

Milestone 4

Parley: Translation & Messaging

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Benchmark Tasks

For most of our usability tests, we used the following benchmark tasks for evaluation. The only exceptions are for the Cognitive Walkthrough and Predictive Evaluations, which were focused on a smaller set of specific tasks. For these two tests, the benchmark tasks have been listed within their respective sections. For the remaining tests, these tasks were used to evaluate Parley:

1. Access Parley and create an account.
2. Navigate to the tutorial and follow it to translate a message.
3. Set up account settings, including a profile and default language.
4. Navigate to the Crew Search page and send a crew invite to the evaluator(s).
5. Once accepted, send your evaluator a message.
6. Translate a message you have received into your native language.
7. Log out of your account.

These seven tasks make up the bulk of Parley's current functionality, but are fairly quick to step through, even for beginners. Thus, we did not feel as though we were asking too much of our participants. This also gave us a chance to test out the usability of our navigation, one of the key areas that makes Parley unique. We did not choose to feature a few tasks, including reporting users and accepting user invites due to their similarity to other tasks. We wanted to focus on the main functions of Parley, which is why sending and translating messages and searching for contacts is of such high priority.

Participant Demographics

We asked six participants to conduct either retrospective testing or think aloud evaluations. Afterwards, we collected their demographic information using the second page of our questionnaire.

One participant fell into the age range of 13-18, two were 19-29, and three were 30+. The education levels reported reflected this wide age range, including one high school graduate, two current college students, two college graduates, and one with some graduate school. While we would eventually like to target the student demographic, this age range seems sufficient to capture users of all age varieties. Two of our participants reported a male gender identity and four reported female, a fairly expected split.

Parley eventually aims to be a diverse platform for people of different cultures and nationalities. Unfortunately, lack of time and access to participants meant that our selected participants lacked in this form of diversity. All six reported their nationality as American with a

native language of English. For other languages spoken, four participants speak Spanish, one speaks German, and one speaks French. Ideally, we would like to test Parley with participants who speak other languages as well, in order to make sure that the app does not only appeal to American, English-speaking users. In the future, more testing will have to be done with other demographics.

For our expert evaluations, including both the heuristic evaluations and cognitive walkthroughs, we did not collect participant demographics, as the experts were not acting as participants themselves but as people evaluating the app.

Heuristic Evaluation

Protocol

Our Heuristic Evaluation was conducted with two experts from CMSI 370. To begin, we split our group into two groups, one to go with each of the evaluators. We then went into Zoom breakout rooms to conduct the test. Our team gave each expert the link to our app as well as the list of benchmark tasks as described above. At that point, the expert was free to explore Parley and try to complete the tasks. We recommended the experts do two passes through the app. The first would give them a feel for how the different features functioned. This was also a chance for them to ask any questions if they were confused about how the app works. After that, they made a second pass through the app, paying very close attention to the specific set of heuristics they were evaluating.

We supplied each expert with an evaluation sheet they could complete digitally during their evaluation. These sheets were adapted from the work of Hsin-Jou Lin and used the 10 heuristics of Jacob Nielsen, as discussed in class. The blank form has been attached as Appendix A of this document. For each heuristic, we asked evaluators to rank our app on the following scale:

- 0: No issues present
- 1: Only cosmetic issues
- 2: Small usability problems
- 3: Big usability problems
- 4: Usability Nightmare

This simple 5 point rating scale allowed for the experts to classify any problems based on their scale. It also will help us in deciding which problems are those that should be fixed immediately versus minor fixes that would only slightly improve usability. Following this ranking, we asked each expert to list any issues they found relating to the heuristic as well as possible recommendations for resolving these issues. Thus, we were able to get new perspectives on the usability of our app and suggestions for future releases.

After the expert had completed their evaluation sheet, we answered any questions and got clarification on their report where necessary.

Results

The two completed heuristic evaluations can be found [here](#) and [here](#), although we will highlight relevant results below.

In three of the ten categories, evaluators rated potential issues as a 0, with no issues present. These were “recognition over recall”, “flexibility and efficiency”, and “aesthetic and minimalist design.” Parley does not ask users to remember much of anything, other than their own name and language, which is likely why recognition was rated without issues. For efficiency, one expert remarked that although Parley doesn’t feature any shortcuts, there does not seem to be any natural need for any of them in the overall workflow of the app. It is possible that over time, as the app becomes more complex, there will be a greater need for efficiency. For example, there is currently no issue scrolling through the list of crewmates, but there would need to be a more efficient method for finding a specific crewmate if the list of users was very long. Finally, we designed Parley with high contrast colors and a simple color scheme, aiding in our good score in aesthetic.

By far most of the heuristic categories were labelled with a rating of 1 for cosmetic errors. These included “show system status”, “familiar metaphors and language”, “consistency”, “error prevention”, and “recognize, diagnose, and recover from errors.” Such minor errors do not make our app very much less usable, however should still be corrected in future updates. As far as system status is concerned, a minor issue is that crew invite notifications do not disappear until after the page is refreshed, even if a user has already accepted the invite. Additionally, having some indication of the current language after setting the language would help keep users aware of the status of that setting. In terms of familiar language, the use of the term “crew” to mean “contact list” was seen as unfamiliar by one expert. While we do want to keep with the pirate theme of the app, it might make it more clear to potential users to indicate in the tutorial what is meant by their “crew.” The single consistency issue is that when the language is updated in settings, the names of the languages do not update until after the page is refreshed. This would also be a simple fix of making sure they refreshed automatically when settings are updated. Finally, it was recommended that errors be thrown if an empty or inappropriate About Me is posted. This would be an easy fix and would be really beneficial.

Finally, one expert gave the categories “control and freedom” and “help and documentation” scores of 2 for having minor usability issues. Our app currently lacks user control over deleting messages and conversations, as well as the ability to undo particular actions like removing a person from your crew. Such fixes would allow users more freedom and control in their use of Parley. Second, while the tutorial explains how to translate messages, the rest was left up to the evaluators to figure out. Further documentation or tips in the beginning of the experience would help bypass this confusion early on. The evaluator recommended a popup when a user first joins, as well as a page devoted to help if it’s needed further down the line.

None of the categories received a rating of 3 or 4, and so we can conclude there are no major usability issues that currently need to be resolved. It should be noted that, had we done 1-3 more evaluations, we may have caught some further issues. However, given timing and physical constraints, two evaluations was probably enough to catch all glaring issues.

From this evaluation, we were able to see some usability and cosmetic mistakes that, if solved, would greatly increase the user experience of our app. We will aim to resolve the

higher-rated issues first in order to maximize Parley's usability. After that, time and budget permitting, cosmetic changes can be made. See the Future Steps sections below.

Cognitive Walkthrough

Protocol

For this test, we evaluated Parley from the viewpoint of a participant. We had experts play the part of Dirk Hansen, a typical target user of our app. Our team stood by to supply answers via Zoom. We decided to focus our cognitive walkthrough on two specific areas. One walkthrough focused on the settings page of the app, since there are a lot of potential usability issues with that page and we wanted experts to take a detailed look and offer suggestions. The other walkthrough focused on sending and translating messages, as that is the primary function of Parley.

First, we established who our participant is. Dirk is a 22 year old American student who enjoys backpacking in foreign countries. While Dirk's first language is English, he also speaks fluent Spanish. However, on his travels, Dirk often meets and communicates with people who speak other languages. He would like to use Parley to learn basic conversation skills in these languages, as well as keep in contact with friends he makes while traveling. We chose to use a young American student as our participant since they would be a large part of our target demographic. Additionally, travelers and people who need to communicate in other languages would have the greatest need to download and use Parley.

Before starting, we agreed to keep the talk as designers and programmers to a minimum during this evaluation. This is not a time to discuss possible fixes, but instead to observe and listen to possible feedback. We also agreed not to talk about other topics and remain focused on the task at hand.

Now that we had laid out some ground rules, we had "Dirk" create an account and use Parley as a participant. Whenever he made a decision, he would vocalize what his thoughts were while doing so. For example, when prompted to change languages in his account settings, Dirk wondered aloud, "What are account settings? How do I get to them? Let me look through these buttons at the top of the screen. Profile. That is likely where my settings are." Hearing this logic out loud proved to be super helpful, as it uncovered multiple areas where the typical participant's thoughts might not align with our ideas while designing the app. The group took notes on any of these areas, as well as what was successful, to discuss later.

Once the tasks were completed, the team compared notes and discussed the implications for the app's future. We all agreed that this test uncovered a lot of easily fixable issues.

Results

A couple of key notes taken from our walkthroughs:

Settings:

- Dirk had to make an assumption to go to the profile page to edit settings, since the name and the instruction did not match.

- When setting the language, it was unclear to Dirk what language he was supposed to choose. The language he's most comfortable with? The language he is trying to learn?
- The About Me section of the profile is allowed to be left blank. This should probably be updated to require some sort of input, or at least display the default in the settings.

Messaging/Translating:

- The icons for photos and GIFs are unlabelled. It was easy enough for Dirk to figure out what they did by clicking on them, but initially he was unsure what would happen.
- Dirk had trouble recognizing the languages other users sent messages in. While it was easy to read everything translated to English, if he really wanted to learn a language, it would be helpful to see what language he was learning.

As mentioned, there were several points where Dirk's thoughts did not line up with what we as designers expected. While it was usually pretty easy for him to figure out what to do by clicking around, it did provide some insight into what was intuitive and what was not. For example, we should make it explicitly clear what the language setting is meant to control. At the very least, there should be some further description of the toggle in the settings page and tutorial. However, this also led us to return to the possibility of adding further language functionality. If a user is trying to learn a new language, should they have the ability to toggle between that language in addition to their own most comfortable language?

We also discovered a few minor tweaks that could be made. One such change would be to label the buttons for images and stickers with a hover-over label. While clicking on the buttons makes it fairly clear what is expected, users should probably never have to guess what a button does before clicking it. Other buttons within the app were much more intuitive, including the crew search buttons and navigation bar. Finally, we realized that some users do not have a default language based on their browser, so we will need to look into how to fix this issue.

Predictive Evaluation

Protocol

Operator name	Description	Time (in seconds)
K	Pressing single key or button	0.35 (average)
P	Pointing a mouse to a target	1.10
P1	Clicking the mouse	0.20
H	Homing hands on the keyboard or other device	0.40
D	Draw a line using a mouse	Variable
M	Mentally prepare to do	1.35

	something	
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Our group chose the KSLM evaluation because it allows for objective, concrete values with which we can use to measure the usability of our web app.

To conduct the test, our group met over Zoom. We selected several of the main functions of our app to test. Then, one team member performed each step of the function, verbally describing each key or mouse movement while another team recorded the steps. Finally, we consulted the KSLM chart to get the appropriate time in seconds per action, then totalled the amount of time for each function.

Results

The results from our KSLM evaluation can be summarized by the following tables. Each table shows a different task in Parley.

Signing in

★ Assumes already signed in globally on chrome

Action	Operator	Time (s)
Point to sign-in	P	1.10
Click on button to sign in	P1	0.2
Total:		1.30

Send a message

★ Assumes already decided the message content

Action	Operator	Time (s)
Point to conversation	P	1.10
Click on conversation	P1	0.20
Point to input box	P	1.10
Click on input box	P1	0.20
Homing to keyboard	H	0.40
Sending message of length n	$K * n$	$0.35 * n$
Hit Enter	K	0.35
Total:		$3.35 + 0.35 * (\text{total characters})$ seconds

Translating

Action	Operator	Time (s)
Move mouse to message	P	1.10
Click message to translate	P1	0.20
Click message to un-translate	P1	0.20
Total:		1.50

Sending picture

★ Assumes already decided the picture

Action	Operator	Time (s)
Point to image button	P	1.10
Click on image button	P1	0.2
Point to correct folder	$P * n$	$1.10 * n$
Click on correct folder	$P1 * n$	$0.2 * n$
Point to image to select	P	1.10
Click on image	P1	0.2
Move mouse to open button	P	1.10
Click on open	P1	0.20
Total:		$3.90 + 1.30(\text{total number of subdirectories})$

Adding someone to your crew

★ Assumes already decided the crew member

Action	Operator	Time (s)
Point to Crew Search navigation icon	P	1.10
Click on crew search navigation icon	P1	0.20
Homing to keyboard	H	0.40
Scroll through list using arrow keys	$K * n$	$0.35 * n$
Point to invite button	P	1.10

Click on invite	P1	0.20
Total:		$3.00 + 0.35 * (\text{clicks to scroll})$

Update profile

★ Assumes already decided the input content & language

Action	Operator	Time (s)
Point to profile	P	1.10
Click on profile	P1	0.20
Point to input box	P	1.10
Click on input box	P1	0.20
Homing to keyboard	H	0.40
Enter name of length n	$K * n$	$0.35 * n$
Hit Enter	K	0.35
Homing to mouse	H	0.40
Point to input box	P	0.20
Click on input	P1	0.20
Homing to keyboard	H	0.40
Enter about me of length n	$K * n$	$0.35 * n$
Point to dropdown	P	1.10
Click on dropdown	P1	0.20
Scroll	$K * n$	$0.35 * n$
Press Enter	K	0.35
Point to update	P	1.10
Press Update	P1	0.20
Total:		$8.10 + 0.35 * (\text{total characters}) + 0.35 * (\text{clicks to scroll}) \text{ seconds}$

Log-out

Action	Operator	Time (s)
Point to log-out button	P	1.10
Click on button	P1	0.20
Point to “yes”	P	1.10
Click on “yes”	P1	0.20
Total:		2.60

One of the main aspects of Parley is easy translation, and the predicted time it takes to translate is only 1.50 seconds with only one move and one click. We consider this to be a success in terms of quick and easy translation because it would be hard to get this number much lower. However, another major part of this app is inviting friends into one’s crew, and the average estimated time for this was about 3 seconds plus the time it takes to scroll and find the person you’re looking for. If the profile you’re looking for is at the very bottom of the crew search page it could take a while to reach it with all of the scrolling and would not be very efficient. This suggests we should look into giving users a quicker way of filtering through profiles on the search page.

Retrospective Testing Interview

Protocol

To conduct our retrospective testing interview, we began by finding participants. The demographics, recorded in the above section, reflect the limited capacity for testing given our time and remote-learning constraints. Despite this, we were able to complete three of these tests with a diverse set of participants.

These tests were conducted one-on-one. To begin, the evaluator gave the participant the link to Parley as well as the list of benchmark tasks to complete, as described above. The evaluator remained present during the test, in case the participant had any technical issues or got stuck, but remained mostly silent during the test. This was to ensure that the participant was not given any outside help in completing the tasks. All of these tests were conducted in person with people with whom we are currently living, so the evaluator simply had the participant record their screen while they tested for future playback.

Once the participant completed the benchmark tasks, both the participant and the evaluator reviewed the recorded footage from the test. During this, the evaluator asked questions about the participant’s decisions. These questions were not scripted, as they were solely based on what the participant had done during their test. Some example questions that came up often were, “What was going through your mind as you pressed this button?”, “What did you think this action would allow you to do?”, “Did you expect this result?”, and “What about this task confused you?”. The evaluator took notes throughout to report later. Afterwards, the

participant also had a chance to ask any questions or clarify anything they were still confused about. Finally, the participant filled out our questionnaire, as described in the section below, to give further feedback and provide demographic data.

Results

One of the main takeaways from the retrospective test is the discrepancy regarding what the “Language” settings in the “Profile” section does. When reviewing the participant’s usage of Parley, this tended to be an area of confusion as they could not tell if “Language” referred to their native language or a language they were interested in learning. This same confusion appeared in one participant who could not tell which language they should be typing in.

Another area that participants displayed issues with was trying to click on the page in the navigation bar that they were currently on and getting confused when nothing changed. It was unclear to them what page they were currently on, so they expected clicking this icon to take them somewhere else and they believed something to be wrong when it didn’t. We will plan on taking this into account and find a way to clarify what the current page is at any given time.

Participants also showed mild confusion in trying to figure out what to do next at multiple points, and would say they were unsure of what to do after a certain step. However they also said they were always able to quickly figure out what to do. If they didn’t know what a button would do, they simply clicked on it and learned its functionality. We consider this to be a testament to Parley’s learnability, because although users might be unsure of how the app functions they were always able to quickly learn it and finished with an enjoyable experience.

One participant mentioned that when viewing the crew search page, the profiles without descriptions that showed up as “not available” lead her to believe that the users were not available to interact at that time. This is a feature in other apps, so the similar language for a different purpose made some of the crew search page unclear.

Think Aloud Evaluation

Protocol

Our think aloud evaluation was done by separating our three participants and having them view the application independently. The application was then opened by them on a new google account that was owned by them. Therefore, the testers did not have any prior crewmates besides the initial Parley official account or any preset settings. Additionally the participants were unaware of the functions of our app beforehand, so everything that they analyzed was being discovered for the first time.

The testers of our app were two older (greater than 50 year-old) and one younger (less than 20 year-old) participant. As the testers walked through the app they were instructed to speak aloud their thoughts about the application and talk through what felt natural to do next. Once the participants had clicked through the profile, messages, and chat page they were asked if they would like to conclude the evaluation.

While walking through the application a member of our team supervised all three participants. Although there was a supervisor watching the participant as they walked through

the app, the team member did not provide any input. The participant found all features on their own and if they were confused by any of the features (as a few were), the supervisor did not give any advice.

Once the test had concluded we all agreed that the walkthrough would need to be more comprehensive so that participants (especially those who are not very tech savvy) could understand how to use the app.

Results

As we moved through the application, it quickly became clear that without a very specific introduction and walkthrough from the moment that participants had logged in, participants would initially struggle to use our app. Once our testers had logged in, most pressed the messages tab (which is where they already were). The next location that participants attempted was the Parley Official Account. The Parley Official Account had the message click to translate. However, since the internet was bad, the message did not translate instantaneously during each test, which confused some testers.

The participants next moved onto the profile (as prompted by the Parley Official Account). One of the testers was very confused that the Parley account prompted the participant to move to the settings instead of the profile. However, the other two testers realized that the settings implied moving to the profile. Once the participants were at the profile, they were all very confused on the language prompt. All three first considered the “language” prompt to imply their own language instead of the language they would like to learn. Two of the participants switched back and forth between the profile and messages until they discovered that the language was the language they would like to learn and that they could click to translate messages. The other participant became frustrated and did not discover this functionality.

Then all three participants moved to the crew page. Here the testers all tried to report and invite other users. However, even though the report and invite did switch to reported and pending, since their requests were not immediately accepted, they were confused about what the crew tab does. After they had completed inviting crewmates and reporting random other Parley crewmates, two testers returned to the message page. Here, they sent some stickers and some images.

Each tester took approximately 15 minutes to move through all three pages. Once they figured out how the language feature worked, the testers were very impressed with the app’s functionality and translated multiple messages sent to Parley Official. The tester who did not discover the app’s core functionality was disappointed with the application. These results suggest that a walkthrough at the beginning of the app describing not only messages, but also the crew and profile features, would be good in order to familiarize users with the application before they begin sending messages to their crew.

Questionnaire

Protocol

Our participant questionnaire can be found at [this active Google Form](#) and also has been reproduced in Appendix B for convenience.

We designed the questionnaire to capture all necessary details from participant tests. The first page covers the participant's impressions of Parley. We begin by asking the participant to state to what degree they agree with some simple statements about the app. Some of these statements, such as "Parley was easy to learn" are designed to capture participant's impressions of usability measures like learnability. Others, such as "I would prefer to use Parley on my mobile device" are meant to provide insight into what the future of Parley's development should focus on.

The next question, "Was the language prompt in the profile section clear?" was chosen after one of our cognitive walkthroughs brought this up as a potential issue. While we as designers and programmers knew what this specific setting was for, it was noted that typical users might struggle with the language used here. Thus, we resolved to ask real users how straightforward this language actually was.

We then asked participants a few questions about Parley's key functions. First, we asked them to rate how easy it was to find crewmates to talk to. Finding people with new languages and cultures is one of our flagship features, so we wanted to make sure the task was simple and clear. We also asked how the participant would like messages to be translated. While we had made the design choice to translate message by message via click, we had considered several other options during the prototyping stage and wanted some participant feedback on our choice.

Finally, we asked participants to rank potential future features in the order of how much they'd like to see them added to the app. Again, this data can be used to determine future design choices.

The second page of the questionnaire collected participant demographics, the results of which can be found in the Participant Demographics section of this document. In addition to some basic information about gender identity, age, and education, we also specifically asked for information about nationality and languages to gain some further insight on Parley's translation features.

To conduct the questionnaires, participants were simply sent a link to the survey to fill out in their own time following their tests. We sent the questionnaire to any participant who had completed either the retrospective testing interview or the think aloud evaluation.

Results

Initial agree/disagree statements:

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Parley was easy to	0%	17%	17%	17%	50%

learn.					
I had trouble with some features	16%	16%	33%	33%	0%
I enjoyed using Parley	16%	0%	0%	17%	67%
If Parley were available, I would use it often	0%	17%	17%	67%	0%
Parley would be useful for language learning	0%	0%	17%	33%	50%
I would prefer to use Parley on a mobile device	0%	17%	17%	0%	67%

While our sample size is fairly small, we can draw some conclusions from these responses. In general, participants found Parley easy to learn and enjoyable. They would also generally use the app often and would find it useful for learning a language. As expected, most users would prefer Parley to be available on mobile devices, and so that will be one of our priorities moving forward. Finally, some participants did have trouble with some Parley features. These issues, discussed at length in the test sections, will need to be addressed quickly.

Was the language prompt in the profile section clear? (i.e. did you know what changing the language would do?)

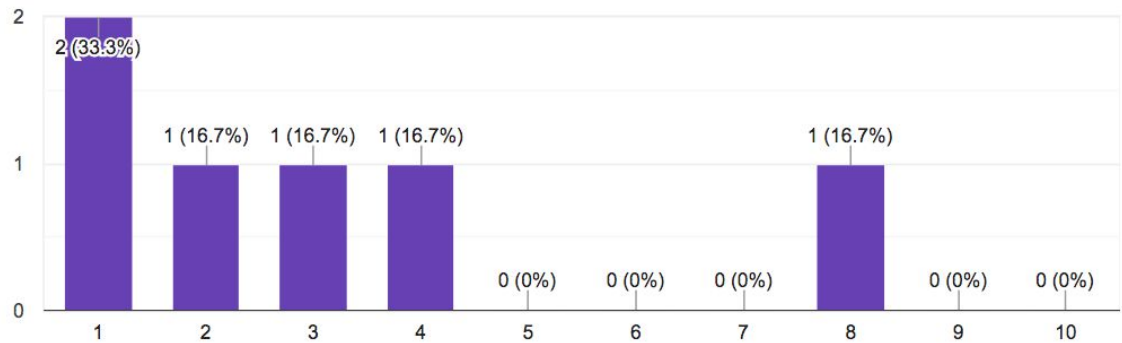
6 responses



Evidently, and as expected, the language setting was not very intuitive. Not a single participant responded that the wording was clear. This was a big oversight on our part and will need to be fixed immediately. The idea to label it as "Language Translation Preference" might be the clearest way to phrase it. Likely, we will need to conduct further user testing before settling on a finalized label.

How difficult was it to match with crewmates that you found interesting? (1 = very easy, 10 = very difficult):

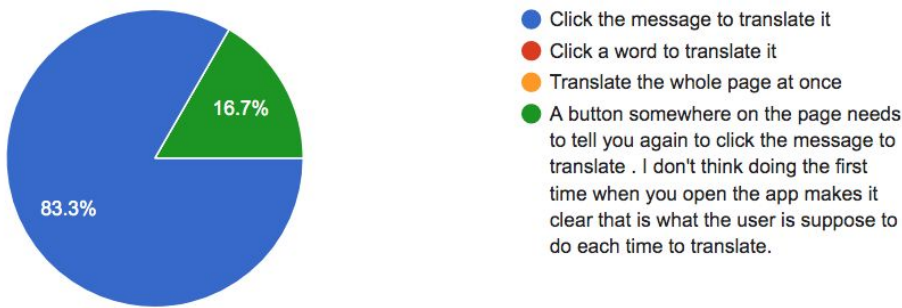
6 responses



Fortunately, most of our participants found it easy to discover crewmates to match with. These are good initial results, but our list of potential crewmates was very small for these tests. Once more users have accounts with Parley, we will need to reevaluate how easy matching is with our current system.

After viewing the chat pages, how do you feel messages should be translated?

6 responses



Fortunately, it seems as though the current method for translating messages was preferred by our participants. One participant did suggest having some indication of how to translate messages outside of the tutorial. Perhaps a short text instruction via hover-over would suffice. Otherwise, constant instruction might clutter the screen.

Rank the features that would make the app more enjoyable and/or easier to use (1 is top choice, 5 is last choice):

Feature	Average Ranking
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Notifications for new incoming messages	2.7
Support for translating between three or more languages without switching settings	2.2
The ability to block users	3.5
A pairing system based upon common interests	3.7
Word by word translations	2.7

This question had a wide spread of results, and thus it is very difficult to draw conclusions about what features our participants in general would want to see next. The most popular of the features listed is the ability to translate between more than two languages. For now, we have stuck to two languages for simplicity, however we have considered allowing for more languages in the future. More testing would be necessary to discover the easiest way to implement this feature without causing the user further confusion. The least desired feature listed was a pairing system based upon common interests. While this was a potential idea we floated early on, we ultimately abandoned it because of its similarity to dating apps. It appears that this was a popular decision.

Was there any time when you were using the app when you were confused by a prompt or button in the application? (free response):

- The tutorial should be labelled as “Tutorial”
- I was confused about where I tapped to locate the translation preference.
- I was confused about the language button.
- Yes, I wasn’t sure who I was talking to... it wasn’t clear I needed to invite someone before I could talk to them. Plus I think it would be nice to be able to translate in this app even without talking to another user. Then you wouldn’t need 2 apps.
- Needs more initial instruction
- The handheld telescope looked to me like a vaccine needle. Wishful thinking perhaps?

Many of these responses are not surprising. It would appear that the tutorial, as it stands, does not do enough to properly outline the app’s full functionality. While most participants were able to eventually figure everything out through exploration, many appeared to be frustrated throughout and could have benefitted from further instruction. It is our hope that further changes, including more intuitive button labels, will counteract this need for a longer tutorial.

The idea to add functionality for a generic translator is one we had not previously considered. It may help users who use Parley primarily for language learning, in case they want to check what they’re typing before sending a message. This option is something we will consider moving forward.

Overall, the questionnaire gave our participants a chance to list design choices they liked or didn’t like, as well as offer potential solutions for some issues. Although some of the information was repeated from our interviews or think aloud conversations, letting the

participants really think about their experience before responding did provide for some further insight.

Major Takeaways and Future Steps

Future Steps

Short-term goals

- Add browser support to Safari on MacOS and iOS
- Make the usage of the “Language” field in Profile clearer: Address the discrepancy of if this is the foreign language you want to learn or your native language you want to translate foreign language into
- Make the *Parley Official* tutorial provide clearer directions upon first launch, including an introduction to the language of Parley and more of the page options
- Catch errors in Profile input boxes like uploading a blank nickname or about me
- Add button descriptions on hover to the potentially unclear send photo, gif, and message button icons in chatboard
- Allow users to delete messages from their end of the conversation, or to delete conversations in full without removing a crewmate.
- Allow users to undo certain functions, such as removing crewmates.
- Change notifications so that they are updated in real time
- Fix issue in which updating the language does not update the list of languages in the drop-down menu.
- Have the navigation bar buttons invert or change opacity when the corresponding page is selected to indicate to users which page they are on.

Long-term goals

- Rework web app from a database scalability perspective
 - Ensure loading from database is efficient to minimize cost if user base expands
 - Don’t load all messages or users at once. Only load them in numerical increments (such as 25) and once the user scrolls to that limit, load the next.
- Implement better safety/community guidelines
 - Check messages and profile fields for inappropriate language
 - Create a “ban” list for users who should be banned from our service
 - Cross-reference users’ “reported” lists on database and users who receive a certain number of reports (such as reports by 3 different users) will be added to the banned list and no longer show up on our service or be able to use it
 - Potentially consider more security measures such as IP bans if necessary
- Improve profile fields and Crew Search functionality
 - Actual user search bar to find people by username
 - Search parameters such as limiting to specific languages
 - Potentially introduce age as a profile field

- Potentially introduce “interests” field to highlight user hobbies and interests
- Fix discrepancy that “not available” means the user has not filled out their about me versus is not available online to talk
- Add “educational mode” for teachers to pair their classroom with foreign penpals in a school-friendly environment
 - Restrict Crew Search to class roster
 - Restrict profile icons to a pre-set group of icons to select from
 - Potentially restrict about me to pre-set group of interests (or eliminate and simply keep the “interests” section if this has already been added)
- Create iOS and Android apps using React Native rather than using a web app on mobile
- Have the app tailor to a global audience
 - Have participants across many cultures/backgrounds who speak various languages test the app to ensure its quality holds up
 - Spread the word about the app in other countries to try to gain a more diverse user base

Major Takeaways

One key takeaway is not to underestimate the importance of subtle navigation and feedback queues in the user interface. Many of our short-term goals can be accomplished with simple changes yet account for the majority of problems participants encountered. For example, several participants tried to click the page in the navigation bar that they were already on. Adding a simple indication that this page is already selected would prevent this, and this can be as simple as changing the button icon to be a darker shade or an inverted icon. In addition, the word choice used to describe the language that messages will translate to when tapped proved to be confusing to most participants. Changing the field simply titled “Language” to a more descriptive field name would likely improve this confusion.

Many of the issues participants faced could also be resolved by introducing a more intuitive tutorial. As of now, we only had time to introduce a simple tutorial sent of messages that attempts to teach users how the basic translation mechanic works. This tutorial could be expanded to give more descriptions of the profile page where settings can be changed and what these settings do. In addition, the tutorial could have a section teaching the users about the “Crew Search” page, as the term “crewmates” confused some participants.

An alternative to a tutorial done through a conversation could be a tutorial that is laid over the current user interface and interacts with the different pages of the app when the user first logs in. This tutorial would feature our parrot mascot walking users through the various features of our app, doing things such as greying out parts of the screen and highlighting a specific button for the user to press, describing what this button does. This would ensure users learned all the features before giving them free reign.

After implementing several of the key features outlined above, a more in depth tutorial may not even be necessary. If feedback about the current state is present and intuitive, and buttons and options are all clearly labeled, then adding extra tutorial steps may not provide any additional information to users. Going forward, we would likely implement these usability changes first, then run another series of tests to determine if a tutorial is still needed.

Appendix A: Heuristic Evaluation Form

Evaluator: _____

Date: _____

App: Parley - <https://booker-m.github.io/parley/#/>

OS: _____

Browser: (Recommended: Chrome. Note that Safari is not supported) _____

Tasks:

1. Access Parley and create an account.
2. Set up account settings, including a profile and default language.
3. Navigate to the Crew Search page and send a crew invite to someone you know.
4. Send someone in your crew a message.
5. Translate a message you have received into your native language.
6. Log out of your account.

For each heuristic, give a rating of 0-4 based on the following scale. Also describe any issues and recommendations for resolving them.

0: No issues present

1: Only cosmetic issues

2: Small usability problems

3: Big usability problems

4: Usability Nightmare

1. **Show System Status:** Are users informed about what is going on and given appropriate feedback?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
2. **Familiar Metaphors and Language:** Are all terms and errors written plainly for users to understand?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
3. **Control and Freedom:** Is it easy to cancel, undo, explore?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____

4. **Consistency:** Are commands and controls consistent? What about appearance?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
5. **Error Prevention:** Is the app designed to prevent bad input?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
6. **Recognition over Recall:** Does the app allow users to select correct input rather than rely on memory?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
7. **Flexibility and Efficiency:** Are there shortcuts for experienced users? Is there any unnecessary repetition?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
8. **Aesthetic and Minimalist Design:** Do the color choices look good and appropriately focus attention? Is the design free of unnecessary text, images, and colors?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
9. **Recognize, diagnose, and recover from errors:** Are errors easy to understand and fix? Is the language appropriate and polite?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____
10. **Help and Documentation:** Is the help/documentation easy to understand and find? Could it be made unnecessary?
 - a. Rating: _____
 - b. Issues: _____

 - c. Recommendations: _____

When finished, please email or share this document with taylorflanagan98@gmail.com
Adapted from [Hsin-Jou Lin](#) using the heuristics of Jacob Nielsen.

Appendix B: Questionnaire

Parley Evaluation Survey

Thank you for helping to test our app! Please take a few moments to record your thoughts and feedback.

Link: <https://booker-m.github.io/parley>

Note: Safari is not a supported browser

* Required

How strongly do you agree with each of the following statements? *

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Parley was easy to learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had trouble with some features while using Parley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoyed using Parley.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If Parley were available, I would use it often.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parley would be useful for language learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would prefer to use Parley on my mobile device.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Was the language prompt in the profile section clear? (i.e. did you know what changing the language would do?) *

- ☐ Yes
- ☐ No
- ☐ Other: _____

How difficult was it to match with crewmates that you found interesting? *

- 1 2 3 4 5 6 7 8 9 10
- Very easy ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very difficult

After viewing the chat pages, how do you feel messages should be translated? *

- ☐ Click the message to translate it
- ☐ Click a word to translate it
- ☐ Translate the whole page at once
- ☐ Other: _____

!!!! Rank the features that would make the app more enjoyable/easier to use. (!!!!
Rank your first choice as number 1, second as 2, etc. !!!!!) *

	1	2	3	4	5
Notifications for new incoming messages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support for translating between three or more languages without switching settings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The ability to block users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A pairing system based upon common interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Word by word translations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Was there any time when you were using the app when you were confused by a prompt or button in the application? *

Your answer

Next

Parley Evaluation Survey

Demographics

Almost done! If comfortable, please provide us with a few small details about yourself!

What is your age?

Your answer

What is your gender?

Your answer

What is your nationality?

Your answer

What is your native language?

Your answer

What other languages do you speak or know?

Your answer

What is your level of education?

- ☐ High school
- ☐ Some college
- ☐ College graduate
- ☐ Some grad school
- ☐ Master's/PhD graduate
- ☐ Other:

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