A Usability Study Comparing iTunes and Spotify

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1 Introduction

For this study our group wished to compare the usability of two music services, iTunes and Spotify. For the purpose of our study we only included the desktop version of Spotify, since iTunes does not have a mobile version. The focus of our study is to determine which of the two music services has better usability.

2 Background

2.1 Metrics

Our study focuses on the efficiency, rate of errors, and satisfaction of the user with the two music services. We study the *efficiency* of the music service by measuring the time is takes for the user to perform a given task. When we test for efficiency, we only consider users that are already familiar with the music service. In this way, we are sure that the user is not wasting time becoming familiar with the system itself; all the work on the part of the user is focused on completing the task at hand. When we measure the *rate of errors* of the programs, we analyze how many errors are made on the part of the user, where they perform an action that has unintentional results. We quantify these by simply counting how many errors were committed. In this study we found that people that took a long time to finish a task were hindered by one significant error rather than a series of minor errors. We also surveyed the *satisfaction* of the users. We simply asked the users to report on a numeric scale how satisfied they were with the ease of performing the given tasks on with the music service and we also asked how satisfied they were with the music service as a whole.

2.2 Tasks

For the study we wanted to come up with tasks that were complex enough that the user would have to perform two or more actions in order to accomplish the task but at the same

time were familiar enough to the user so that they understood the task. We choose the following tasks:

- **Creating an empty playlist**: The user was asked to create an empty playlist with the title "Hello World".
- **Creating a radio station based on a given artist**: The user was asked to create a radio station based on the artist Tiësto and play it.
- **Looping a playlist**: The user was asked to play a playlist and set it to loop indefinitely, i.e. the music service would play all the songs in the playlist and when it had gone through all the songs in the playlist it would iterate through the playlist again and continue playing the songs in the list. The user was allowed to use a playlist that they had already created beforehand or were given time to create a playlist in order to finish the task.

Each of these tasks are familiar to most users and required more than one action to complete, i.e. pressing a button and writing out the title of a playlist. These tasks are also possible in both systems. Since iTunes is a media player while Spotify is a music streaming service, we had to take care as to create tasks that were possible in both systems.

3 Procedure

We created a spreadsheet using Google Docs and created a form that would record all the data from the survey on the sheet. Each member of our group recorded the data on the form for an individual participant. The form contained the following fields:

- The service that the user was testing
- Whether or not the user had previously used the music service
- How long had the user been using the music service
- How the user rated themselves on how familiar they were with the music service
- How the user rated their proficiency with computers
- The time it took to the user to complete a given task
- How many errors, if any, were committed while completing each task
- A brief qualitative description of the errors, if any
- Any additional notes on any given task
- Satisfaction with the ease of the given task

- Overall satisfaction with the music service

For the question concerning how familiar they were with the music service, the user was asked to rank themselves from 1 to 10, 1 being very unfamiliar and 10 being very familiar with the service. Similarly, the user was asked to rate their proficiency with computers on a scale from 1 to 10, 1 being not very proficient and 10 being very proficient.

We allowed the users to use their personal computer for the survey in order to make sure the users did not take longer because they were using an operating system they are unfamiliar with. Also, there is no significant difference between the application windows across operating systems, as seen in Figures 1 and 2. Note that the application windows are stacked in the order of Mac and Windows.

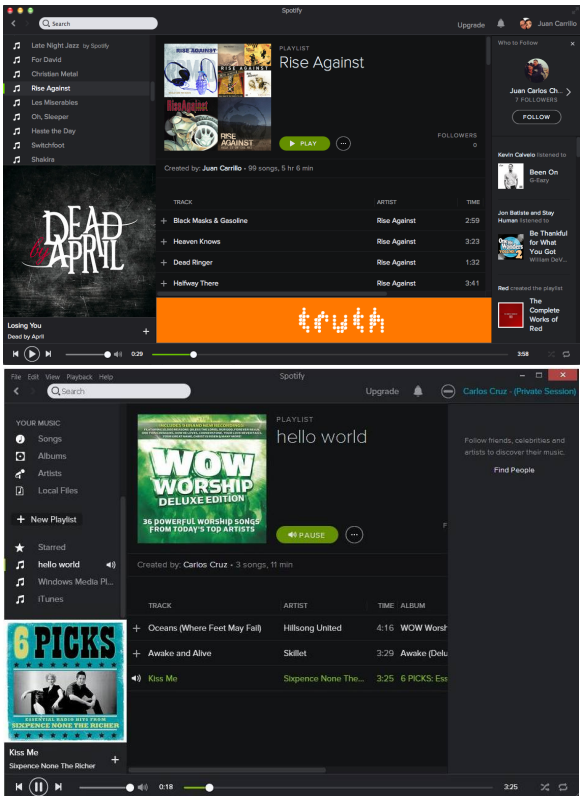

Figure 1: Spotify Desktop Application View

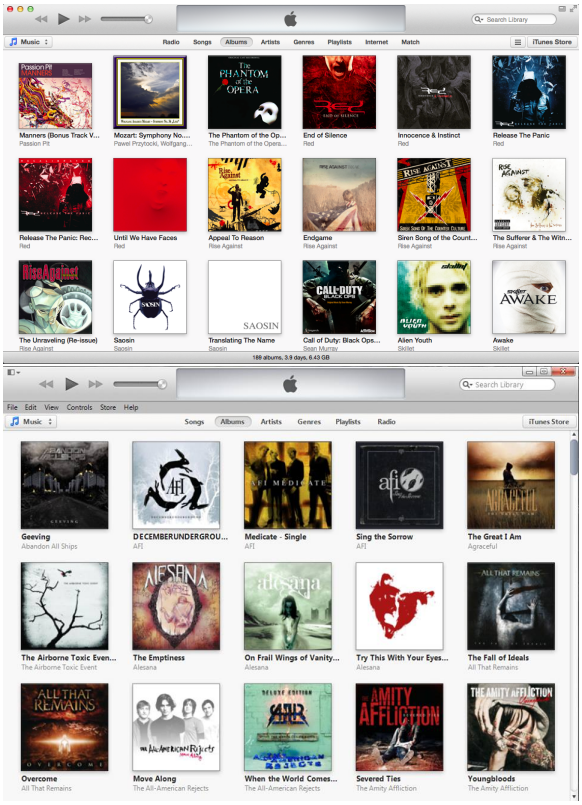

Figure 2: iTunes Application View

At the beginning of the survey we collected information for the first five fields. After collecting the preliminary data, we explained the task to the participant and then timed how long it took for each participant to complete the given task. We also made note of any errors committed by the user. In between each task we asked the participant to report their satisfaction with each task on a scale of 1 to 10, 1 being very unsatisfied and 10 being very satisfied. We also recorded any additional comments provided by the user, if relevant. At the end of the survey we asked the user to rate their overall satisfaction with the music service on a scale of 1 to 10, 1 being very unsatisfied and 10 being very satisfied.

4 Results

4.1 Participants

We had 15 examinations, 8 for iTunes and 7 for Spotify. Some of the users participated in the survey twice, testing one service and then the other. All participants that tested iTunes were already familiar with iTunes. Of the 7 participants who tested Spotify only 4 were

prior experience with Spotify. The average self-assessed proficiency of the participants was about 7.46, with a standard deviation of 1.73, meaning that users considered themselves to be proficient at using a computer.

4.2 Experience and Satisfaction

iTunes Satisfaction	Spotify Satisfaction
10	8
8	10
9	8
6	10
8	8
10	9
3	10
8	-
Average: 7.75	Average: 9
Standard Deviation: 2,31	Standard Deviation: 1

Years using Spotify	Years using iTunes
0	8
0	8.5
0	5
0	18
0.5	4
0.16	8
1.5	10
-	7
Average: 0.542	Average: 7.31
Standard Deviation: 0.56	Standard Deviation: 1.94

Figure 3: User Satisfaction and Experience

All the people who tested iTunes were already familiar with the service. Looking at Figure 3, we see that on average, those participants that had used iTunes had been using it for about 7 years. In contrast, three out of the seven participants for Spotify had no previous experience with Spotify. As a result of this and the small sample size, the average participant had only 6 months of experience with Spotify. Also, no user had more than 18 months of experience with Spotify. The average is not The average satisfaction with the system was 7.75, with a standard deviation of 2.31, which means that users were overall satisfied with the system. It can be noted that one user in particular rated their satisfaction with iTunes at a 3, and the next lowest score was a 6. Due to the small sample size, the user's score greatly lowered the average satisfaction for iTunes. It can also be noted that the user took 1 minute and 30 seconds on one of the tasks, and their overall satisfaction with iTunes may be attributed to the relatively long time it took the participant to complete that task. On the other hand, those who participated with Spotify reported on average a satisfaction of 9. The data we collected suggests that overall users have greater satisfaction with Spotify.

4.3 Creating the Playlist

Errors for Creating Playlist	
iTunes	Spotify
1	0
2	0
0	2
0	0
0	1
0	0
0	1
0	-
Average: 0.375	Average: 0.571

Times for Creating Playlist in Seconds	
iTunes	Spotify
16	19
14.84	6
20	15.69
26	7
10.84	9.50
10.07	13.03
18	8
15	-
Average: 16.34	Average: 11.17
Standard Deviation: 5.11	Standard Deviation: 4.87

Figure 4: Times and Errors Creating a Playlist

Users were significantly faster using Spotify when creating the playlist, despite also committing more errors while using Spotify. Most users noted that it was easy to create a playlist in Spotify because there is a widget on the left-hand side with a plus sign labeled New Playlist. Most errors involved misspelling the title of the playlist, "Hello World". Although those using iTunes varied in their approaches to creating the playlist, i.e using keyboard shortcuts or clicking on buttons, they were on average much slower than when the participants used Spotify. It is to be noted that one of the users complained that iTunes is constantly changing its layout, making the users remember new ways to create a playlist. I speculate that the change of the layout causes users to waste time trying to use their usual approach and realizing that the change of the layout changes the way they must create a playlist.

4.4 Creating the Radio Station

Errors for Creating Radio Station	
iTunes	Spotify
0	2
0	0
2	0
0	0
2	0
2	0
0	0
2	-
Average: 1	Average: 0.285

Times for Creating Radio Station in Seconds	
iTunes	Spotify
9	78
21.4	14
121	15.82
8	18
24.83	10.5
28.28	18.04
90	8
30	-
Average: 41.56	Average: 23.19
Standard Deviation: 41.12	Standard Deviation: 24.45

Figure 5: Times and Errors Creating Radio Station

In both music services there were users that took a very long time to figure out how to create a radio station based on an artist. However, Spotify again proved to be faster as users took on average 23.19 seconds complete the task, while completing the same task on iTunes took on average 41.56 seconds. Since the standard deviation for Spotify is much smaller than the one for iTunes, it also demonstrates that the distribution of times is also much tighter than that of iTunes. It is important to note that there were many errors when using iTunes. All of them involved users being unable to find the method to create a radio station based on an artist. However, on Spotify users usually looked up the artist and then looked for ways to create a radio station from there. I speculate that the reason that users were much faster on Spotify is that there were two ways of creating a radio station: finding the artist and creating a station, or going to the radio button and then clicking "Create New Station", which prompted the user to type in the name of the artist. However on iTunes the option of looking up the artist and then creating a radio station was not available. Here, I believe the deciding factor was that there was more than one way to do the same thing in Spotify.

4.5 Looping the Playlist

Errors for Looping Playlists	
iTunes	Spotify
2	2
2	0
0	0
1	0
0	0
0	0
1	2
1	
Average: 0.875	Average: 0.571

Times for Looping Playlist in Seconds	
iTunes	Spotify
82	77
26.13	7
7	12.92
63	7
12.09	5
9.97	11.52
61	20
7	-
Average: 33.52	Average: 20.06
Standard Deviation: 30.35	Standard Deviation: 25.60

Figure 6: Times and Errors Looping the Playlist

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