Parley: Translation & Messaging

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The Problem and Our Solution

The Problem

When learning a new language in a formal setting, it is often difficult to learn the vernacular, or common way in which people speak casually in the language. There are many barriers to becoming proficient in a language, including limited access to real speakers of the language you are interested in, difficulty in translating slang or uncommon words, and creepy or unsafe online language learning spaces. Teachers have tried methods such as penpals from different countries. However, letters take weeks to send, and often students lose interest, making the learning opportunity from such an experience minimal. Difficulty conversing with people who speak another language makes students feel uncomfortable when fully immersed in a different language and culture. Even secondary avenues to language learning such as watching television in a different language, reading news in a different language, or language learning apps like Duolingo sometimes lack accountability and feel impersonal.

The Solution

Parley aims to solve each of these problems. It will boast real time translation between two users who speak different languages. Users messaging casually in real time will allow for them to pick up slang or uncommon words they would not learn in a more formal learning setting. Additionally, teachers will be able to moderate the learning environment of their students. Therefore, students will remain accountable and the learning environment will not become creepy or inappropriate. Students will also be speaking with another language learner. Therefore, when communicating with the other student, they will gain cultural perspective and have a personal experience that will keep them engaged.

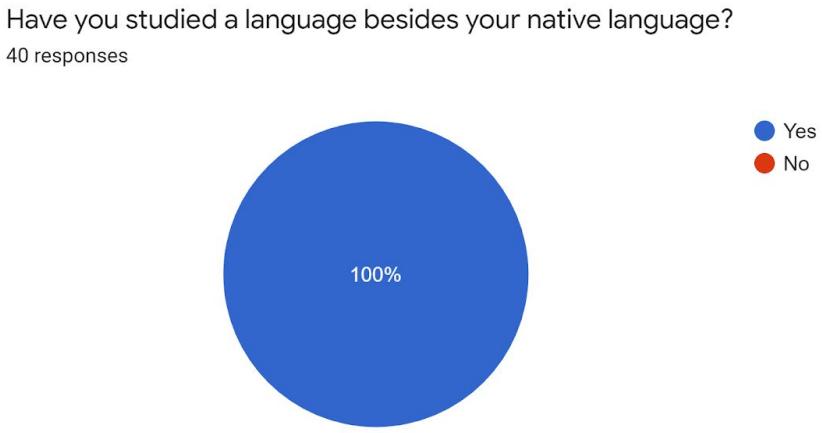
Parley will display messages in both the user's preferred language and the recipient's language. The translation into the user's first language will only be displayed after the user has tapped on the translation, so they will have the opportunity to try to translate themselves first. We expect both users communicating with each other to gain confidence in their casual speaking. Parley also removes the entry barrier of full language immersion.

While we expect this application to be a tool in classrooms, we also expect language learners who are not students to have access to our app as well. Outside of the education mode, there will be features similar to other communication apps such as WhatsApp but with automatic translation capabilities. Therefore these users can connect with people from different cultures, and will even be able to find new people to talk to on the app. Once they have connected, these language learners can have a similar experience to the teachers and students using the app or can simply have a discussion using the language they are most comfortable using.

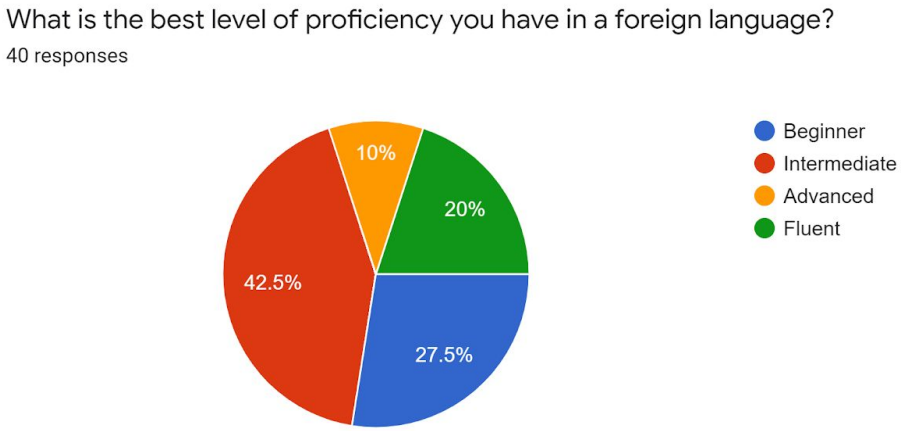
User Analysis

Research Questionnaire

To gauge interest and ideas for our service, we sent out a research questionnaire that currently has forty responses. Due to limited reach, our responses are limited to college aged students, mostly from the United States. In the future, contact with other demographics will be necessary. For now, our results will form a strong foundation for us to determine which user tasks are necessary. As an overview, we determined that all current respondents have studied a foreign language, but over two thirds would only consider their proficiency in this language to be on a beginner or intermediate level.



Our first question, which asks if the respondent has ever studied a foreign language, received a unanimous “Yes” as the response.



Over a quarter of respondents consider themselves to have a "beginner" level of proficiency, and nearly half of respondents would consider themselves to have an "intermediate" level. This suggests that the majority of users on a messaging service may need assistance when conversing with someone who speaks another language.

General User Needs

Global Communication

The main appeal of Parley is a method of providing global communication. Our product stresses the "global" aspect of this- we are aiming for users who want to explore the world through conversation. While there are many apps that focus on texting/chatting services, they are primarily focused on connecting friends and family who speak the same language.[1] Our service will allow users to be paired with someone from a different country or someone who speaks a different language in addition to providing traditional chatting services. In addition, we aim to one day provide the ability to easily add new friends that users might meet while abroad (possibly through QR codes). This would allow for easy means of communication while traveling abroad.

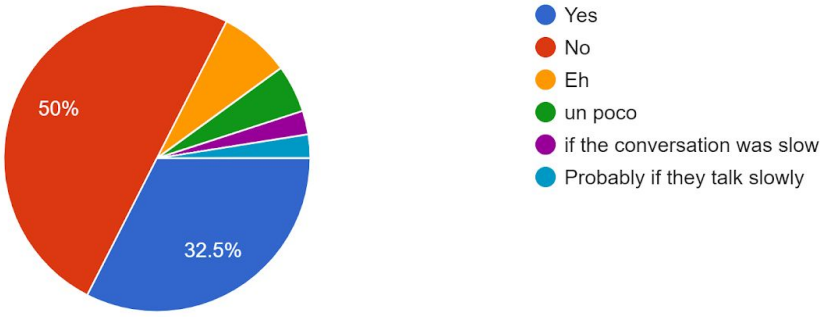
Translation

Translation is what sets our service apart from traditional messaging apps. We hope to provide users with multiple options when it comes to translation: 1) Instant translation that shows messages in the original language and the user's designated language. 2) User-controlled translation that shows messages in the original language and requires users to tap/highlight portions of the message that they want to

[1] See section "Existing Solutions" below for a more detailed account of these apps.

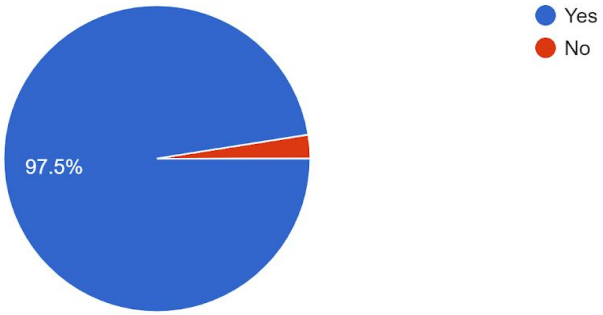
reveal the translation. Therefore, our demographic will primarily consist of users who want to take advantage of our service's message translation. When considering responses to our two questions below, we can safely assume that the majority of users would not be comfortable conversing with someone who speaks a foreign language when unassisted. However, our solution of providing in-app message translations would make almost every user more comfortable doing so.

Do you feel that you can speak casually with a speaker of your second language?
40 responses



Only around a third of our respondents felt confident that they could speak casually with someone who speaks their second language.

Would you be more inclined to have conversations with individuals who speak a foreign language if you could translate their messages in-app?
40 responses

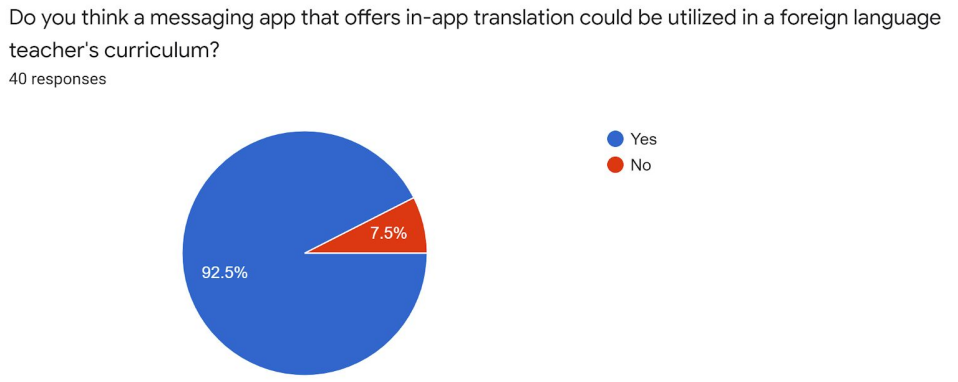


Nearly all of our respondents would be more comfortable conversing with someone who speaks a foreign language if they could translate messages in-app.

Educational Environment

The nature of our translation options lends itself to a focus on education. The majority of survey respondents agreed with this sentiment, as 92.5% felt that a messaging service with in-app translation could be utilized in a foreign language teacher's curriculum. Therefore, a future goal of our service is giving teachers the ability to organize their classroom digitally using their student's school accounts. Teachers will be able to moderate all discussions to ensure their digital classroom environment remains school-friendly. Teachers can work together with teachers in other countries to create a "penpal" experience for students to have conversations with students who speak another language. By creating a school-friendly classroom environment, our service will create the perfect, modern solution for language penpals.

In addition, our service will not tolerate any discrimination or inappropriate behavior on any of our random matchmaking services. This can be accomplished by filtering any inappropriate speech and preventing the exchange of pictures or other media until the user has approved/"friended" someone. Users can also block/report other users they encounter who break guidelines or make them uncomfortable. Thus, random matchmaking maintains a friendly environment and allows users to converse with new people who speak different languages and allows the user to decide if they want to friend who they meet.



The majority of respondents felt that a messaging app offering in-app translation could be utilized in a foreign language teacher's curriculum.

Cost-free

We hope to offer our services for free to prevent barriers of entry. This will enable anyone to join our service and take advantage of its unique features while, in turn, expanding our user base to create a more diverse experience. Individuals put off by monthly service fees or initial app payments will be more likely to turn to our service.

Target User Demographics

Travelers/Individuals living abroad (Young-adult to middle-aged)	Our service aims to provide a simple, quick way for users to add other users they might meet while traveling abroad. This would allow for users to have a method of clarifying information during conversations, such as directions to a certain location. It could also assist travelers in learning the local language.
Individuals in constant communication with foreigners (Adult)	Individuals who live in high-tourism destinations and are constantly communicating with foreigners who do not speak their language may benefit from using our service. This would allow them to easily communicate and clarify information and prevent awkward "confused tourist" occurrences.
Foreign-Language Teachers (Adults)	Teachers who want to provide their students with an authentic "penpal" experience with someone speaking a foreign language may be attracted to our service's "education" mode and our strict moderation of our community to provide a school-friendly environment. Teachers may also be attracted by the control we offer over their classroom of student accounts and how our service enables them to collaborate with other teachers from different countries to assign penpals.
Students (Pre-teen to young adult)	Students whose teachers take advantage of our service will obviously be part of our user demographic, and it is in our best interest to make our service appealing for these users as well.

Individuals learning a language (Teen and older)	Individuals who want to learn a new language and are not necessarily students may enjoy our feature of global matchmaking to find a penpal as well as the "education" mode to learn a new language.
Individuals interested in different cultures (Teen and older)	Similar to individuals seeking to learn a new language, individuals who want to meet people from different countries and learn about their background and experiences may enjoy our service using the instant translation mode. Though we encourage them to learn a new language, we also encourage diversity and education about other cultures. Users who simply want to meet and converse with someone new will not be pressured to disable instant translation.

Non-Target User Demographics

Individuals uninterested in communicating with others who speak a different language (Any age)	This demographic likely already uses a mainstream messaging app/service. Since the primary draw of our service is the translation, education, and global exploration features, those uninterested in taking advantage of these will have little reason to try our service over the ones they currently use.
Individuals who want "inappropriate" communication (Adult)	Individuals who would only be interested in a messaging/chat matchmaking service if they can bring up inappropriate topics or have unmoderated discussions (e.g. Omegle) may be put off from the strict moderation and safety precautions utilized by our service.

Individuals without smartphones & computers/not technologically proficient (Elderly)	Individuals who do not have a device to run our service or lack technological skills necessary to install and navigate simple user interfaces are probably not the right fit for our service. It will be difficult to provide them with a platform to use our service or help them understand how to use it if they struggle with most technology.

Personas

Dirk Hanson (Backpacker)

Dirk is a backpacker who wants to explore the world and experience new cultures in-person. He is 22 years old and typically travels alone, but loves to make new friends with the locals. His first language is English and he also speaks relatively fluent Spanish. However, he is currently hitchhiking through Germany and has encountered some issues communicating with his would-be drivers. He has tried using the Google Translate app and passing his phone back-and-forth with his newest driver, but they struggle to remember the last sentences each one has said.

Dirk would benefit from our service by simply having his newest driver scan a QR code on Dirk's app and download our service, automatically adding both to a group chat upon his driver's registration. The two can text each other in their own language and communicate easily as well as have a record of the entire conversation. Dirk can also make note of certain words he does not know the meaning of in order to learn some German.

Jenna Domínguez (Teacher)

Jenna is a Spanish teacher at Santa Clara Highschool in Santa Clara, USA. She teaches freshmen taking Spanish 1 and thinks it would be a fun and unique experience if her class could talk to someone their own age in Spanish. However, last year her students despised her attempt at having them send physical letters to a class at the Highschool's sister school in Mexico. She initially asked her students to send their own letters but they never did. Then, she attempted to collect them and send them all, but students kept missing deadlines and she did not want students in the class in Mexico to feel left out if she

sent only some of the letters. She is aware that everyone uses their own messaging apps but does not want students texting without any moderation or way of knowing what they are doing on their phone.

Our service would be the perfect fit for Jenna, who wants a contemporary way to assign her class pen pals but wants to moderate her students. She can work with the teacher at the sister school and use our service to automatically take care of pen pal assignments between the classes. She can check if her students are using the app and she is alerted if anyone says something inappropriate, though the student accounts on our service prevent any images or media from being sent.

Francis Franklin (Full-time Parent)

Francis is a full-time parent. She has two young daughters that have infinite energy. Between driving them to school or sports practice, helping them with homework, and taking care of meals, she has had little time to travel or meet new people. She's heard about apps to meet new people, but many have had questionable reviews and don't seem like great ways to make genuine new connections. She wishes she could travel and experience new cultures, but is happy to be taking care of her family for the time being.

Francis could take advantage of the matchmaking aspect of our app to meet someone new from a different country. The nature of our app helps target other users who want to make genuine connections and helps respect the user's privacy until they decide to "friend" another user, so Francis would feel more secure. She might make some long-term friends and learn about new cultures using our service.

Joe Stevenson (Hardware Store Owner)

Joe runs a hardware store in the United States. He has only a handful of employees and has to work hard to keep his store open, so he has little free time. He has a small group of friends that he's been close with for years and he doesn't believe he needs any more friends. When he isn't at the store, he's usually hanging out with his friends and playing cards or watching sports. Joe is comfortable with his current routine and isn't very open minded, and he also doesn't like being told things he doesn't know about.

Though we would love for Joe to try our service, meet other users, and gain a new perspective, we realize Joe may not be the type of person who would not be interested in our service.

Task Analysis

In developing our application, our primary goal is to facilitate communication between people of different cultures in order for them to improve their conversation skills in a foreign language. While this assumes that most users are students (individuals college age and younger who already have beginner knowledge of a foreign language), some users could also be adults or non-students interested in improving in a foreign language. Furthermore, other users will merely want a quick translation and have no desire to learn the language. As seen above in "Target User Demographics," there are a few different goals one could have for using this mobile app, so the reasons people have for using our product can be broken down into the following:

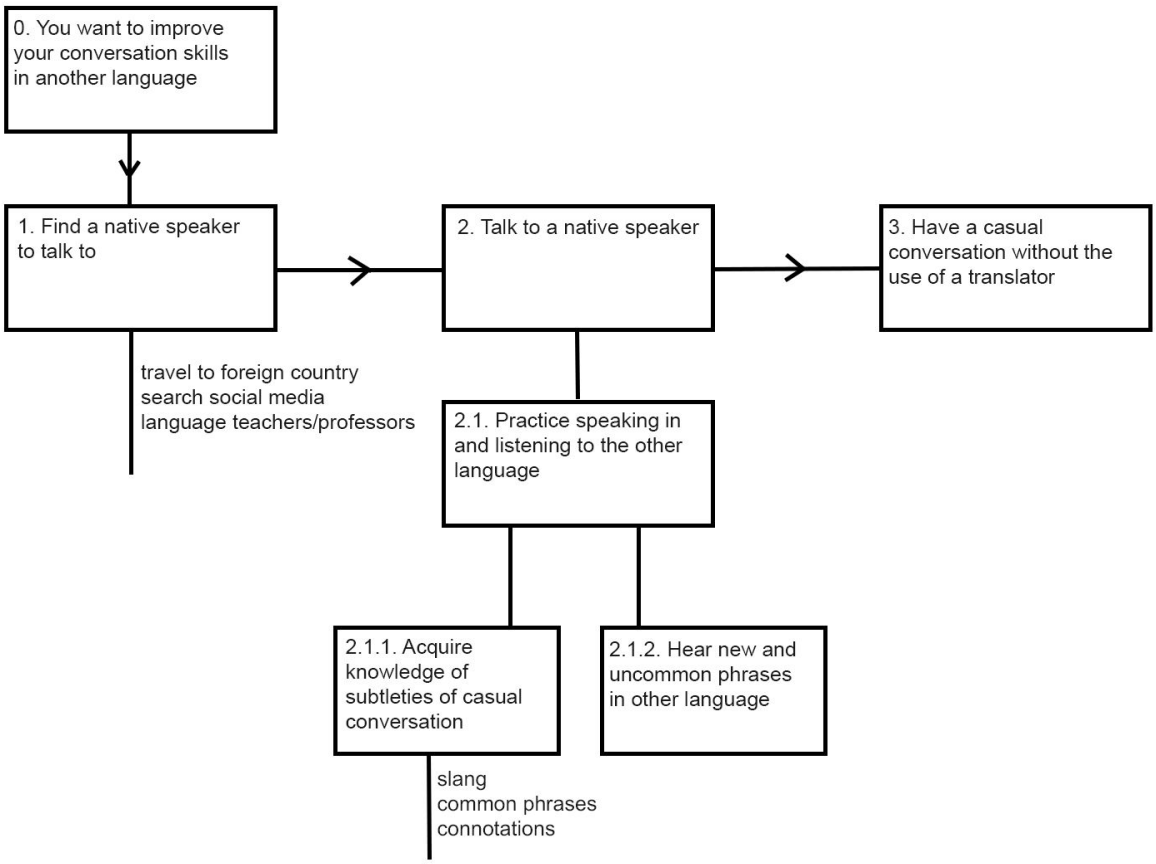
1. Students want to improve in a foreign language
2. Non-students want to improve in a foreign language
3. People want to have a conversation with someone who speaks a different language, but have no desire to learn the language itself

The task environments vary slightly for each of the above users and their respective goals, but all contribute to the fact that Parley would be most successful as a mobile application. Students using Parley to improve in a foreign language would need to be able to use the app both at school and at home to provide flexibility. This way it can be used in conjunction with either class assignments or homework. This tool must be easily transported back and forth from school everyday, so using it on a mobile device would be the most effective implementation.

Non-students and people who only want to use Parley for translation purposes could be using the app at any location and any time. Specifically for those using Parley only for its translation features, it is important that the app can be used on the go and is easily accessible whenever needed. Travellers and other people who are in constant communication with foreign language speakers never know when they might need to talk to someone, so this app should be ready to go whenever they are. As a mobile app, Parley would always be on hand and available for quick access.

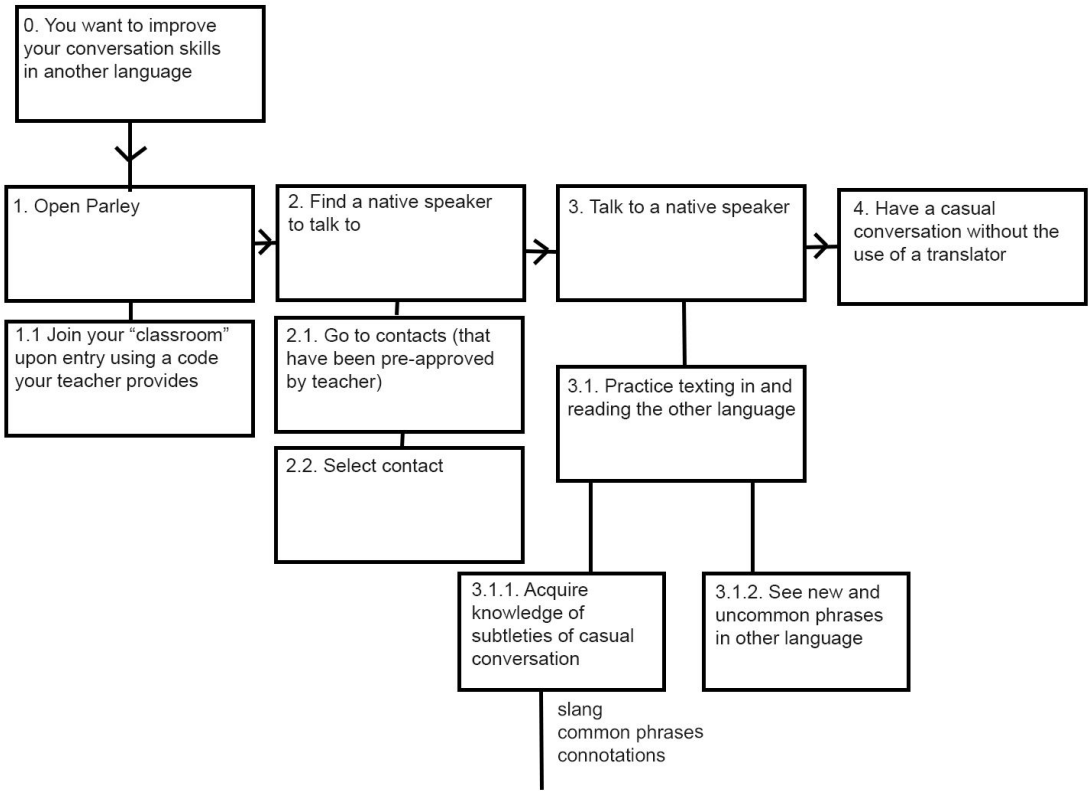
Below are graphical representations of how user goals can be reached through Parley:

1. Students want to improve in a foreign language

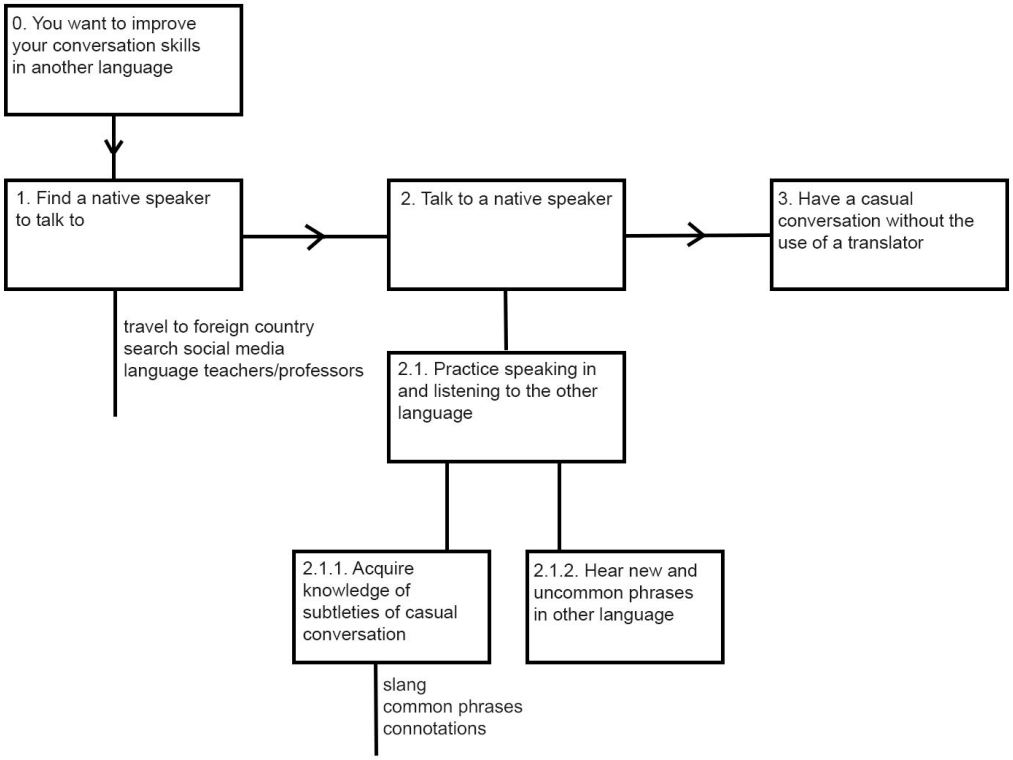


Without the use of Parley, students who wish to speak with a native speaker of a foreign language to improve their conversational skills would have to follow the above format. Step 1, which includes finding a native speaker to talk to, could be fairly difficult, especially considering the safety concerns of kids and young adults trying to find strangers to talk to on the internet. A main feature of our app is that it will facilitate safe and easy connections between classrooms around the world. With our education feature, teachers in different countries can coordinate so that their classrooms are paired up over the app and their students will only be able to talk to each other. This will solve the dangerous and difficult step of students finding native speakers to talk to.

Step 2, which includes talking to a native speaker, breaks down how one acquires more knowledge of the language. In the case of our app, this communication will be done over text messages. Below is a diagram of how Parley will allow students to achieve their goal of improving in a foreign language:

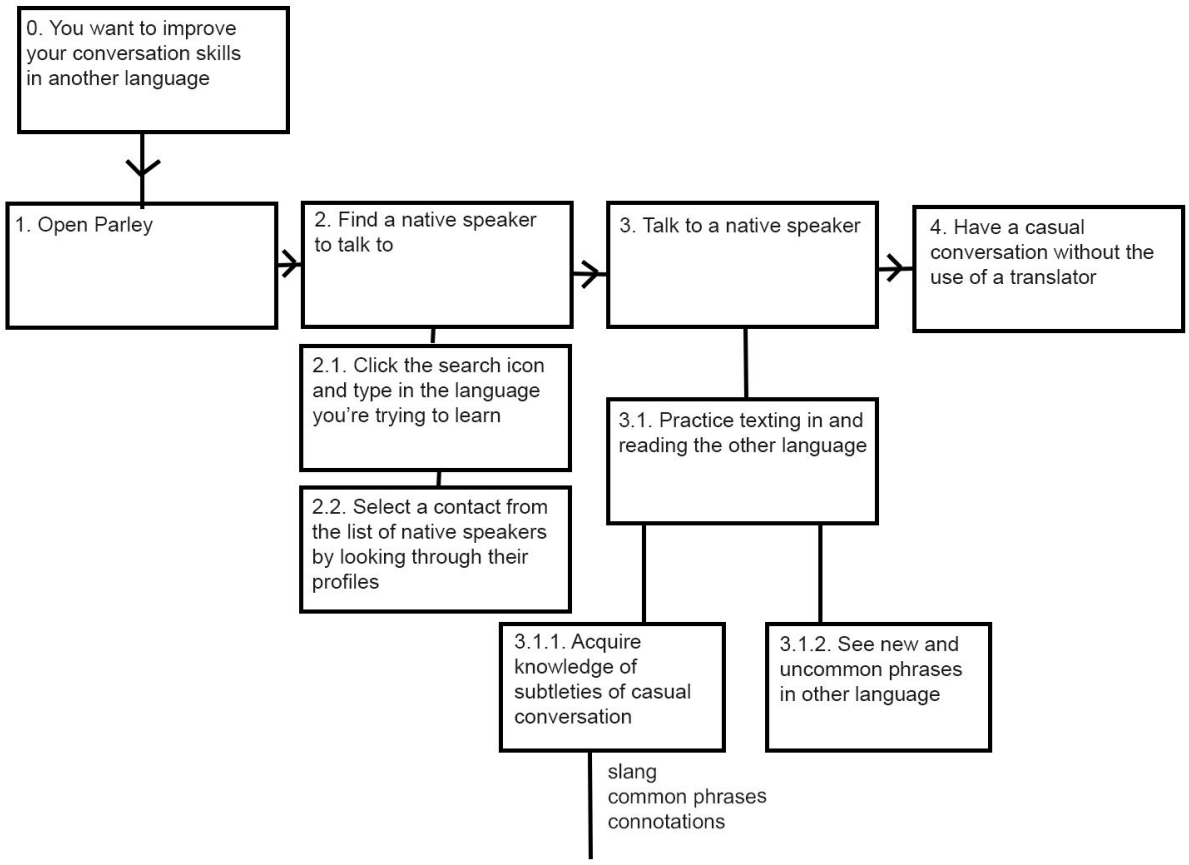


2. Non-students want to improve in a foreign language

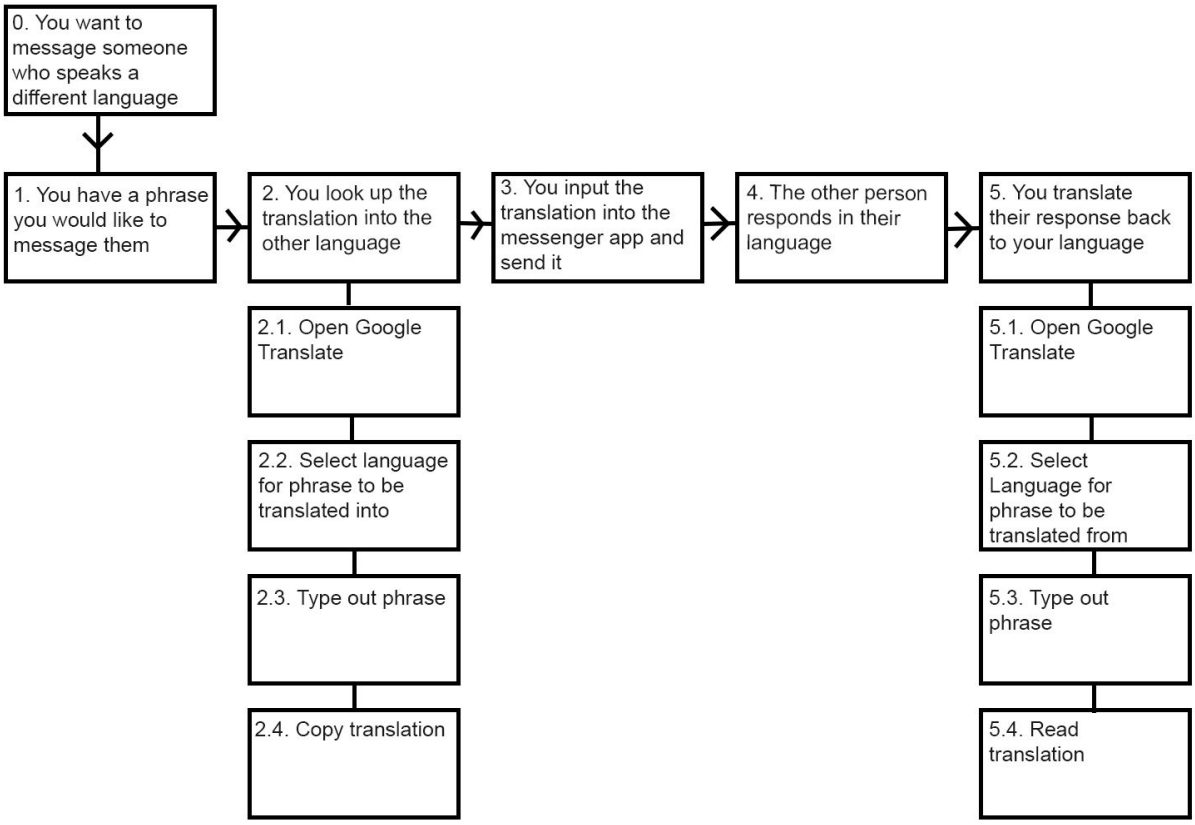


Without the use of Parley, non-students who want to improve their knowledge of a foreign language would have to follow the same initial steps that students would, as seen in the diagram above. Once again, we hope to assist users with step 1. For users outside of a classroom, we will provide a feature where you can still be matched up with a "penpal." The user will be able to freely search for someone to chat with, so it will be less rigid than the student version, but we will still provide safety features for users to report or block others if they feel unsafe.

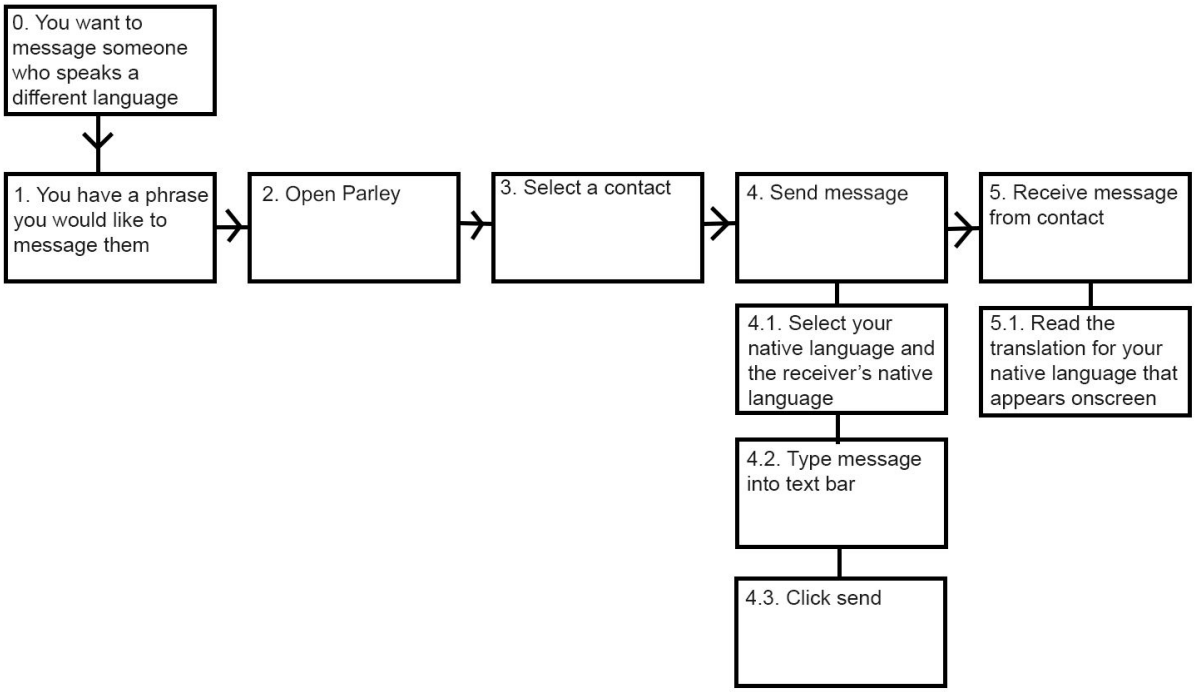
As with the student version, step 2, which includes talking to a native speake,r breaks down how one acquires more knowledge of the language, and in the case of our app, this communication will be done over text messages. Below is a diagram of how Parley will allow non-students to achieve their goal of improving in a foreign language:



3. People want to have a conversation with someone who speaks a different language, but have no desire to learn the language itself



Above is a diagram of the steps that must be taken by someone having a text conversation with someone who speaks a different language. This user would have no previous knowledge of the foreign language and no desire to learn it. They are merely trying to communicate with the other person. This diagram proves that there are far too many steps for what appears to be a fairly simple task. One of the benefits of Parley is that it will streamline this process. Below is a diagram of how Parley will allow this type of user to achieve their goal of quick and convenient translation through messaging:



Current Solutions

Translation on the internet is certainly not a new idea. As such, there are currently a lot of solutions similar to Parley available online. In this section, we discuss the positives and negatives of some sample existing solutions and address how we feel our project will compare and surpass these designs. This section is by no means comprehensive, as there are hundreds of similar apps available for various systems. We mean to highlight a few of the top options to get an accurate look at the current market. Note that all of the apps we examine here are mobile apps. All of the information was gathered from the app detail pages, user reviews, and in many cases our own testing of the app.

Messaging Apps with Built-in Translator

If a user was going to do a web search for our problem, they might type something into Google along the lines of "messaging app with translator." The first result that appears is TransFireXP by TNT Creations LLC. Unfortunately, TransFire for iPhone has not been updated in over eight years and no

longer runs with the current version of iOS.[2] From what is available on the app's information page, it looks outdated and clunky, with unappealing color, font, and general design. A review published in 2012 states that the app is "terribly obtuse" and that "finding your way through the app is more than a chore."[3] The review also goes on to state that the app rarely worked due to the servers crashing from randomized group chats. These chats became overrun with adult content and crashed the whole app. It appears that it never recovered. Given that this is the first recommended application to solve our problem, it is clear that a proper solution has not gained traction.

Slatch by Wochat is another more recent option for messaging translation.[4] The app offers options to send text, voice, and video messages between users, which can all be translated into each user's native language by tapping the message. Slatch also supports group chats, although reviews of the app report similar problems with crashing servers in group chats.[5] From our brief trial of Slatch, we gathered that all that is required to sign up is a working mobile phone number, although the app does not function unless you know other users. That is, there is no social aspect to the app that helps users find each other. Rather, all users must have been in prior contact and agreed to download the app. The app in general runs slowly and some messages were never delivered, even in direct chats. However, the translation features worked well and were easy to navigate.

Neeo Messenger with Translator by POWERFULPAL, LTD bridges the gap between messaging apps and social media.[6] With Neeo Messenger, there is very little focus on learning languages at all. All messages are automatically translated into the recipient's native language, with apparently no options to see the original message. However, the app's main focus relies heavily on the social aspect. The home screen is filled with a feed of random photos from strangers and your contacts, much like Instagram. It also includes a feature to message people nearby, but not to sort people by language or find people outside of your current location. With so few users, the nearby function is practically useless. From our experience with the app, we have gathered that the user interface is fairly confusing, with a menu that changes depending on if you are in social mode or messaging mode and no clear way to change modes. Given time, it could be learnable, but our immediate reaction was confusion.

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[2] TNT Creations. "TransFire XP." Apple App Store, 2.37 (2012). https://apps.apple.com/us/app/translation-fire/id413486753?ls=1 (24 September 2020).
[3] Friedman, Lex, "TransFire XP for iPhone," PCWorld, IDG Communications, 17 May 2012, https://www.pcworld.com/article/1166738/transfire_xp_for_iphone.html.
[4] Wochat. "Slatch." Apple App Store, 1.5.3 (2020). https://apps.apple.com/us/app/slatch/id1470833889 (24 September 2020).
[5] Ibid.
[6] POWERFULPAL, LTD. "Neeo Messenger with Translator." Apple App Store, 9.0 (2020). https://apps.apple.com/us/app/neeo-messenger-with-translator/id629518300 (24 September 2020).

Pen Pal Apps

Beyond the basic messaging service, other apps encourage users to learn languages by speaking with native speakers from around the world. Hello Pal, an app by Hellopal, is one such example.[7] This app focuses on messaging strangers to make friends and learn languages. Messages are shown in both the original and translated language to help for side-by-side comparisons. However, due to a lack of moderation and security, the app is filled with users spamming adult content and asking for inappropriate pictures. Many reviews claim that this app would be useful if they were actually able to use it as intended, but as is it is not functional.[8] Because of these safety concerns, we did not download this app to investigate further.

HelloTalk is a similar app that has less reports of harassment. It also gets much higher reviews than the other apps listed here, with a 4.7/5.0 on the app store.[9] It is also ranked #96 in Education apps from Apple. The app asks for information about your language skills and suggests users to chat with to begin learning. Messages are automatically translated, and there is a feature for users to offer corrections to each others' messages. Group chats and calls are also supported and do not seem to cause any server issues. Online classes and games are available to help teach new languages. Some reviews do report harassment on the app, particularly towards women and LGBT+ users, that go unchecked by moderators.[10] Additionally, the app is subscription-based. Free accounts are available but limit the number of translations, languages, and new chats. Otherwise, the app costs 4.99 USD every week.

Educational Apps

Still other applications exist that focus solely on the educational aspect of translation. HiNative by Lang-8, Inc. is less of a messaging service and more of an open forum in which users ask questions to a pool of other users who speak a language.[11] Users will respond with text or voice answers to the requested information. This app contains no messaging or social options. We tried out HiNative and found it to be useful to complement other studies (e.g. to get help with particular translations or homework assignments) but not for doing the actual learning of a language.

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[7] Hellopal. "Hello Pal: Talk to the World." Apple App Store, 7.0.9 (2020). https://apps.apple.com/us/app/hello-pal-talk-to-the-world/id965758822 (24 September 2020).
[8] Ibid.
[9] HELLOTALK FOREIGN LANGUAGE EXCHANGE LEARNING TALK CHAT APP. "HelloTalk - Language Learning." Apple App Store, 4.1.0 (2020). https://apps.apple.com/us/app/hellotalk-language-learning/id557130558 (24 September 2020).
[10] Ibid.
[11] Lang-8, Inc. "HiNative - Language Learning." Apple App Store, 11.11.3 (2020). https://apps.apple.com/us/app/hinative-language-learning/id923920480 (24 September 2020).

Seeing as many options are filled with adult content, another education-based app, Penpal Schools, aims to solve that problem by providing a strictly moderated environment for students to learn.[12] Users are required to be under 18 years old and must be enrolled in a school. Parents and/or teachers can monitor their students' use of the app. The app does not allow for direct messages, instead opting for a discussion forum interface. The app also requires a subscription to be purchased. We could not test out this app, but have read through reviews by current users. Allegedly, Penpal Schools has a confusing User Interface. It also focuses heavily on United States related discussion topics and is filled almost exclusively with American users.[13] Thus, the app fails to attract students from other countries, resulting in a poor experience for American users.

Other Related Services

Additional apps exist that fall into the category of keyboard add-ons. TransKey, Keebo, and others add a keyboard to a user's mobile phone so that they can translate text in any place they can type. However, the service is one-sided, not allowing for a highly interactive experience between recipients. These apps tend to run on a subscription model, charging weekly for unlimited translations. In a world of free instant internet messaging and free online translation, there is little room for paid services like these.

Main takeaways:

In the questionnaire described in our user analysis, we asked college-age students which translation apps, if any, they have used in the past. While 92.7% of our respondents had used Google Translate before, few of the other apps had ever been used by this demographic. Only one person had used Slatch before and one had used Neeo. The others discussed above had never been used. Thus, while many potential apps exist to address message translation, none have been used widely by college students in the United States. Through this analysis, we have found that some solutions, such as Slatch, offer decent messaging services, but lack any sort of educational or social component. Those that do focus on social interactions tend to go unmoderated, resulting in toxic communities that are not friendly towards certain users, particularly women and LGBTQ+ users. These apps strive to be educational, but fail to create a safe place for all users to learn. Services that are heavily moderated are also highly restricted by subscription models and age requirements.

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[12]PenPal News Inc. "PenPal Schools - Global Education for Kids." Google Play Store, 1.0.13 (2020). https://play.google.com/store/apps/details?id=penpal.schools&hl=en_US (24 September 2020).
[13] Ibid.

We want to produce an app that has the full functionality of a messaging app such as Slatch combined with the relatively safe educational platform offered by Penpal Schools. However, we would like to keep the app free for people to use and allow for adult users. We hope to address this by considering alternative means of collecting revenue and enhanced moderation/reporting capabilities.

Discussion and Conclusions

These initial analyses will help shape Parley at every stage of development. Through our user analysis, we have examined who users are and what they want. Our questionnaire provided us with key insight into how users might choose to use the app. Users like Dirk will want to use Parley mainly to translate messages with people they meet or already know. Other users, like Jenna, can utilize Parley in the classroom to augment the foreign language learning experience in a safe and easy way. Still others may choose to use the app mainly to meet people online from other cultures, like Francis. In all three cases, users will feel more comfortable talking with speakers of different languages and have a chance to learn about different cultures. Users also reported that they would be more likely to have these conversations at all with the functionality of the app.

Our task analysis shows a variety of functions that we will need to implement in Parley. First and foremost, we will need to develop a way to translate messages in the app. A majority of our questionnaire respondents stated that they'd prefer translation to be one message at a time by clicking on the message. Additionally, we will create options for messaging people you already know as well as finding new friends, both through a search function and through a QR code scanner. If time allows, we will extend the functionality to include classroom mode, in order to provide a more controlled version of the app for younger students who wish to communicate with pen pals around the world. At each stage in development, we will consult our task analysis to ensure that we do not stray away from the users' goals.

Finally, our look at existing solutions has shown us where other apps have fallen short of what our users need. We will prioritize security and reporting tools so that all users feel safe and supported on our app. This will require giving users the ability to report others for harassment, allowing users to be undetectable to unknown users, and limiting what content can be sent prior to users connecting. We will keep the app free to download and use without limitations so as not to deter potential users. In the meantime, we will explore other means of creating revenue. By placing an emphasis on education and cross culture connections, we aim to create a space where learning happens every day. Great care will need to be put into the classroom mode of Parley to ensure that it provides the highest quality educational experience for users around the world.

Overall, Parley will be the pinnacle of message translation. By choosing to focus on our users and their desired tasks, we will create a platform that is user-friendly, is learnable, and runs smoothly. As our project develops, we will continuously return to our users for feedback on how to improve the interface and functionality. When we're done, we'll have an application that creates a safe and welcoming environment for any user who wishes to talk to people around the world.