar technology such as crosswalk or STOP buttons on a bus. However, the perseverance to achieve small business goals has demonstrated the utility of tech in self-directed learning and network building. Continuously facilitating growth for the entrepreneur and their business. Furthermore, this paper suggests considerations to improve technologies to support refugee entrepreneurial pathways.

ACKNOWLEDGMENTS

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