Using Experiential-Learning and Iterative Design to Benefit Colorado's Refugees

Jennifer Lee
ATLAS Institute
University of Colorado Boulder
Boulder, United States
jennifer.c.lee@colorado.edu

Emily Long
ATLAS Institute
University of Colorado Boulder
Boulder, United States
emily.r.long@colorado.edu

Lexi Schwartz
ATLAS Institute
University of Colorado Boulder
Boulder, United States
lexi.schwartz@colorado.edu

Mustafa Naseem
ATLAS Institute
University of Colorado Boulder
Boulder, United States
mustafa.naseem@colorado.edu

DIS'18 Companion, June 9–13, 2018, Hong Kong
ACM 978-1-4503-5631-2/18/06.
https://doi.org/10.1145/3197391.3205446

Abstract
Rising trends of immigration and refugee resettlement is a global concern with reliance on local solutions. To support this population's needs, organizations such as the city of Aurora's Village Exchange Center work to build community and resettle new arrivals in Colorado. This paper presents design nuances for creating a digital information and communication technology (ICT) tool for Village Exchange Center's Natural Helpers program. Human-centered design methodologies were used to develop a digital resource guide based off of a previous paper incarnation. Four unique needs arose from our process: (1) a need for community feedback, (2) flexible service categorization, (3) password lapse considerations, and (4) the need for location context. We also discuss potential benefits of collaboration between students and low-resource organizations. Designing for refugees, immigrants, or similar populations with these considerations can improve users' experience and overall ICT utility.

Author Keywords
Refugees; immigrants; Natural Helpers program; human-centered design; user-centered design; Colorado; experiential learning.

ACM Classification Keywords
H.5.2 [Information interfaces and presentation (e.g., HCI)]:

User Interfaces: Prototyping, user-centered design, screen design.

Margin 1

Our PATH Statement:
As the immigrant community in Denver grows, established immigrants and neighborhood leaders lack easy access to relevant, up-to-date, vetted and accurate information on services. We will create a central digital hub of information, resources, and training that is accessible and modifiable by Natural Helpers (i.e. community members) and the service community, in order for leaders to provide trusted and true sources of information while having a sense of ownership over their role as a bridge between these communities.

Introduction

The United States has taken in more than 3 million refugees since 1975 [6]. In Colorado, nearly 1 in 10 residents was born outside of the United States [2]. These individuals face a range of challenges along the way to resettlement. From family care to job searching, language acquisition and transportation, the tenements of starting a life over are fraught with difficulty. The Denver suburb of Aurora, in partnership with local nonprofit Village Exchange Center (VEC), seeks to ease this burden through a volunteer program called Natural Helpers. This program trains longer-term residents, who are immigrants and refugees themselves, to serve as first responders (figure 1); they provide insight for new arrivals navigating life in the community [7]. To support this work, Natural Helpers were provided a printed local resource guide. However, the guide was difficult to use efficiently, quickly outdated, and was rarely replaced for established volunteers.

Our team worked with the VEC staff, Natural Helper volunteers, and refugees and immigrants in Aurora to design a high-fidelity digital prototype of this resource guide. In this case study, we examine the design nuances which arose with this population and discuss potential benefits of collaboration between students and low-resource organizations.

Methodology

Given our traditionally marginalized user population, we elected a user-centered design approach to the problem. Our work consisted of three phases: Framing the problem, solution formation, and iterative user-testing.

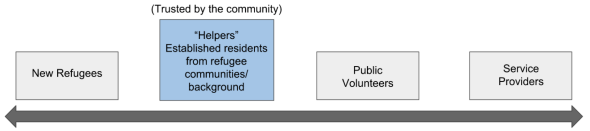

Figure 1: Natural Helpers are trusted by the community.

Framing the Problem

The first phase consisted of preliminary and secondary research to form a full understanding of Colorado's refugee and immigrant ecosystem. We conducted semi-structured interviews with service providers and refugees and immigrants in the community. During this time, we observed Information and Communication Technology (ICT) use at community events and developed a PATH (Problem, Approach, Targets, Humanity) statement (margin 1).

Solution Formation

After gathering initial information around the population, we created potential solutions that attempted to fit their needs. We conducted heuristic evaluations based on Jakob Nielsen's Ten Usability Heuristics [3]. Interviewing continued during this time, totaling 13 stakeholders for phases one and two.

Iterative User-testing

User-testing and an iterative approach was taken with our high-fidelity prototypes with three Natural Helpers and two VEC staff in two separate sessions. We conducted concurrent think-aloud techniques as users navigated through predetermined tasks in both sessions.

Results

Our final interactive prototype displayed all major features to be developed such as search functions, editing options, navigation layout, and community feedback functions (figure 3). Four design nuances emerged from our Natural Helper

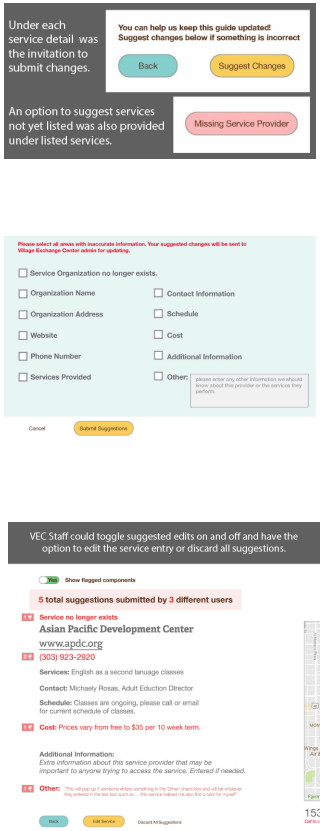

Figure 2: Designing a flagging system to solicit community feedback.

population: (1) a need for community feedback, (2) flexible service categorization, (3) password lapse considerations, and (4) the need for location context.

Need for Community Feedback

The resettlement ecosystem has many moving parts. Service details and offerings change over time. Specific locations, hours of services, and events can be difficult to track. One thing that makes the Natural Helpers program effective is the connection to the community and ability to communicate changes. We wanted to replicate the responsiveness to ecosystem changes within the digital resource and design the system to allow for community feedback. We implemented a flagging system, seen in figure 2, to allow members of the community to signal when service information needs updating or if a service is not represented.

The alert system would allow community members to select specific aspects, such as service prices or location, when sending a flag. The system also contained a text box for comments on service quality or to alert the wider community to abuse. VEC staff would be alerted and could review and implement changes. This feature was open to all who access the online resource and flags were submitted anonymously.

Flexible Service Categorization

The physical resource booklet listed providers under their respected categories such as health care or education services, but many providers can be listed under multiple categories due to an array of services. Several interviewees mentioned confusion when using the booklet for finding services as they were not sure which category to begin searching under. We designed the digital resource to allow VEC staff to easily cross-categorize by displaying check boxes listing available categories when editing service

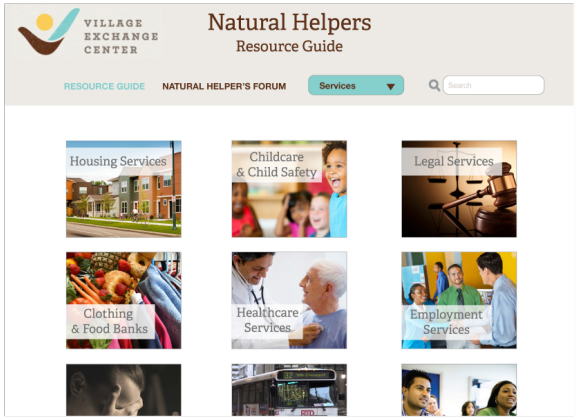

Figure 3: Final resource guide prototype home screen.

listings (figure 4). This allowed services to appear under multiple categories, encompassing a wider mental model for how end-users categorize services and easing their ability to find assistance.

Password Lapse Considerations

The Natural Helpers also faced the issue of password recall. We found anecdotally the Natural Helper volunteers had a range of exposure to ICTs and email, with many being unfamiliar. Existing online resources utilized one password for all Natural Helpers to access forms, which was frequently forgotten. Both VEC staff and Natural Helpers were dissatisfied with the current system; Natural Helpers with difficulties in password recall and staff with sending constant reminders. To advocate for accessibility, easy access, and the Natural Helpers program's philosophy to foster independence in new arrivals, we opted for designing a more publicly accessible system instead of restricting to only Natural Helpers and VEC staff. VEC Staff alone would have logins to see community flags and edit the platform.

Figure 4: Designing for easy categorization of services.

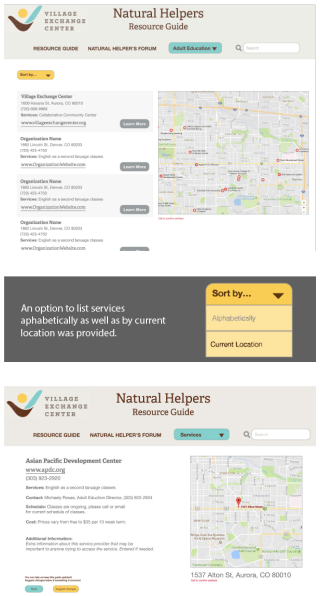

Figure 5: Designing for understanding locational context.

Need for Location Context

Another specific need that arose from the Natural Helper population was to understand location relevance. A factor in choosing a service was the users ability to travel there easily and in a timely manner. According to our interviews, most Natural Helpers and the new refugee and immigrant arrivals they work with, rely on public transportation services. Our final prototype included multiple maps (figure 5) where users can view services plotted by location. We also designed for finding services based on current location. This allowed Natural Helpers to better address those with limited transportation options by providing service advice with locational context.

Discussion

Designs used in this case study to address the unique needs of the Natural Helper community, such as designing for community feedback, can provide insight towards designing for similar populations. We also propose that collaboration between students and low-resource organizations is beneficial for both parties. Designing for specificity has shown to increase system success and user satisfaction as well as have more accurate user requirements and increased participation than designing more generally [5, 1]. Experiential learning has also been shown to be beneficial for student development and learning outcomes [8, 4]. Students are at a particular advantage to dedicate time and effort to specificity as part of the focused nature of the learning process. This collaboration can provide low-resource agencies with the ability to design for specificity at a low or free cost and students benefit from gaining relevant real world experience.

In this case study, students better understood the social dynamic and power structures of this community and their obstacles within the local context. Students were exposed to the need to communicate effectively, build relationships and trust, and manage expectations on top of learning fundamentals of user-centered design and user research. This created an atmosphere where students felt more accountable to the community. This project ended with students giving the designs to VEC's web developer for implementation. This collaboration also paves the way for future partnerships between the non-profit and the university.

Potential issues with student and low-resource organization collaboration may lie with design quality outcomes, since students may lack industry and academic experience. We argue that although student work risks being low quality, the work can still benefit low-resource organizations as a pivot point in future design investments. Another issue worth discussing is the potential for students to be taken advantage of and expected to provide free work for these types of organizations.

Conclusion

Immigrant and refugees face a wide range of challenges while resettling in a new country. Working with a local non-profit, we used user-centered design to develop a solution that addresses unique design needs for the Natural Helper community in Aurora, Colorado. This case study can provide insights for designers and developers when tackling similar design problems for refugee and immigrant populations. This study may also lead as an example for student and resource-constrained organization collaboration.

Acknowledgements

We thank Nate Beard and Denise Powell for their insights and contributions during the design process as well as Village Exchange Center and the City of Aurora Colorado.

REFERENCES

1. Hugh Beyer and Karen Holtzblatt. 1999. Contextual design. *interactions* 6, 1 (1999), 32–42.
2. American Immigration Council. 2017. Immigrants in Colorado. (2017). Retrieved March 12, 2018 from https://www.americanimmigrationcouncil.org/research/immigrants-colorado.
3. Nielsen Norman Group. 1995. 10 Usability Heuristics for User Interface Design. (1995). Retrieved March 4, 2018 from https://www.nngroup.com/articles/ten-usability-heuristics/.
4. S. Jiusto and D. DiBiasio. 2006. Experiential Learning Environments: Do They Prepare Our Students to be Self Directed, Life Long Learners? *Journal of Engineering Education* 95, 3 (7 2006), 195–204.
5. Sari Kujala. 2003. User involvement: a review of the benefits and challenges. *Behaviour & information technology* 22, 1 (2003), 1–16.
6. U.S. Department of State. 2018. Refugee Admissions. (2018). Retrieved March 9, 2018 from https://www.state.gov/j/prm/ra/.
7. VillageExchangeCenter.org. 2018. Natural Helpers Program. (2018). Retrieved March 1, 2018 from https://villageexchangecenter.org/natural-helpers/.
8. Mary C Wright. 2000. Getting more out of less: The benefits of short-term experiential learning in undergraduate sociology courses. *Teaching Sociology* (2000), 116–126.