

My user population was students using Spotify. I choose this as it is something I can relate to and something I figured many students use. Spotify and music apps in general were something that came to mind when thinking about mobile interfaces. I also figured that Spotify is something that people would use daily, so I wouldn't have any days where I wouldn't get any data at all. I chose two of my roommates as participants, since I could monitor their progress closely. Both of my roommates are students here at UW Madison, both majoring in Mechanical Engineering.

My cultural probe took the form of a repeatable survey on Google Forms. Google forms provided me with a large range of customization options and allowed me to fix any issues the probe might have had. Google forms allowed me to create a fair range of question types, although I opted to make most of my questions free response instead of multiple choice, since my participants had the option to put as much or as little detail as they saw fit. Google forms also can be accessed both on a mobile device and on the computer, which gave my participants more agency in how they took the survey. Being able to take the survey on a mobile device was more convenient, while taking the survey on a computer allowed my participants to fill out the survey while looking at the mobile interface of Spotify. I administered the study by talking with them about the study, and then sending them an email with a set of short instructions as well as a link to the probe itself. To control quality, I sent out daily reminders to fill out the survey, which made sure that my participants gave me data for each day.

Because Google Forms allows you to put your survey data onto a spreadsheet, it was very convenient for me to access and collect my data. Google Forms in particular allowed me to take data directly from the survey in an organized format that displayed the answers to each question as well as who answered those questions. This also meant that I could check which of my participants had filled out the survey for that day, and if needed I could remind them if they forgot to fill it out. I extracted my data by looking at the key points from each survey question, and diagramming those key points so that I could look at all of the information in one place. I created an affinity diagram for my data points, categorizing the main ideas into either functionality or usage. I choose functionality and usage since that is what I primarily noticed many of the questions and answers drew upon. Some questions asked about the interface and how well it worked, while some asked about how my participants used Spotify. I generated my stories by looking at the main problems or issues my users commented upon while using Spotify, which were fairly easy to pick out because they stood apart from the other responses.

Overall, my participants did not have many issues with the Spotify interface. While using Spotify, they generally felt relaxed instead of frustrated. This could have to do with the fact that

they were listening to music, but it might be a combination effect of an easy to use interface and music. My users generally used Spotify while walking, biking, or working, so Spotify was likely playing in the background and taking a more passive role. My participants found it easy to control Spotify outside of the app, taking note of the lock screen interface that Spotify has, which allows users to pause and skip songs on their phone's lock screen. My participants found it easy to navigate through playlists, although one of them found the issue of not consistently getting the side scrollbar. They expressed a desire for a more apparent or easier to use scroll bar, so that they could navigate through playlists more easily. When interacting with other apps or devices, Spotify worked fairly well, as it would pause to avoid interrupting other audio, and would stay paused until resumed. One of my participants noted that it was tedious to add multiple songs to playlists, as they had to be added one at a time.

The first story from my probe: Bill uses Spotify while working on his homework. After listening to some music from a playlist he found online, Bill found that he liked a lot of the songs on that playlist and wanted to add them to his own playlist for his favorite songs. However, Bill had to add each song to the favorites playlist one at a time. Being able to select all of the songs and add them to the same playlist in one action would make it easier for Bill to both create and add to playlists.

The second story from my probe: Tim is listening to Spotify while walking to class, and wants to play a certain song while walking. He is looking through his playlist to see what song he wants to listen to, but finds that it takes a while to scroll through. He is sometimes able to use a scroll bar that appears on the side of the screen, but it doesn't consistently show up. It would be helpful for Tim to have either multiple or more clear ways of navigating his playlists.

I found the cultural probe to be fairly easy to conduct, since I could distribute it online. The amount of moderation I had to do with the probe was fairly easy as well, since most of the data collection was done by my users, and I just had to make sure that they provided their data. What I found difficult was deciding what information I wanted from my cultural probe.

My users did not fully provide me with the data I expected. I was expecting more issues with Spotify. In hindsight, it makes sense, as I did not specify that my users interact with all aspects of the app, and instead looked at their daily use. With Spotify and music playing apps in general, the user isn't always interacting with the interface, since they might just touch one button to play the music and then have the app run in the background. I did make changes to the probe on the second day. I added two questions based on participant feedback. I added one question to measure how much my participants used Spotify that day, to get a better understanding of their usage. I also added a question about using the Spotify interface outside

of the app, as one of my users wanted to comment on it, but didn't have a place to do so. I added these questions to provide myself with more insightful data and to make one of the survey questions more clear.

If I could improve the process, I would have picked an interface that had more issues with it. I also would have made a few of the questions in my probe use multiple choice or a scale, in order to better control some of the answers I got and to make data analysis easier. Several of my questions had the same answers everyday, even though they were free response, so making some of these multiple choice might have made the process of filling out the survey easier for my participants. It might have also been helpful to provide some tasks for my users to conduct, which would have had the advantage of providing more insightful data, at the cost of making the probe more difficult for my users and possibly less candid or authentic to my participants actual usage.