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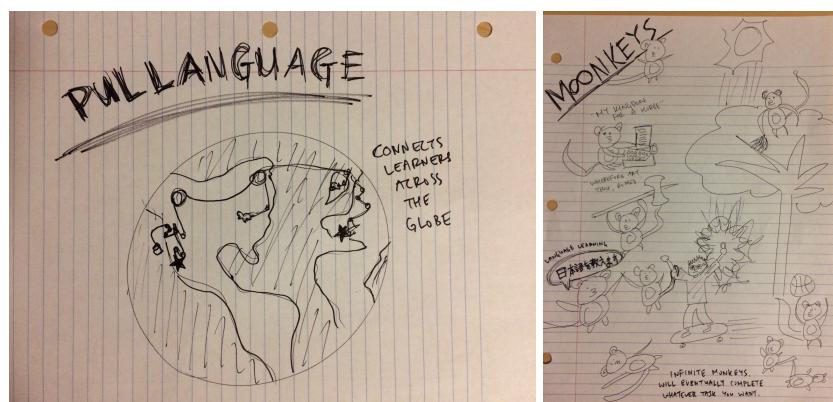
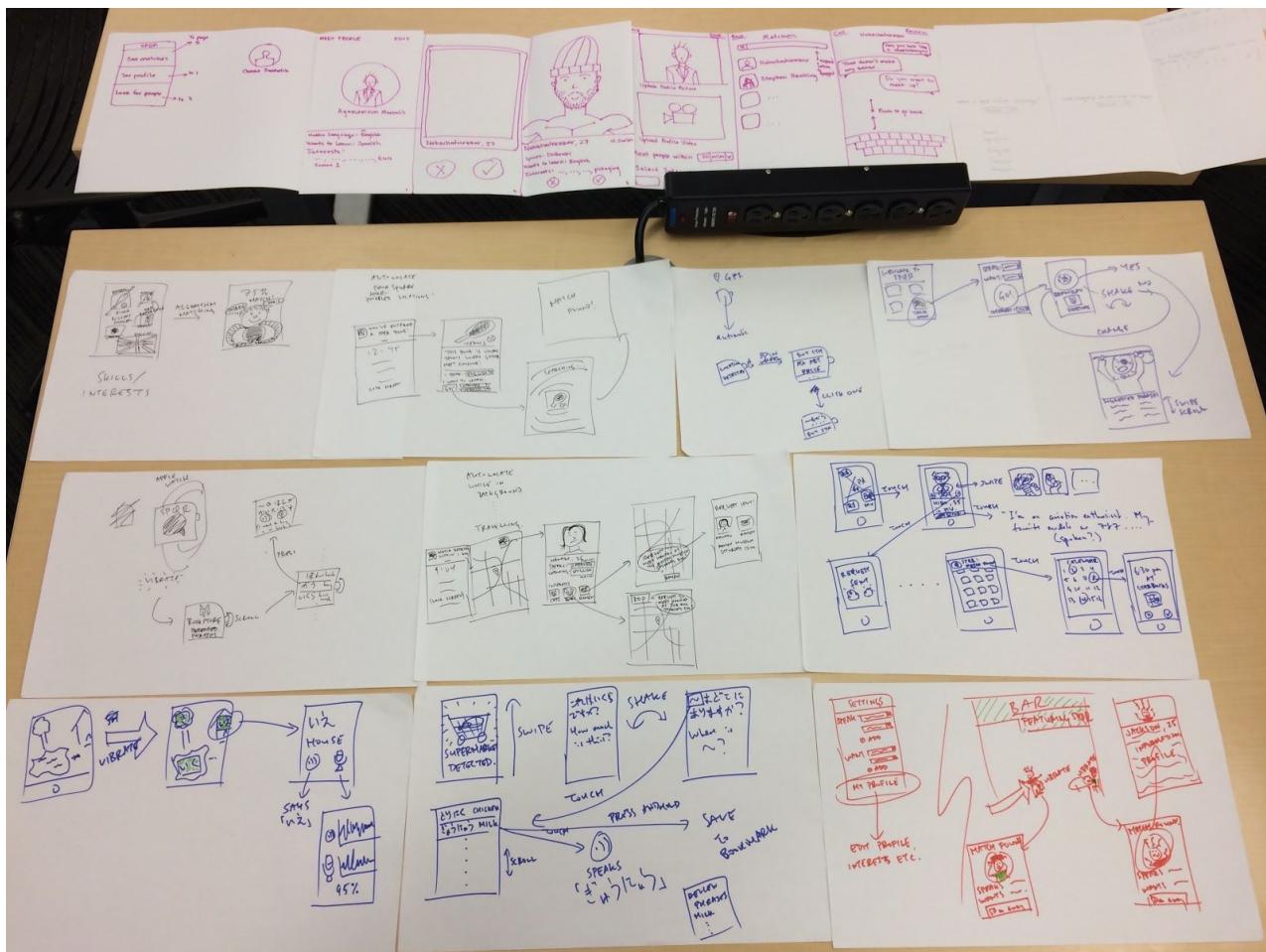
Value proposition: Bespoke language learning that focuses on your personal needs and interests

Problem: Existing language learning apps don't offer the necessary conditions for successful language learning to occur

Solution: Identify and address these conditions through app features: introduce opportunity for real-life practice with individuals with similar interests and language learning needs for a unique user-tailored experience

SPQR Assignment 5

Figures 1a, 1b, 1c. Concept sketches



Concept sketches

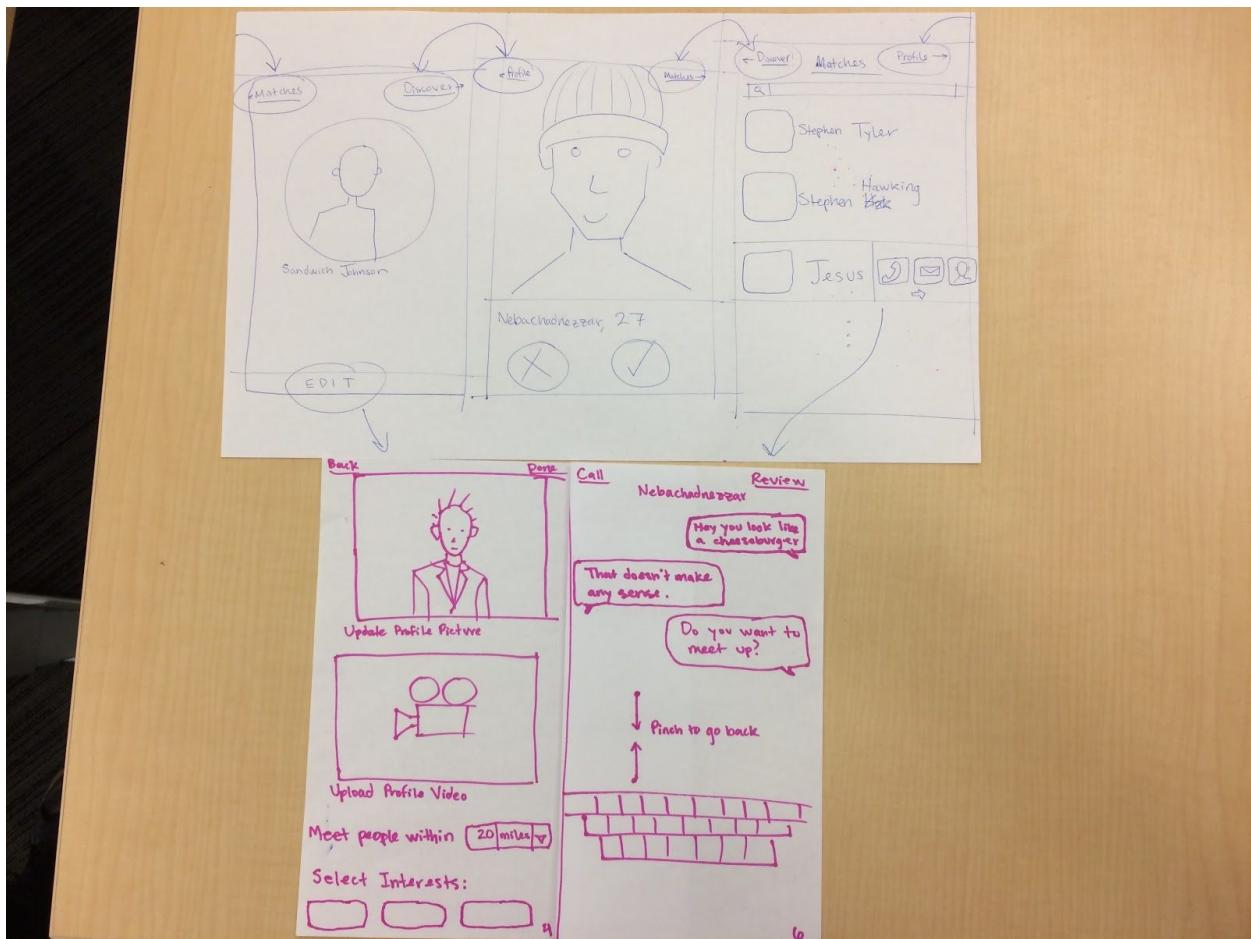
We brainstormed several ideas to explore different interfaces and ways in which users could potentially interact and act within the language learning space. Most of these ideas revolved around smartphones, but some other ideas involving smartwatches and physical objects were

useful as a brainstorming exercise to break through thought barriers and allow for ideas to flow unimpeded. Figures 1a-1c show the results of the brainstorming sessions.

UI sketches

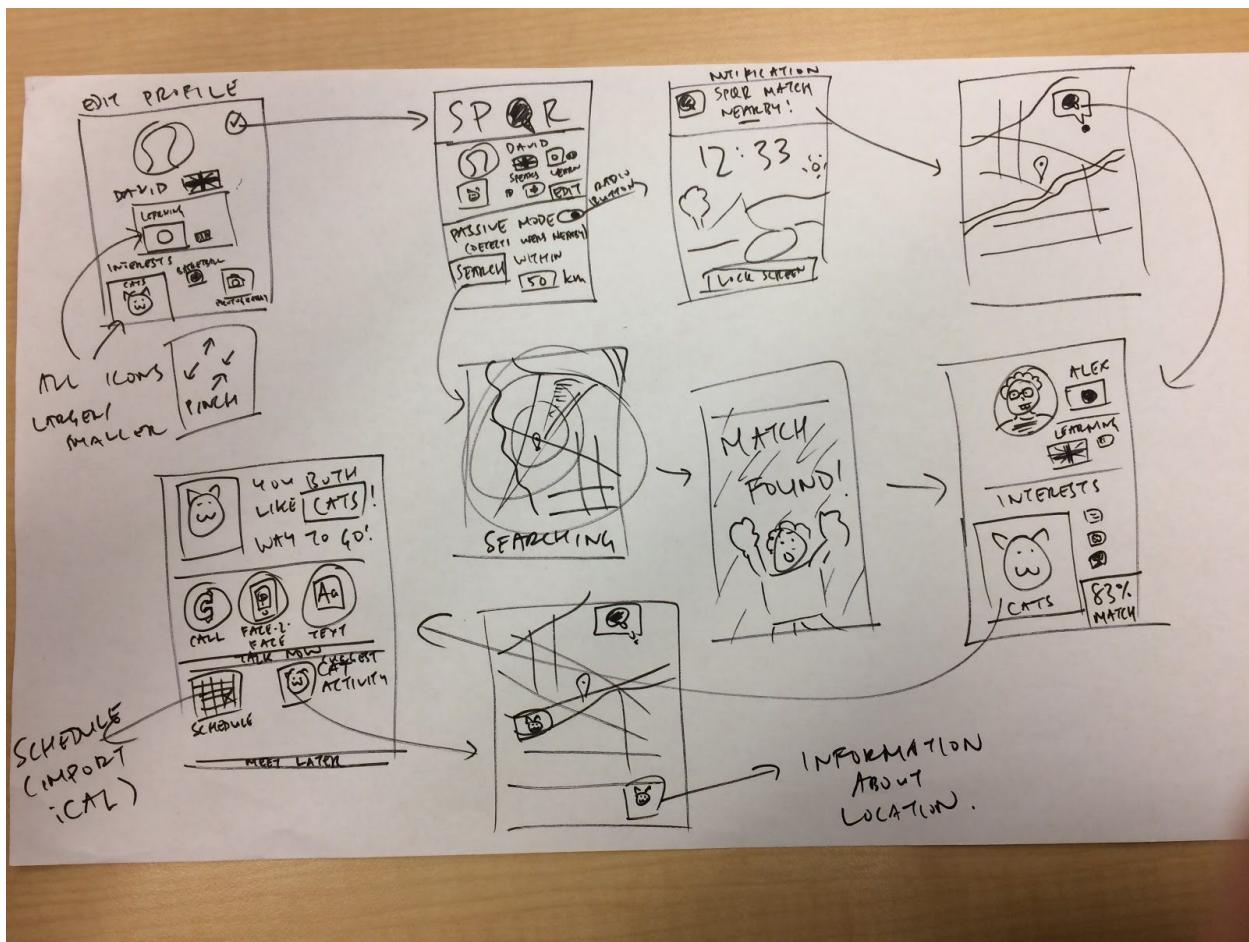
From these various concepts, we chose two diverse ideas that would allow us to explore the space from different angles and think about how users might accomplish our tasks from each perspective. Figures 2a and 2b show the initial two concepts we sketched out in more detail.

Figure 2a. UI Sketch I



UI Sketch I (Figure 2a) matches people based on interests and language skills/needs. The user creates a profile with his/her interests selected and uploads a photo and/or video, then chooses from people within a distance specification to chat and possibly meet. The UI is circular and uses a swiping interface to move from screen to screen.

Figure 2b. UI Sketch 2



UI Sketch 2 (Figure 2b) uses dynamic sizing of icons through pinching and expanding so that users can be matched based on things that are more or less important, allowing for more expression of individuality beyond simply listing interests with no weighting. This concept can be set to passive mode to automatically detect people nearby within a certain distance and then notify the user, or the user can do manual searches for people farther away. When a match is detected (either passively or actively), it shows the match's profile and the users can connect in various ways. If the users want to meet in person, the app suggests some locations based on shared interests.

Design selection

We considered these two UI sketches and listed some of the pros and cons of each design (Table 1).

Table I. Design selection rationale

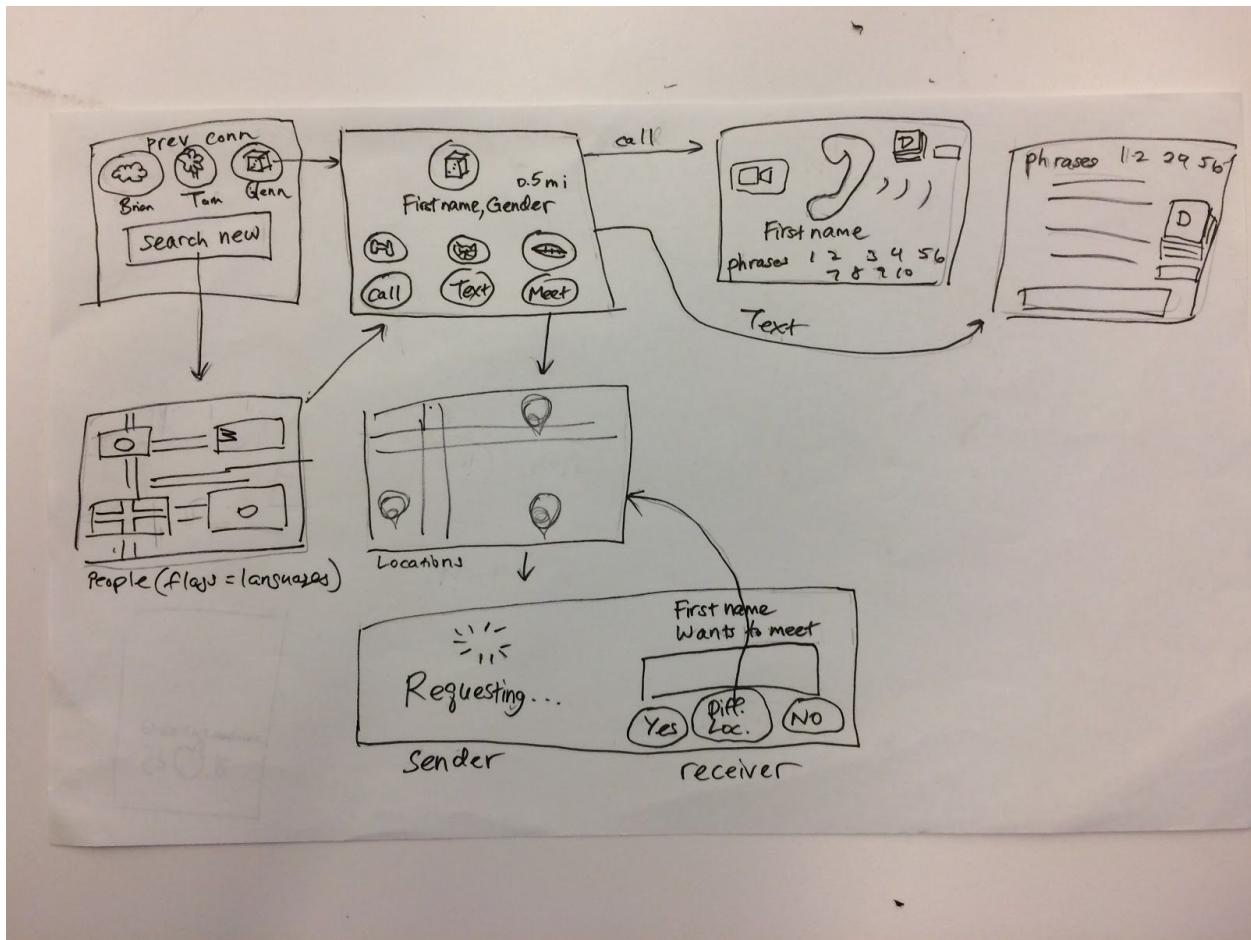
UI Sketch 1 PRO	UI Sketch 1 CON	UI Sketch 2 PRO	UI Sketch 2 CON
Interface is like Tinder, easy to recognize and use	Interface is like Tinder, suggests different intentions	Visual representation of how much user likes something (bigger/smaller icon)	A lot of screens and each screen looks rather cluttered. Could be unintuitive to use.
Circular and can just repeat the cycle multiple times	Limited functionality? Not many different things to do	Has passive mode with notifications	How to select icons? From a list?
Big pictures, screen is not crowded	Looks a bit old-fashioned (like a rolodex)	Incorporates calendar and map functionality	Slow to scroll through multiple people, each person takes several screens
Navigation links always in top left and top right			

We preferred UI Sketch 1 for its simplicity, but intended to incorporate aspects from UI Sketch 2 such as the dynamic icons. We realized that simplicity is important for regular users so that they can quickly pick up and use the app. It may be useful to have additional features for power users, but if these features are placed front-and-center, it may be intimidating for first-time users.

We also realized that it would be good to have a familiar UI that everyone has used before, like Tinder, because then the focus of the users could be on the content and not learning a new interface. When testing a previous prototype, we had presented a simple Tinder-like design that our interviewees found to be intuitive and easy to use.

However, after taking a break and coming back to our design the next day, we decided to pivot in a new direction to avoid the “dating app”-like interfaces we had been working with since the beginning of this project. We realized that the presence of photos would bias users in a direction that was tangential to the main interest of our target population, which was language learning. Replacing the photos with user-chosen icons instead puts the focus on finding a language partner for learning purposes and also on matching people by shared interests, which fits with our main user tasks that developed out of interviews and needfinding.

Figure 2c. UI Sketch 3



As a result, we decided to move forward with UI Sketch 3 (Figure 2c), which also allowed for more natural expression and integration of the tasks within the concept, putting the focus on those tasks instead of on the specific user and his/her profile. UI Sketch 3 addresses the weaknesses we identified in UI Sketches 1 and 2. We also felt that the Tinder-like swipe interface in our previous designs could lead to shallow connections and people quickly browsing through profiles rather than focusing on our main goal (task 3) of matching people by location, language, and shared interests. UI Sketch 3 also focuses on simplicity by reducing the number of options per screen to the bare minimum necessary to move forward, allowing for quick building of familiarity with the app.

UI storyboards

With such a limited number of screens, it was simple to storyboard the task flows for each of our three tasks (Figures 3a-3c). Our simple (

, Figure 3a) and moderate (

, Figure 3b) tasks both launch from the same screen after

the user has found a language partner matching by interests and language needs (for example, User 1 can speak English and wants to learn Chinese, and User 2 can speak Chinese and wants to learn English). The app keeps track of users that you have previously contacted, and shows currently online previous contacts. The user can select any one of the previous contacts, or search for a new contact, and will eventually end up at the partner screen. From there, the user can see the partner's avatar (a user-selected icon that cannot be a photo of the user) and 3 main interests, and can choose how to interact with the partner: **call**, **text**, or **meet**. The **call** and **text** options lead to a conversation the partner, and language support features can be accessed by pressing **dictionary** or **suggested phrases**, but are unobtrusive unless called upon.

The complex task (Figure 3c) is accessed through the **meet** option, and a map is shown that suggests locations where the user and partner may want to meet, based on shared interests. One user selects a location, which sends a request to the partner, who can accept, reject, or suggest a different location.

Figure 3a. UI Storyboard for Task 1 (simple):

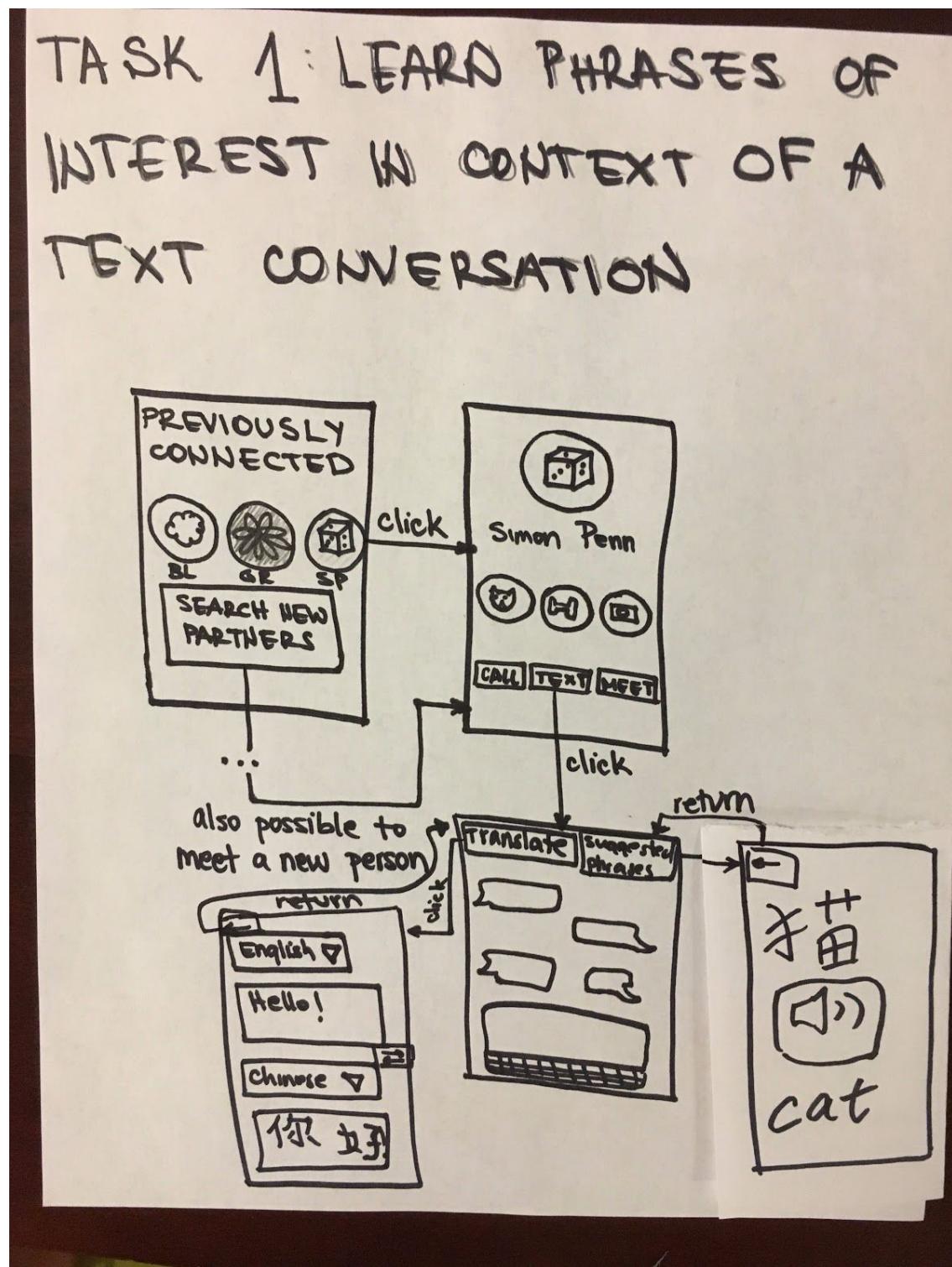


Figure 3b. UI Storyboard for Task 2 (moderate):



Figure 3c. UI Storyboard for Task 3 (complex):

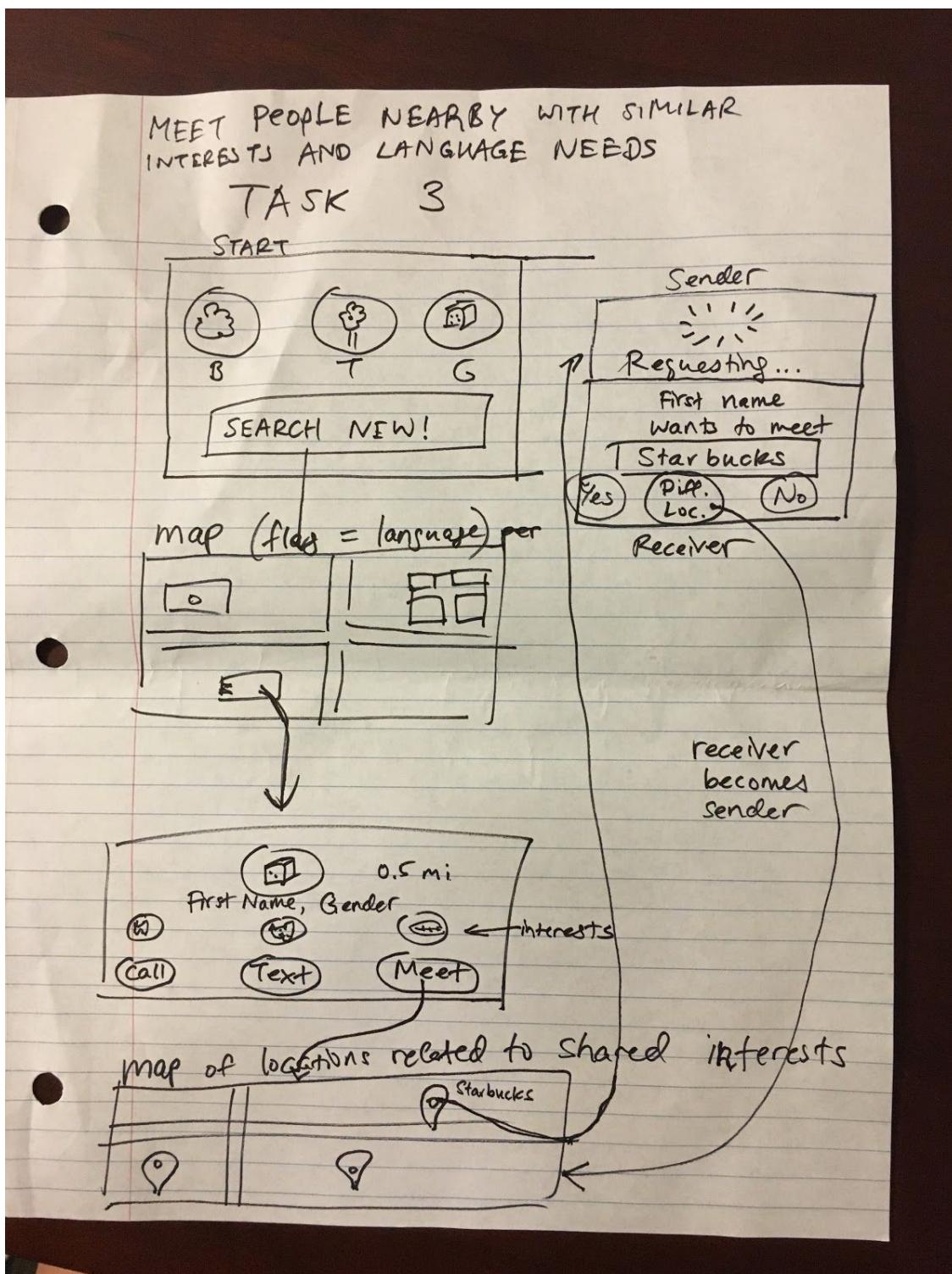
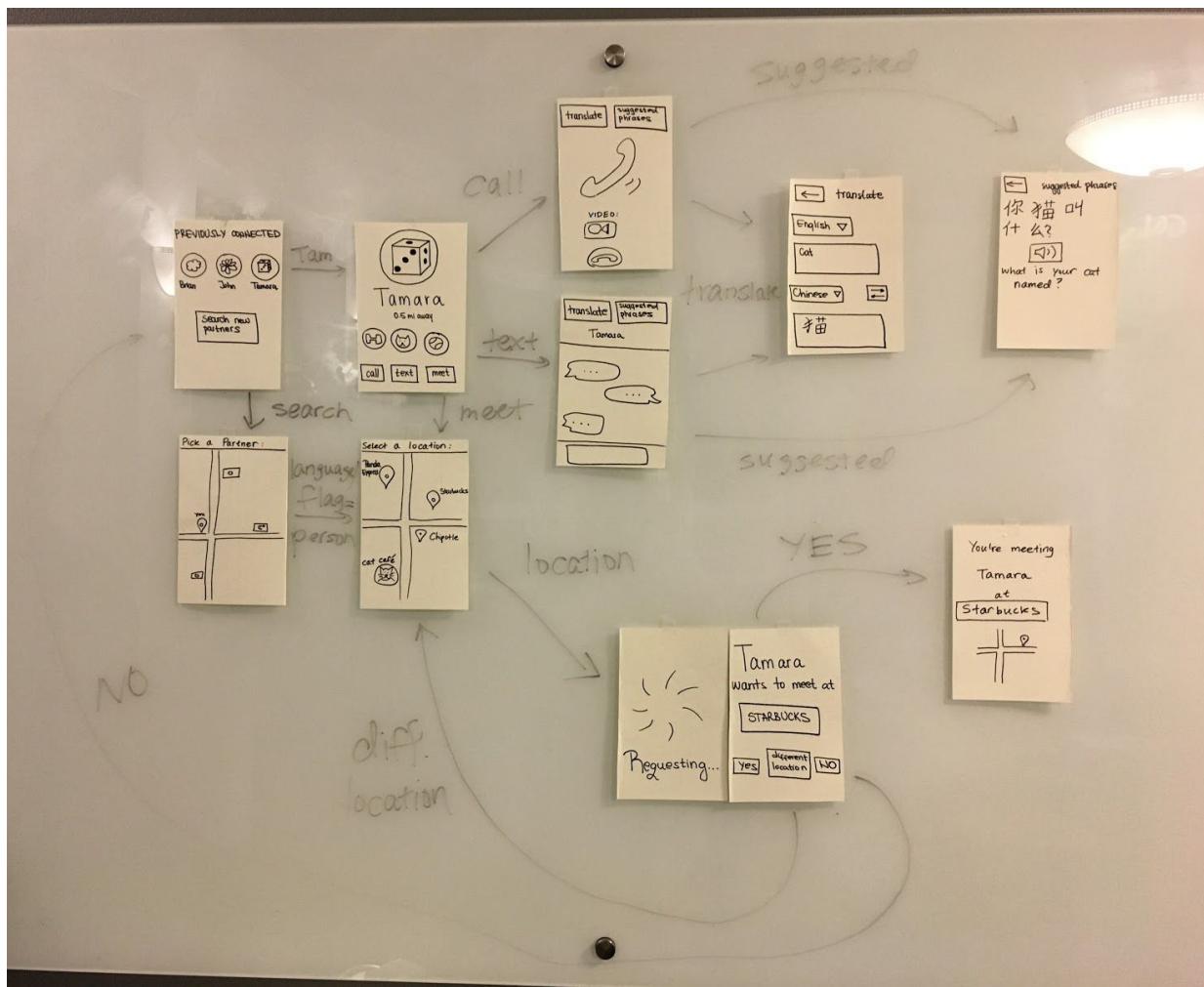


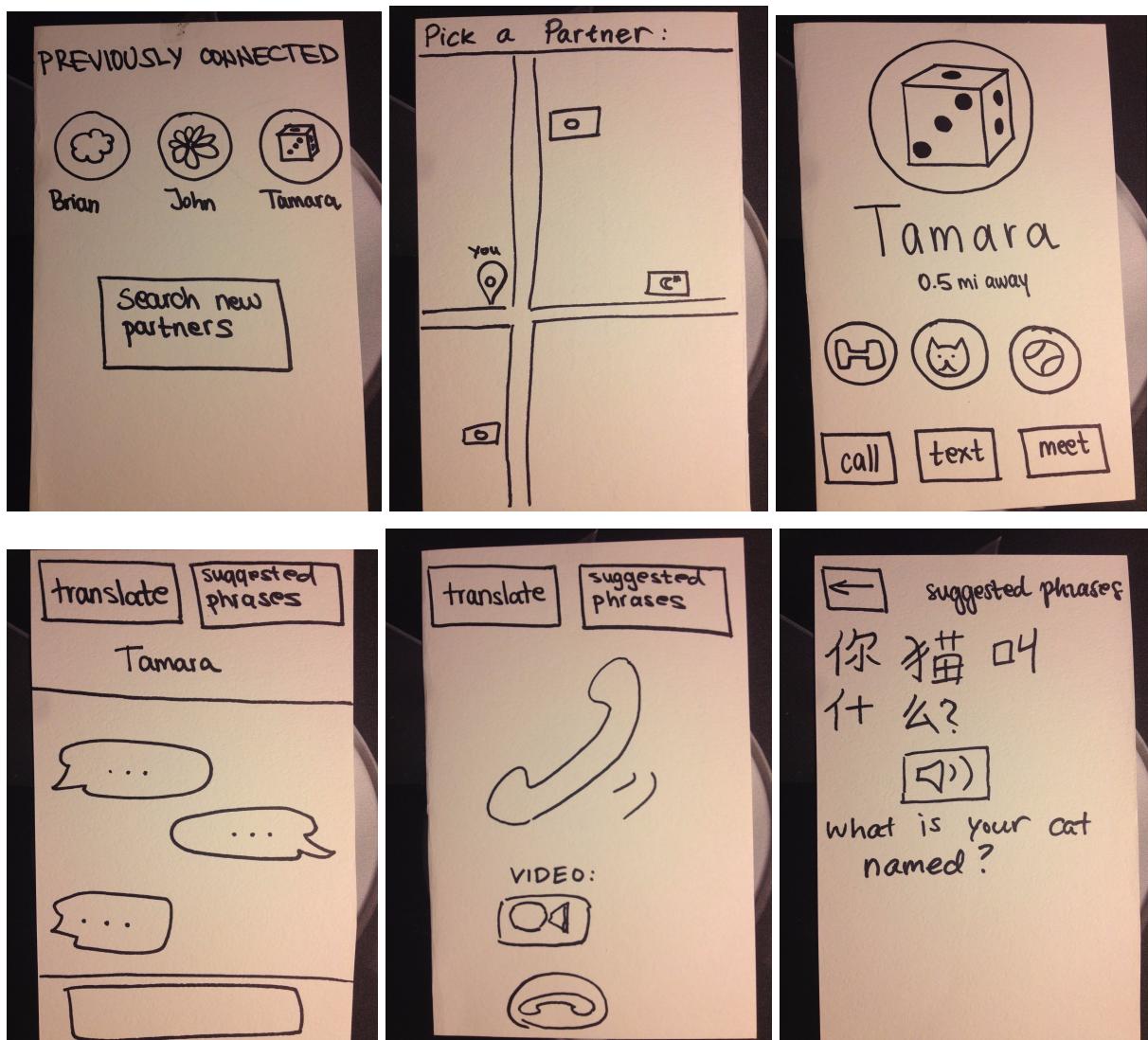
Figure 4a. Low-fi prototype user flow



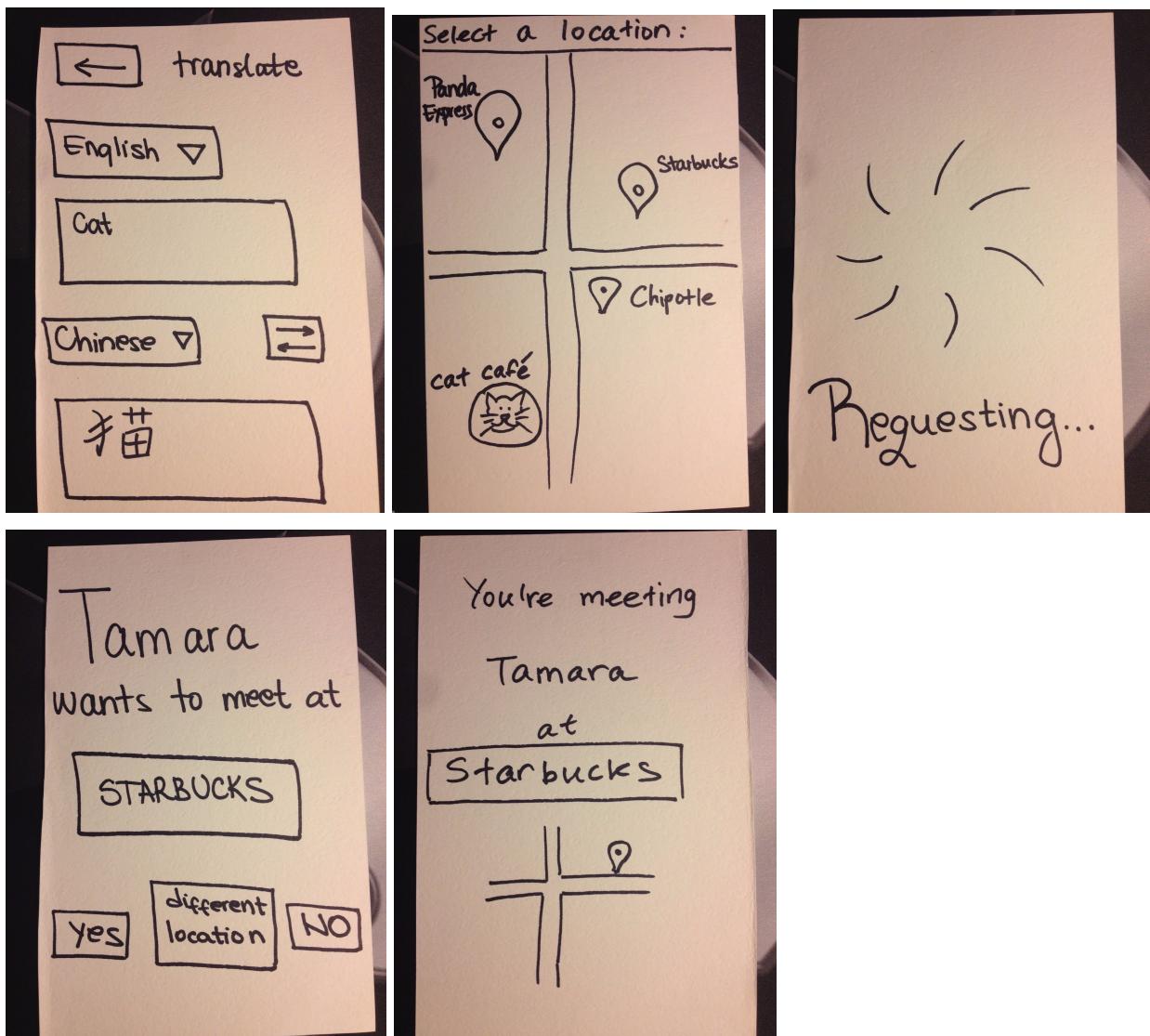
Low-fi prototype

We built a prototype using a separate piece of paper to represent each screen. As our concept involved only full-screen interaction changes, there was no need to recreate any other type of interaction in the paper prototype, and full screen replacements could be performed whenever the tester chose an action. Figure 4a shows the user flow from screen to screen, and Figures 4b-l show each screen in more detail.

Figures 4b-g. Lo-fi prototype screens



Figures 4h-l. Lo-fi prototype screens



We found 3 participants to test our paper prototype: Albert, Beatrice, and Carla (pseudonyms).

All were Stanford students who were either currently studying or had studied a foreign language in the past, and had different levels of proficiency with the foreign languages. The participants were recruited through personal connections in order to find a diverse sample with different language backgrounds, and were not compensated for their participation. All participants completed the consent form (Appendix).

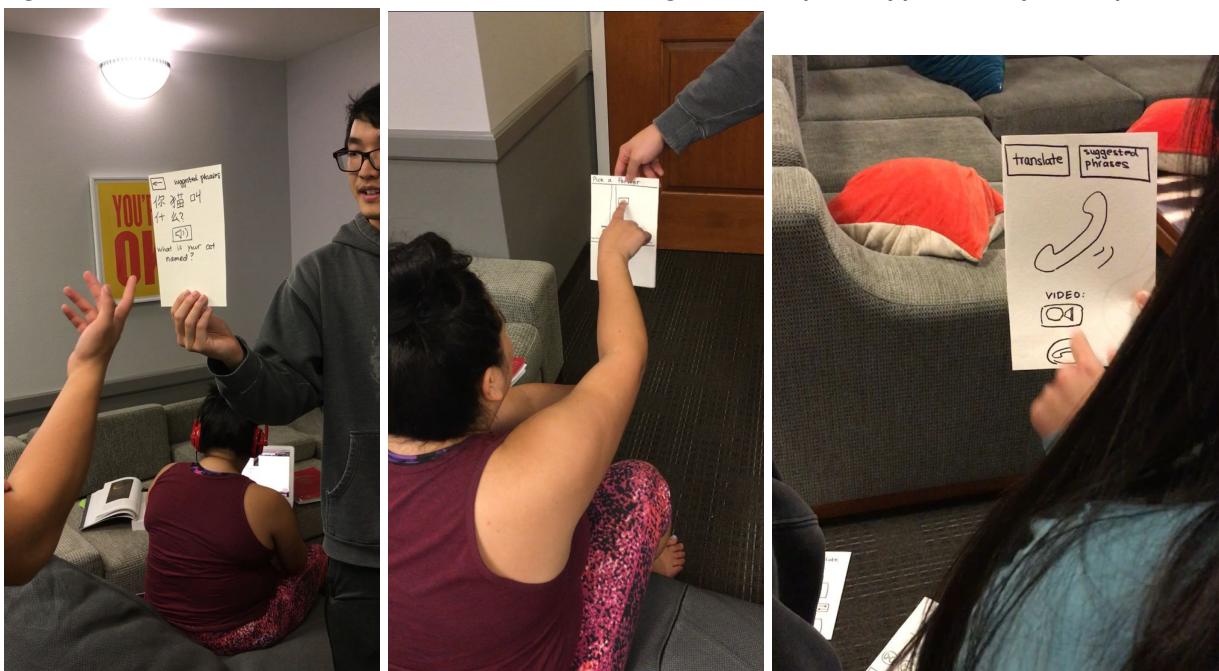
For all tests, one group member acted as the “computer” and reacted to the participant’s interaction with the prototype by providing the next screen but not guiding the participant’s input. The other screens were laid out in front of the “computer” for easy access but were out

of the eyesight of the participant. Another group member recorded the interaction on video for later analysis of results. The “computer” also set up the test with the following script:

“Imagine you’re in a location here or abroad and you want to learn a language. You have this app. You’re on this first screen. The first task we want you to do is have a text conversation with someone and learn new phrases based on the interests you share.

You accomplished the task! The next task is to ...”

Figures 5a-5c. Albert, Beatrice, and Carla interacting with the prototype held by “computer”



5a: Albert, studying German in preparation for studying abroad at a German university

5b: Beatrice, learned Spanish in the past but not currently learning a language

5c: Carla, speaks Vietnamese at home, took Spanish and French in high school

After completing all 3 tasks, participants were asked about their experiences in interacting with the prototype and were asked open-ended questions about how it might be improved. We analyzed the video recordings of participants’ interactions with the prototype to find areas where the participant struggled to complete the task or attempted to interact in a way we had not expected.

Participant interactions

Coding system

0: no problem

- 1: cosmetic problem
- 2: minor usability problem
- 3: major usability problem
- 4: catastrophe

Albert

Minute 1:

- Was confused about what the avatar represented- thought it was the main interest.
Suggested that we make avatars something that wouldn't look like an interest. (2)

Minute 3:

- He liked that the call/text interface is “familiar and intuitive”, as well as the Translate option that works “just like Google Translate” (0)

Minute 5:

- Was confused when searching for a new partner about what maps represented, thought they were nationalities (1)

Beatrice

Minute 2:

- When she searched new partners, she thought that “none of them seemed like they liked cats” (2):
- Clicked on interests thinking they were buttons (3)

Minute 3:

- “I like the video option” - thought it was good to have it an an option rather than a default. (0)

Minute 4:

- Page with translation had bad instructions (3) - she knew she could, but “didn’t know exactly how to copy and paste it back to the conversation”

Minute 5:

- She accomplished this task with ease and thought it was “familiar and easy to understand”.

Carla

Minutes 1-4:

- In the beginning, she didn’t know where to click because she wasn’t sure about what were clickable buttons and what weren’t. (3)
- Later, she suggested that we make interactivity more intuitive through design (e.g. make meet/call/text buttons that are obviously clickable, and make sure it’s intuitive that the interests can not be interacted with).
- She thought suggested phrases were “kind of random” (2): we should work on making them more explicitly tied to interests

Minute 4:

- She thought it was “cool that the app told her how to pronounce phrases” (0)
- She was confused about what the hang-up button meant (1): suggested we should make it red and clear that it’s used for ending conversation.

Minute 6:

- “She’s only half a mile away, so I definitely want to meet her instead of text and talk” (0)
 - she used the opportunity to practice language in real life thanks to the information about location that the app gave her.

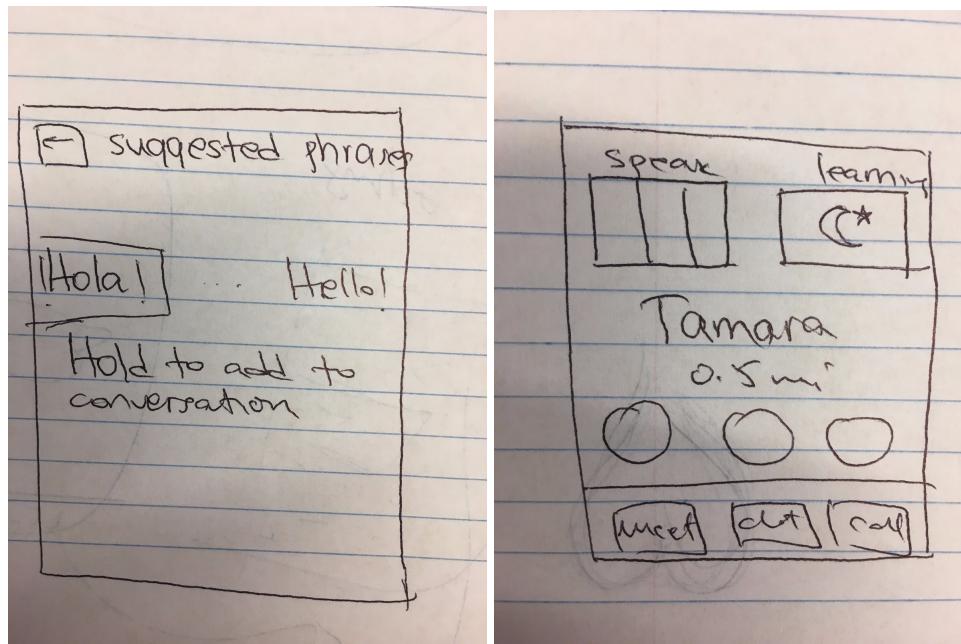
General results and discussion

After participants used the interface and completed the first task, they were able to easily complete the other tasks as instructed. This shows that the basic user flow is intuitive enough to work without needing too much labeling or explanation. However, participants were confused about the pictures representing users’ interests and thought they were buttons that could be interacted with. This could represent a limitation in the low-fi prototype that could perhaps be made more obvious with higher levels of detail, where buttons could be given some sort of shading effect with photos remaining flat, or different colors could be used to indicate which items can be interacted with. This would require more testing with higher-fidelity prototypes to determine if it is indeed a problem with our core design.

Participants had some ideas for improving the suggested phrases screen. It would be good to be able to autofill suggested phrases right into the conversation or just send them immediately,

without having to manually copy and then paste. Figure 6a shows a potential redesign for the suggested phrases screen with explicit instructions about how to add the phrase to the conversation. We also need to pay attention to the algorithm we use to suggest phrases in order to make sure they are relevant to the shared interests.

Figures 6a, 6b. Sketches of potential modifications



One significant limitation with our testing is that we didn't have participants go through the process of making a profile. As the focus was on completing the 3 tasks, which all essentially start after matching with a partner, we designed the prototype to start at the contacts screen. However, without providing the context of creating one's own profile and seeing how the interests and avatar selection mapped onto the basic user profile, participants were confused about what the avatar and interest pictures represented. It may be the case that going through the setup process would make this clearer for users, but Figure 6b presents an alternate design that removes the avatar entirely, replacing it with large flags explicitly labeled with the user's native language and the language he/she wants to learn. As mentioned previously, we wanted to move the focus away from personal photos in order to avoid the connotations of dating apps, and so perhaps the avatar is unnecessary as well, especially if we put a rule that users cannot upload personal photos. Removing the avatar entirely may make the process smoother.

Appendix: Consent Form

The SPQR application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of SPQR. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Glenn Davis, Brian Liu, Tamara Prstić, John Reyna) or with Professor James Landay, the instructor of CS 147:

James A. Landay
CS Department
Stanford University
650-498-8215
landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the SPQR experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time

Name _____

Participant Number _____

Date _____

Signature_____

Witness name _____

Witness signature_____