

ConnectUS: Exploring and Improving the U.S. Citizenship Process through Social Connections

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Author Note

We would like to thank all the people who helped us test our app at each step along the way. Your patience and thoughtful feedback taught us much. We would also like to thank Ed Barrett and Frank Bentley for giving us the opportunity to learn so much, and for being so understanding. We couldn't have done this without your support.

Abstract

The United States is known for being a melting pot of cultures, with residents that come from all over the globe. Given the demographic of U.S. residents, it was surprising that no app previously existed to help immigrants through the transition to U.S. life. After conducting an initial field study and performing an affinity analysis, ConnectUS was created to provide an easy-to-understand roadmap of the process of becoming a citizen, and a way to connect immigrants that have shared experiences. Beta tests were then performed in order to gauge the usability and functionality of the app. After a testing period of two weeks, in which we tracked the experience of ten users, the beta tests uncovered a few flaws and revealed many ways the app could be improved.

Keywords: citizenship, social dynamics, social media applications

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Introduction

The prospect of becoming a United States citizen has long been a sought-after goal of thousands, if not millions, of people worldwide. However, in recent years, it has become evident to everyone, citizen or not, that the process can be difficult and confusing. These difficulties with the process typically arise from immigrants and potential citizens feeling isolated and not able to get help pertinent to their specific situation

At the beginning of our project, we knew that we wanted to focus on this area of helping new and future citizens. One of our first major steps was to identify what exactly made the process so difficult for people, and if there was a single factor that would help a very wide range of people. We interviewed a good number of people who were from very different points in the citizenship process. Some had been granted citizenship long ago, either as adults or as children, and were able to provide an amazing amount of insight into not only how the process had changed through the years, but on their process of acclimating to the completely different culture and atmosphere of America, including the challenges that they faced.

Other interviewees were in the process of obtaining citizenship, and were able to tell us in great detail some of the problems they've faced and confusion they've had with different steps along the way. Still others had not yet started applying for official citizenship, and were legally staying the United States on a student visa or Greencard. These interviewees related to us some of the questions they had about how the overall process worked, and often expressed a confusion over how they even began.

Through our interviews, we tried to have each interviewer answer a few core questions. Obviously these questions, and their answers, strongly depended on where they were at with respect to the citizenship process, and so some questions pertained more towards particular interviewees than others. These questions are discussed later in the Background section of this report. From the answers we received to those questions, it became clear to us that an application that addressed the confusion surrounding the different steps through the citizenship process would most likely have the greatest potential to help people. However, in addition to this, we decided to implement a social aspect, which would allow people to communicate and exchange information, albeit in a basic way. We hope that this unique combination of self-help potential and the ability to reach out socially will distinguish our app from others and provide new citizens a valuable resource.

Related Work

Through our own research, a number of things regarding the current situation of potential and new citizens from a cultural standpoint became very clear. For example, we noticed that potential citizens who lived amongst others in their same cultural group found the citizenship process to be easier than those who didn't. Conversely, people living on their own, with few ways of communicating with other recent citizens, found the overall process to be much more challenging. Other studies have confirmed this notion that socialization between present and future citizens drastically improves the success rate of those who are aiming to apply for citizenship sometime in the future (Benedito dos Santos, 2012).

A quick search for citizenship- or immigration-related mobile apps returns strikingly few results on the Google Play and Apple Apps stores. Of the results, most are simple trivia

applications designed to test your knowledge of American history and culture, or to give you facts relating to current immigration statistics. Despite the aforementioned benefits of socialization, none of the presented applications promoted any type of connection between users. This in and of itself is disconcerting, as it may contribute to the idea that many current or potential immigrants feel isolated, with few ways of communicating with others who share their experiences (Maciel, 2009).

Even in expanding the scope of our search to include any kind of technological application (other phone apps, web or desktop applications), there are strikingly few options that relate to citizenship, and none that offer any type of social or connection opportunity. In fact the most common resources, according to online searches and our interviews, appear to be books. And while these volumes might be great for personal reference, they once again do not provide the reader with any additional options to seek help or share opinions with others. Beyond physical reading material, we found that the most common source of reference were government websites, which from our interviews have shown mainly serve to only add to the overall confusion regarding citizenship.

Thus we have the niche for our application. Its main purpose will be twofold: first, it will function as a way for immigrants on the path to citizenship to track their progress. Secondly, it will incorporate a social aspect, designed to allow users with similar backgrounds to connect with each other. By providing access to a community of people who presently share, or have currently undergone, the same process of citizenship and acclimation, each user will be able to seek or even provide help from others in the app. This sense of community and knowledge-sharing will promote users' confidence and allow them to have a higher rate of success in correctly completing the citizenship process (Lingel, 2011). Furthermore, after becoming a

citizen, users will have the opportunity to look back and help those who are still in the middle of the process. In this way, the application will foster a growing community of users, whereby the stories and advice of many can help each individual to achieve their final goal of becoming a United States citizen.

Our user base for this project will consist primarily of people who are currently going through, or have recently completed, the immigration and United States citizenship process. We will be designing this app on the Android platform, further refining our target user group. However, Androids are generally of a lower cost than other varieties of smartphone, and maintain a higher standard of backwards compatibility in terms of application development. Thus our choice of development platform should from a financial standpoint provide the widest access to potential users.

Background

In order to understand the immigration process better, our team conducted interviews with people who had both immigrated to the united states, and applied for citizenship. We interviewed people from ages 18 to 65+, encompassing a wide range of experience. Some completed the citizenship process as recently as one year ago and others as long as multiple decades ago. The purpose of these interviews was to discover what their transition experience was like, culturally, socially, and legally.

Interview

To uncover the answers to these complicated inquiries, we asked the interviewees a series of questions.

- What country were you originally from?

- How old were you when you moved to the US?
- What is your current status within the US?
- Why did you or your family come to the US?
- What was the hardest part of moving to the US?
- Why did you decide to become a citizen?
- How did you prepare for the citizenship test?
- What was the most difficult part of becoming a citizen?
- Did you travel a lot within the US?
- What was your experience with the citizenship test?
- How did you learn the info for the test?
- What does the application entail?
- What does the interview entail?
- What does the test entail?

Each interview lasted between ten and fifteen minutes, during which we recorded interviewees responses with their permission so that we had the ability to analyze their answers at a later date.

We then conducted an affinity analysis in order to find commonalities in the answers we received from the diverse interviewees. Despite the variety of people interviewed, there was a surprising amount of overlap in their experiences. We organized excerpts from the interviews into groups categorized based on the similarity of quotes given to us, which we summed up using the most descriptive quote in the group. After organizing the quotes in this way, three main themes appeared:

1. Becoming a citizen is much easier if one is exposed to American culture and schools
2. Cultural differences make immigrants feel isolated
3. People found the process of citizenship horribly complicated and bureaucratic

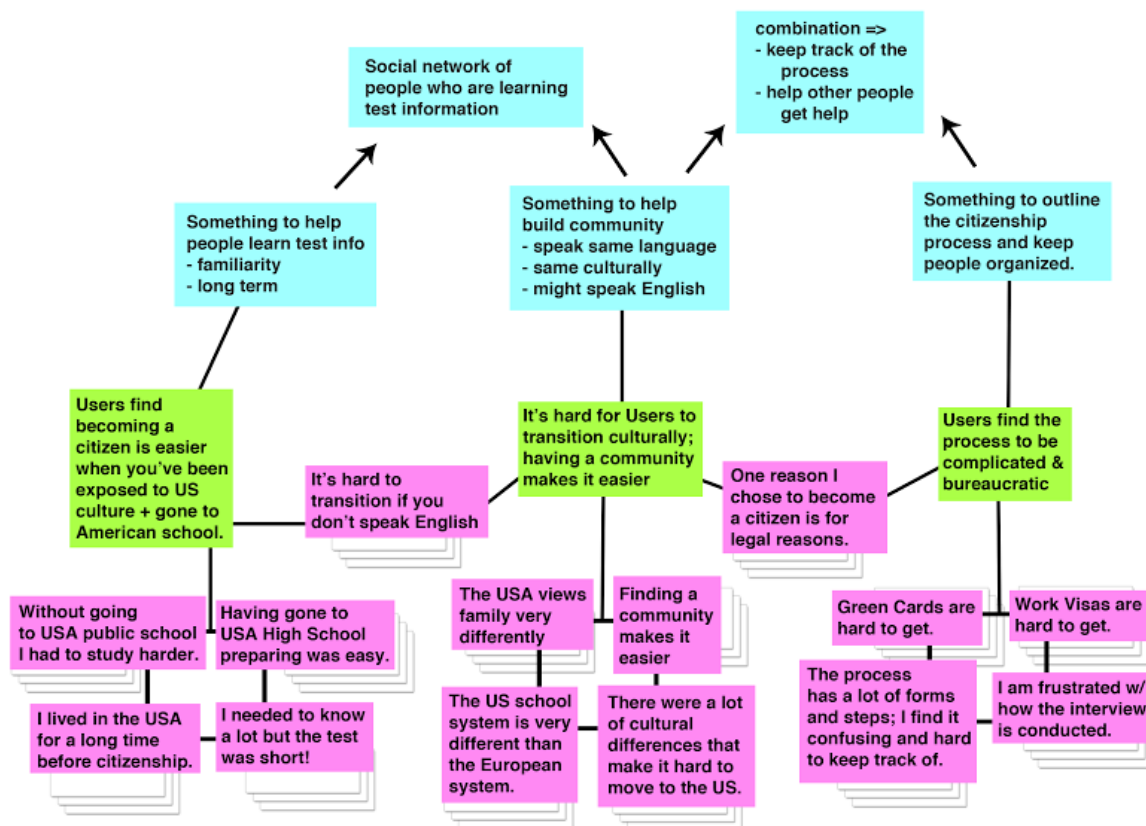


Figure 1. Affinity analysis identifying commonalities in responses received during interviews

Analysis

Firstly, it seemed as if people found that becoming a citizen was much easier if they had been exposed to American culture and schools, because the information they had to memorize for the citizenship exam was taught again and again in American public schools. Preparing for

the exam was much more difficult adults who immigrated to the US versus children who were raised there. Because the exam requires a broad base of knowledge, it is difficult to get the level of familiarity necessary to do well on the citizenship test without growing up with the information. This dichotomy was made clearer from the way our interviewees approached the test; people who had gone to school in the United States did not study or hardly studied for the test; on the other hand, people who did not benefit from a US high school education spent a significant amount of time studying.

The trend of having a difficult time transitioning culturally was characterized by feelings of isolation and confusion about the how things work in the United States, such as the school system. These feelings were then furthered by the language barrier, making applying for American citizenship especially difficult. From anecdotal evidence, however, finding a community of like-minded people and families made a big difference in immigrants' lives. Having someone else to explore the new culture of the United States with, especially someone coming from the same background, made the whole process much easier.

Lastly, every person we interviewed had tales of attempting to navigate the complicated, confusing process of applying for citizenship. People actually struggled with a variety of legal residence documents: Work Visas, Green Cards, to Citizenship itself. The complex bureaucracy compounded with the language barrier made filling out the necessary forms very difficult, especially if the immigrant was unable to afford a lawyer to help walk them through the process.

Even when people managed to figure out the how to get to the citizenship interview, they often faced hostile interview situations. One person commented that the process relied heavily upon your understanding of both speaking and writing English, something many immigrants struggle with. Another person had her marriage aggressively challenged, and her infant daughter

yelled at. Ultimately, people chose to go through the citizenship process because of the legal status they gained and how it benefited their families, despite all these hardships.

System Description

ConnectUS was designed for the Android platform using Android's free development tool, Android Studio. We created the app for Android version 3 and up to make ConnectUS accessible to people with a wide range of mobile devices; we believe our app should be readily available for users with varying levels of income and access to new technology).

The app itself is consists of a series of Android activities created using Java and XML. User information is stored on a MySQL database, which is accessed with a series of pHP scripts that are stored on a separate server and called through HTTP requests.



Figure 2. Early design of login and home screens for the ConnectUS app

When the user first opens the app, they are presented with a splash screen and asked to log in with their Facebook account. ConnectUS uses Facebook's Android API to keep track of

user information, rather than requiring an account name and password. Upon logging in for the first time, the user's Facebook name and user id number are stored on the MySQL database, and their user profile is officially created.

When the user logs in, their information is also downloaded to a local file on their phone, which is then periodically updated if the phone can still connect to the MySQL database.

ConnectUS asks the user for permission to access the network state, which allows the app to check if the phone is connected to a network or wifi. In the case that the user loses connectivity, the app will display some screens using only the information it has stored locally (road map, user profile, friend list, notifications), and it will display a message indicating that there is a problem with connectivity. For security reasons, no information about other users is stored on the user's phone, so the user will not be able to access other users' profiles if they are not connected to the internet.

Once the user has logged in, the app automatically opens the roadmap page, where users can see each step of the citizenship process. When the user clicks on a step, a new activity is opened that displays a summary of that step written by the creators of the app. At the top of this screen is a checkbox that users can click on once they've completed that step. Clicking on the checkbox initiates a PHP request and advances the user's position on the map, so when they return to the initial roadmap page, there will be a new green checkmark on the step they just checked off.

Users are not allowed to skip steps or go back and un-check a more than one step at a time to prevent confusion and improve usability.



Figure 3. Breakout screens displaying details for a single step, and the user profile screen

Every other screen of the app can be accessed by clicking on the menu button on the upper right-hand corner of the screen. This will inflate a drop-down menu with the options “Notifications”, “Profile”, “Friends”, and “Log Out”. When the user clicks on the “Profile” button, they are brought to their own user profile, where they can display their personal information, such as their name, country of origin, the languages they speak, and their contact information.

Of course, users can edit their profile and change who can view their user information by clicking on the “Edit Profile” and “Change Visibility” buttons respectively. Once the user enters new information and returns to their profile, a PHP request is sent to the database which changes their information, and then the user profile is asynchronously updated.

If one clicks on the “Friends” button in the dropdown menu, they are brought to their friends list, where they can see the names of all their friends on ConnectUS. If the user clicks on a friend’s name, they are brought to that friend’s profile, where they can see information about

that friend. This is the only time that information about the user’s friend is accessed downloaded from the database, and it is not stored on the phone. If the user loses connectivity, no information about their friends will be displayed, and an error message will be shown instead.



Figure 4. User friend list screen, and notifications menu to accept/deny friend requests

After receiving feedback on our paper prototype, we decided to include a “Find Friends” page, where all the users of the app who aren’t already friends with the current user are listed . When the user clicks on any of the names, they will be taken to that person’s user profile, where they can see information about them and potentially send them a friend request by clicking the “Send Friend Request” button. The other user’s information is, of course, filtered by their visibility settings, so any information that they have set to “Friends Only” will not be visible to the user until this other person accepts their friend request. Once the user sends a friend request, a PHP request is sent to the database, which records the user ids of each user who has sent a friend request to another user.

A user can access their friend requests by opening the dropdown menu and clicking on “Notifications.” On the notifications page, the user will be able to see a list of users who have sent them friend requests, along with check marks and x’s. Clicking anywhere on the line (save for the check and the x) will open the user’s profile page, as described in the previous paragraph. The notifications page refreshes every few minutes, so that somebody lingering on the page will be able to see new notifications as they arrive.

To accept the friend request, the user can hit the check mark, and this notification will disappear. Two PHP requests will be sent: one to remove the friend’s id from the user’s list of notifications, and one to add the two users’ ids to their respective friends lists. If the user then goes back to their friends list, their new friend will appear. In order to decline the friend request, the user can click on the ex, which will remove the friend request without sending the second PHP request.

Finally, the user can logout by opening the dropdown menu and clicking the “Log Out” button. When the user clicks the “Log Out” button, they are logged out of the Facebook API, and they will be returned to the original splash screen.

Field Study

After releasing the app on the Google Play store, we reached out to people in our living groups willing to test ConnectUS. Because of the very specific user base our app was directed towards, it was difficult to find users who fit the demographic ConnectUS was meant to help. The ideal user would be a recent immigrant to the United States, who was either looking for a community or looking for help applying for citizenship. In our living groups, almost no-one fits that description, so we attempted to get users who at least experienced the immigration and

citizenship process. Even this constraint was too tight to find an adequate number of users who both were not native US citizens, and also have an Android. Unfortunately, we had to settle for users that did not fit any aspect of our target demographic, which possibly skewed the results of our study.

Demographics of Users

There were ten users, all undergraduate students at MIT. They came from a mixture of living groups: Senior House, East Campus, Tau Epsilon Theta fraternity, and off-campus. We attempted to mitigate significant overlap of social circles, so most of the users did not previously know each other; however, there was some accidental overlap.

Because none of our testing users had any reason to utilize the features of the app, we believe that this is not an accurate study, and a better one could be conducted if a larger, more adequate userbase is available.

Methods

In order to gather data from our users, we used two main methods; one to collect qualitative data, and another to gather quantitative data.

When a user first agreed to participate in the study, we requested that they send an email to us after every instance they used the app, outlining:

1. What they found useful
2. What they found confusing
3. Anything else they thought was interesting about ConnectUS

Participants were then also asked to fill out a Google form which we sent to them via email. The Google form collected the following data:

- the date

- how long they spent in the app
- what actions they performed

We gave the users a list of preassigned actions, so they could check off which features of the app they utilized. Users could have filled out personal profile information, sent friend requests, accepted friend requests, explored the roadmap (on the main page), filled out the roadmap, used the roadmap to help with citizenship planning, connected with someone to *get* help, or connected with someone to give help.

The emails that were sent illustrated the personal experiences people had while using ConnectUS, while the form gave us numbers and specific data points to see which features were being used the most, how often our app was being used, and how long each person spent in our app. These two methods combined give us a well-rounded view of the participant's experience with ConnectUS, allowing us to analyze the functionality of the app from all angles.

Data Analysis and Findings

The study was run for two weeks, from Monday April 20th to Monday May 4th. Within those two weeks, we observed an initial lag in users, seeing only one to two users each day. Gradually, however, the rate of users rose to a high of five users on day nine, two-thirds of the way through our testing period. It then declined back down steadily, but spiked again over the last two days. most likely because an email was sent out reminding users about the study.

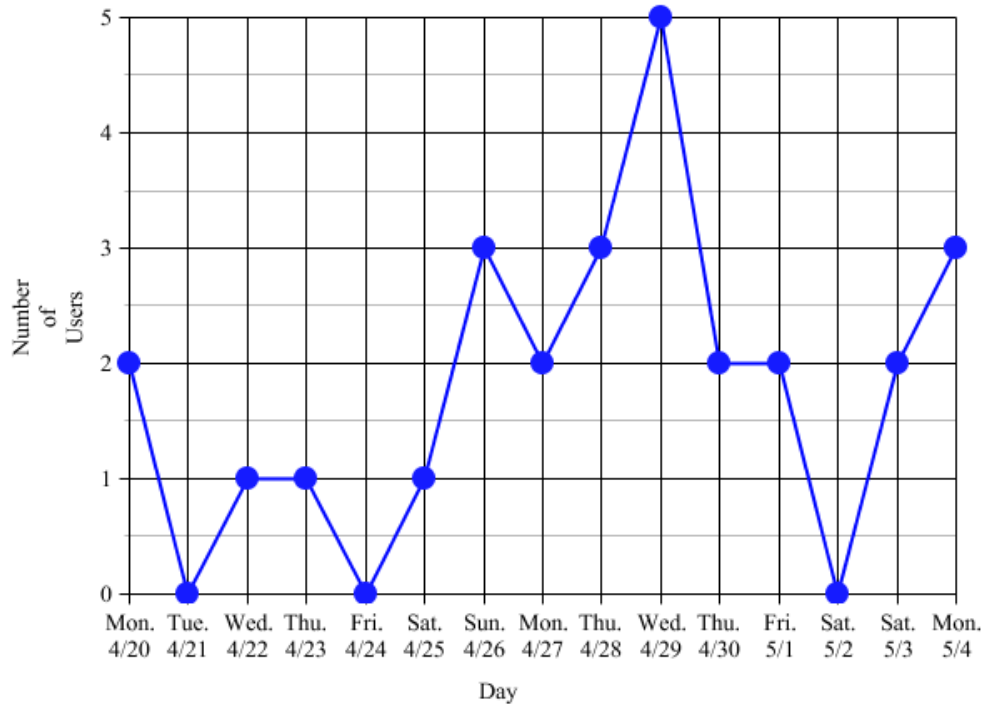


Figure 5. ConnectUS app usage over time during testing

Based on the data collected about usage by function, a user's time in the app was spent mostly sending friend request and exploring the roadmap. Additionally, participants' usage over time reflects the insufficient demographic coverage of testers. On the first use, users tended to fill out profile information and explore the map. The second time they logged on, they sent friend requests and began checking things off on the roadmap. The third use showed an increase of sent friend requests and the accepting of friend requests, while users continued to explore the map. After time, usage of the app petered out to simply sending and accepting friend requests.

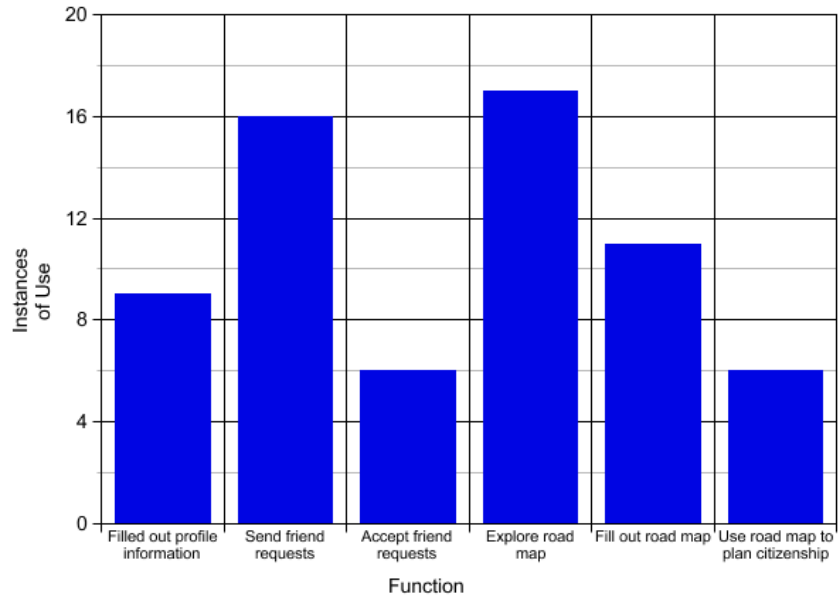


Figure 6. ConnectUS app usage, arranged by functionality

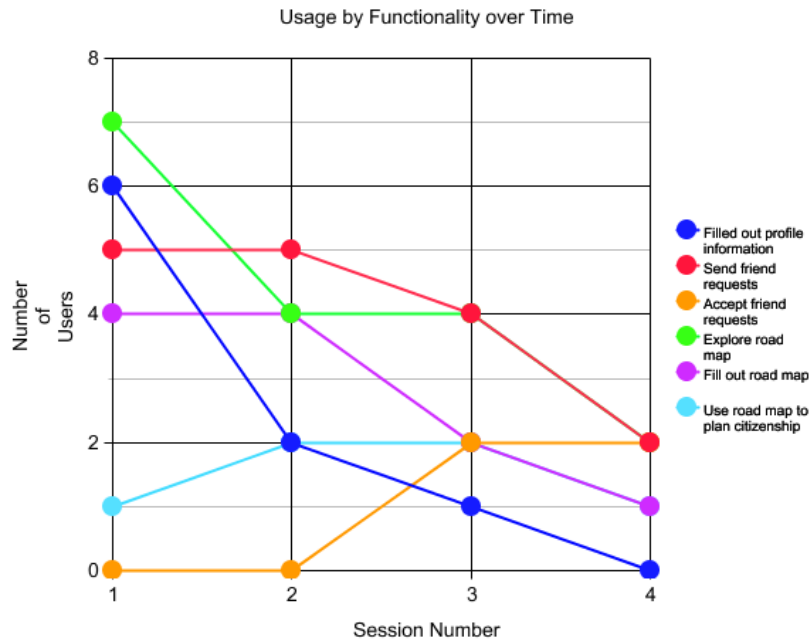


Figure 7. ConnectUS app usage, arranged by functionality over time

The qualitative data alerted us to design flaws that were uncovered during the paper prototype of the application, but that were unfortunately left unimplemented. For example, many users expressed confusion about the blue dots on the main page on the roadmap. We intended to have those blue dots be images of users, but it was too technically challenging to implement within our time constraint. Additionally, because we had no introductory tutorial to explain to users the intended purpose of each feature of ConnectUS, many participants were unsure about the functionality of some features.

However, we were given positive feedback as well in the personal emails participants sent us as well. We received comments such as "I liked that I could log in with Facebook. That made the app very easy to open and start using immediately," and "The flow of the app is really intuitive." Additionally, many people praised our use of checkboxes to monitor progress, saying that checking an item off was "satisfying" or "fun".

Discussion

Since the beginning our research has been motivated by two key questions: How do we help immigrants feel less isolated? How can mobile technology be used to keep people motivated and directed over a long period of time?

Initial research of related works introduced the idea of the power of immigrant networks (Lingel, 2011). Our research during our affinity analysis revealed that knowing other people with similar backgrounds can make the difficult immigration process take less of an emotional toll. Our interviewees repeatedly cited the support they received from their ethnic communities. This pattern was further confirmed during our paper prototyping test. Our users asked why it was possible to search for people with any language, or any country background- they were only

interested in people with backgrounds similar to their own. After building ConnectUS, we confirmed this hypothesis in our user testing. The aspect of the application people were most interested in was finding friends, using our search functions.

The second question of long term motivation is relevant because the citizenship process can often take years to complete. We hypothesized that mobile technology might be the tool for keeping immigrants motivated. It is easily accessible, which is important in connecting immigrants who might not have access to other technologies on a regular basis (Benedito dos Santos Junior, 2012). ConnectUS attempted to solve the problem of confusing instructions for citizenship by listing the steps and guiding users through the process, but we believed the motivation and direction would have to come from the social network it provided. In our brief testing period, our research did seem to suggest that people were interested in using the app to make social connections. However, information about long-term engagement could have only been collected over a longer time period than we were allotted.

Creating ConnectUS and seeing people use it has given us a lot of insight into how people connect.

Conclusion

There is much that can be done to ConnectUS to improve its usability and allow users to benefit more from using the app.

The first improvement that can be made is to include push notifications, which would increase user interaction with the app and bolster the social aspect of ConnectUS. It is hard for users to form a community and communicate with each other if they constantly have to keep

checking on the app themselves, or if other users forget about the app completely. Implementing notifications would solve this problem and greatly improve user participation.

Additionally, we could give users more incentive to interact with each other by gamifying the user interaction process. For example, we could include a point system, where users who help other users with the citizenship process earn a certain number of points that is displayed on their profile. This would also develop a system of trust, where one might be more willing to contact another user if they've been endorsed by all of the other people they've helped.

The interactivity of the app could further be improved by including interactive portions in the road map. For every step, we could have users give certain quantitative information such as how long the step took them to complete or how difficult it was for them. Whenever a user looked at a step on the roadmap, they could see the feedback from their peers and get some idea of what to expect when embarking upon this step of the road to citizenship.

Another feature that was widely requested by users was the inclusion of location-based information. As indicated in the discussion, one user suggested that ConnectUS should use a user's location to let them know about the nearest government offices where they can find the resources they need. Location would also be useful when suggesting friends for users; many users would probably prefer to make friends who lived near them so they could meet up in real life, if they chose, and discuss their shared experiences in person. This would greatly improve both the road map feature and the process of finding friends on ConnectUS.

Lastly, should the resources ever be available, it would be extremely beneficial to our users for us to translate ConnectUS into different languages to serve a larger user base. This application is only accessible to those who read English proficiently, and while these users are definitely part of our target audience, there are others who might be better served by an app such

as this one. Ultimately, ConnectUS would only be complete once we had the means to translate it so that it could be understood by a wider range of users.

Even with the addition of all these features, it is possible that ConnectUS would be more appropriately implemented as a desktop application. The American naturalization process can take anywhere from six months to a couple of years, which is a very long timeline for the use of a mobile application. More user tests are necessary in order to determine the best platform for this application.

As demonstrated by the results of our user tests as well as the complete lack of other products to occupy this gap in the mobile application market, an app such as ConnectUS could prove to be extremely useful to immigrants to the United States who are searching for resources and a supportive community. The app must undergo a lot of improvement before it can adequately fulfill its purpose, but with the addition of extra features, ConnectUS could fill this gap in the market and serve as a useful resource to an extremely underserved population.

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