

**HCI 460 -Project 3  
Summative Testing  
Last.fm vs. Pandora.com**

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## Executive Summary

The objective of this study was to assess the usability of Last.fm's latest streaming radio interface compared to its main competitor, Pandora.com. Since Pandora is the current market leader in web-based streaming radio and has very strong brand awareness, it's especially important that Last.fm offer a streaming radio service that's at least as intuitive and easy to use as Pandora.

The study was conducted between October 31st and November 10, 2009 and was moderated by a team of three moderators, but with one moderator conducting each test with each participant. 28 test participants were recruited for this study with characteristics likely to match the demographics targeted by Last.fm. The study focused on having participants perform three tasks on each website. These tasks were chosen because they represented key use cases to help determine overall user-experience and ability to earn revenue. A moderator recorded the number of seconds performing each task along with participant feedback after each task.

### Findings:

Our findings indicate the following:

#### Task #1 - *Create a Station*

Last.fm demonstrated significantly **weaker** usability.

#### Task #2 - *Ban a song*

The difference in usability was **not statistically significant**.

#### Task #3 - *Buy a song*

Last.fm demonstrated significantly **stronger** usability.

Although the findings of the test indicate that Last.fm had significantly stronger usability for task #3, it's clear that efforts should be taken to remedy the issue discovered while testing task #1. Possible recommendations include making the customized radio station box more prominent by moving it to the left side of the screen, making it larger, and changing the color to a brighter hue. We also recommend better differentiation between the functions of adding a station and adding an artist to your library.

## Introduction

We were asked to evaluate Last.fm in comparison to major competitor Pandora in light of recent changes made to the interface and layout of Last.fm. Our objective was to determine if the new Last.fm interface was at least as easy to use as Pandora. Our priority was to focus on common yet critical use cases which contribute heavily to overall user satisfaction and increased revenue. These tasks included creating a station based on an artist, banning a song from the station, and buying a song.

### Task #1 – Create a Station.

We chose this task because it represents the key entry point into the major function of the site, which is to create personalized radio stations. Without a clear understanding of this function, users may not visit the site again.

### Task #2 – Ban a song.

Banning a track is key to encourage repeat use and therefore sustaining revenue. By banning a track, the user indicates likes and dislikes to personalize the station, fostering increased interaction and connection with the site.

### Task #3 – Buy a song.

This task represents the most direct link between usability and increased revenue. If it's not entirely clear that a song can be purchased through the website, the user will likely purchase elsewhere.

## Method

### Participants

We recruited a total of 28 participants for the study, ranging from 18 to 58 years old. The average and median age for the group was 31 years old. 64% of the participants were male. The participants were randomly selected and included a combination of undergraduate and graduate students and various professionals.

We asked the participants to tell us how familiar they were with Pandora and Last.fm using the words "never", "a few times" and "many times". 67% of participants had used Pandora before, while 32% had used Last.fm. 25% reported they had used other Internet radio sites. Only 4 participants reported having used both services, and only 1 of those reported using both many times.

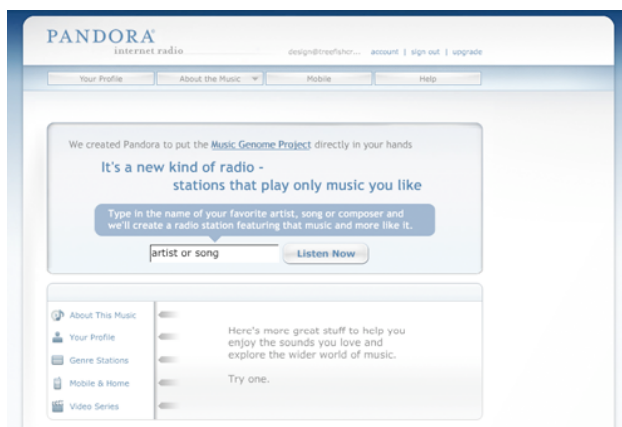
While more of the participants were experienced with Pandora, they were not screened in advance so we had no knowledge of their level of experience before beginning the test. Given more time and resources, a more balanced participant group would have been selected using pre-screening to ensure that experience levels with both sites were represented equally. However, the makeup of this group does give us an idea of how Last.fm is perceived by new users who may or may not have used personalized Internet radio, including Pandora.

Participants' Familiarity with Last.fm and Pandora						
Use	Pandora		Last.fm		Other	
"Never"	9	32%	19	67%	21	75%
"A few times"	10	35%	6	21%	Slacker, Imeem, Songza, Grooveshark, Amarok	
"Many times"	9	32%	3	10%		

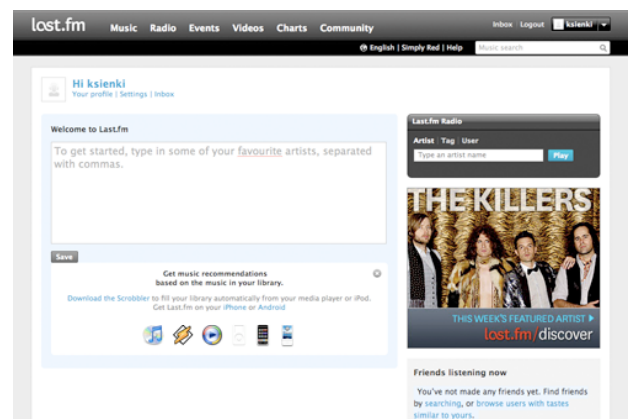
## Stimuli

We tested two internet radio sites, Pandora.com and Last.fm. Each participant interacted with both sites of the sites in a web browser. We created new accounts on both sites, and the first screen or start page participants were shown was the page they would see after creating an account on the site.

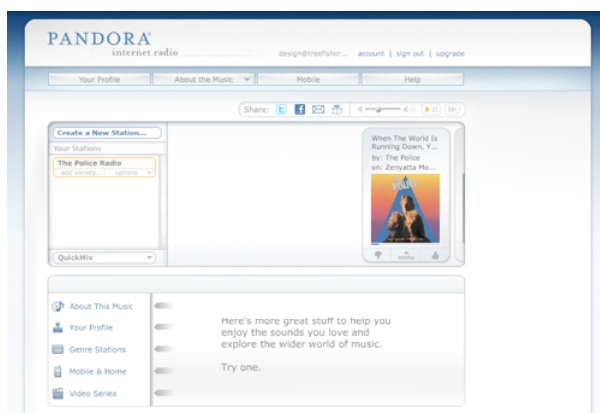
The participants were given 3 identical tasks to perform on each site. The first task began on the initial screen for each site. The 2nd and 3rd tasks began on the radio station screen of each site, which was the end point of the first task. Participants may have encountered additional screens on Last.fm depending on the path they took to complete task 1. These additional screens are shown in Appendix A.



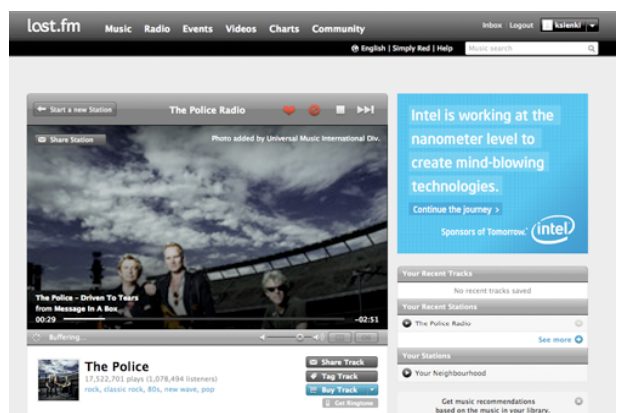
Pandora – start page (registered user with no stations)



Last.fm – start page (registered user with no stations)



Pandora – radio station screen



Last.fm – radio station screen



## Procedure

Using a within-subjects design, participants were asked to perform three common tasks based on real-world use-cases using both the Pandora.com and the Last.fm website. Tasks included the following:

1. *“Listen to a radio station featuring The Police”* – This task was to determine how easy and fast a user could listen to a particular artist.
2. *“You don’t want to hear this song again on this station. What would you click on?”* – This task was to determine how clear it was for a user to begin customizing a station.
3. *“Say you want to buy this song. How would you do that?”* – This task was to determine how fast and clear it was for a user to purchase a track.

Each of the tasks above were performed in the same order for each participant. However, half of the participants used Pandora first and the other half started on Last.fm to mitigate the effects of bias based on learning a task from the first site. After the moderator explained the purpose of the study and obtained an agreement to participate, the study began.

An account was setup for both sites and the moderator logged into each site before beginning with a test account. Since it was critical that each participant view the same screens, the moderator had to clear the cache of the computer for each site between tests. Otherwise, cookies on each site would automatically auto-populate with prior selections made by other participants. Both sites would be opened but minimized in the computer monitor footer bar before beginning the test.

Time on task was measured with a stopwatch. The time it took to complete the task was recorded before asking additional questions about the task. Failure resulted if participants did any of the following:

- Performed an incorrect action to complete the task regardless if they recovered or not
- Gave up on completing the task

Upon success or failure of the task, participants were then asked to rate the overall ease of use of the task on a scale of 1-5 with 1 being the worst and 5 being the best. The answer to the qualitative question “What made the task easy or difficult?” was also recorded before moving on to the next task.

After all three tasks were completed for each site, the moderator asked the final follow-up questions:

1. Overall, which site was easier to use, Last.fm or Pandora?
2. Overall, how would you rank your experience on Pandora on a scale of 1-5 with 1 being the worst and 5 being the best?
3. Overall, how you rank your experience on Last.fm on a scale of 1-5, with 1 being the worst and 5 being the best?

Following the completion of the test, participants were thanked for their participation.

## Task 1 – Findings

*“Listen to a radio station featuring The Police.”*

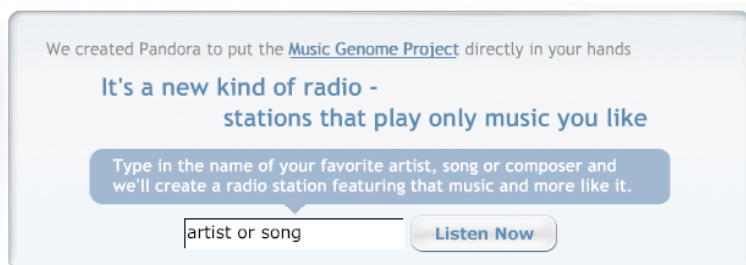
We conducted Fisher’s Exact test to compare the task completion rate of creating a station on Pandora (96%) with the task completion rate of purchasing a song on Last.fm (89%) and found no statistically significant difference at alpha level .05.

We conducted a paired t-test to compare time on task for creating the station. We found a significant difference ( $t_{(21)} = -2.7, p < .05$ ), such that participants took longer to create a station when using Last.fm ( $M = 14.3$  s,  $SD = 16.7$ ) than when using Pandora ( $M = 5.5$  s,  $SD = 5.8$ ).

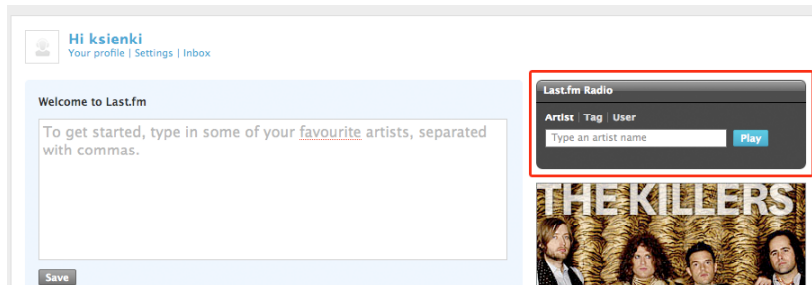
We also conducted a paired t-test to compare the ease of use ratings participants gave the websites for the task of creating a station. We did not find a significant difference ( $t_{(21)} = .31, p > .05$ ), such that participants did not find either site significantly easier to use, although Pandora ( $M = 4.6, SD = .9$ ) was rated slightly higher than Last.fm ( $M = 4.5, SD = .6$ ).

The data shows that although there was no significant difference in success of creating a station and ease of use, Pandora did have a slight advantage. Participants found Pandora was significantly faster to use.

The main difference between the two sites in creating the initial station is that while Pandora allows only the creation of the station, Last.fm emphasizes two different functions: finding information about an artist, and creating a station. Several users attempted to create a station by starting with the larger “artist information” box on the left, navigating to the artist’s page, and selecting “Play The Police Radio”. These participants did not successfully complete the task of creating a station from the front page, contributing to Last.fm’s lower success rate.

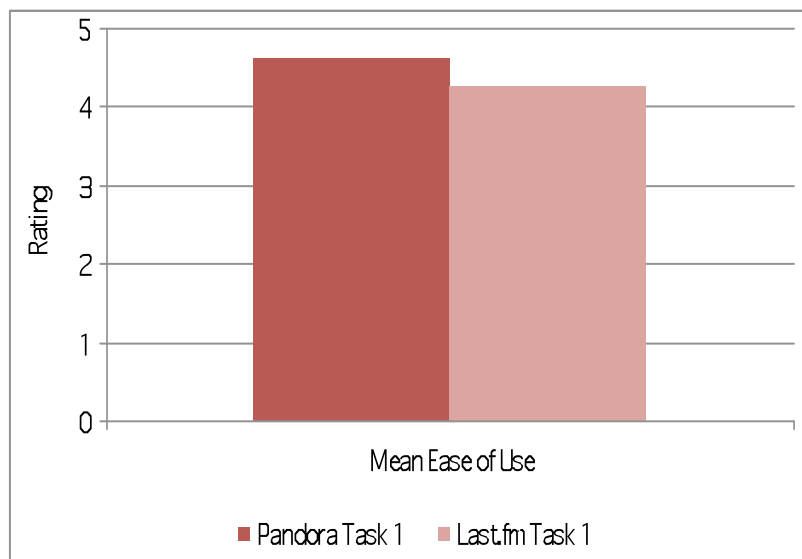
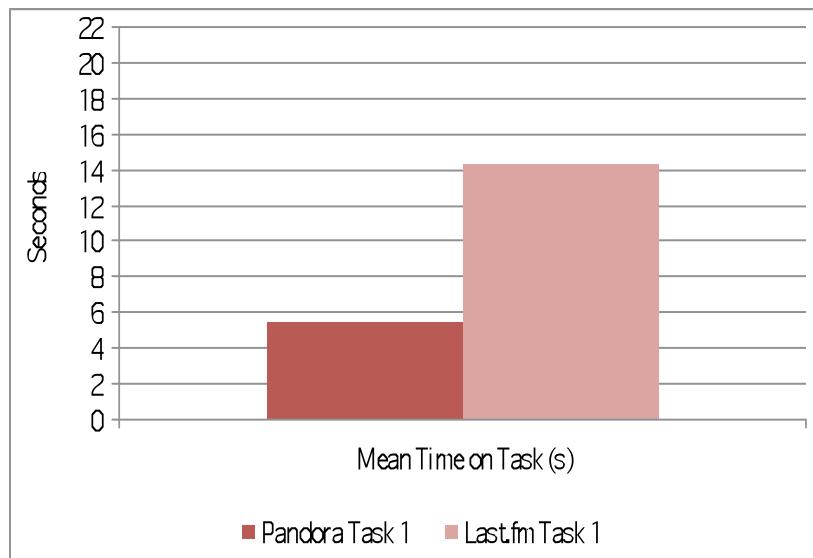
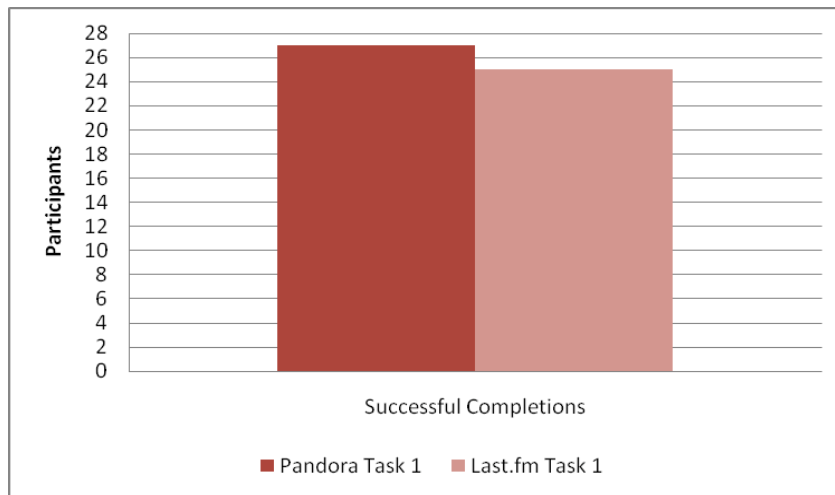


Pandora – create station



Last.fm – create station

## Task 1 – Findings



## Task 2 – Findings

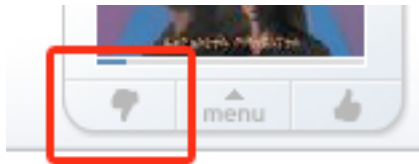
*“You don’t want to hear this song again on this station. What would you click on?”*

### Findings

We conducted Fisher’s Exact test to compare the task completion rate of banning a song from the radio playlist on Pandora.com (82%) with the task completion rate of banning a song from the radio playlist on Last.fm (75%) and found no statistically significant difference at alpha level .05.

We then conducted a paired t-test to compare the time on task for banning a song from the radio playlist. We found no significant difference between the time require to complete the task on Pandora.com (M = 10.7 s, SD = 13.4) vs. Last.fm (M = 7.5 s, SD = 5.4 s).

We also conducted a paired t-test to compare the ease of use ratings participants gave the websites for banning a song from the radio playlist. We found no significant difference between banning a song using Last.fm (M = 4.2, SD = 0.9) vs. Pandora.com (M = 3.9, SD = 1.0).

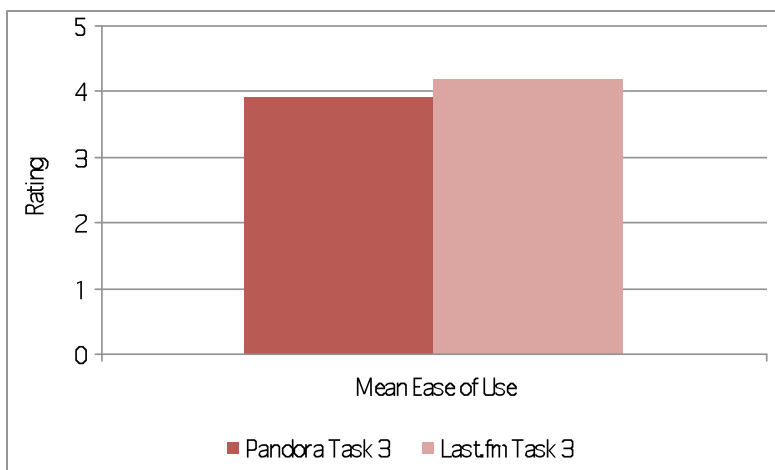
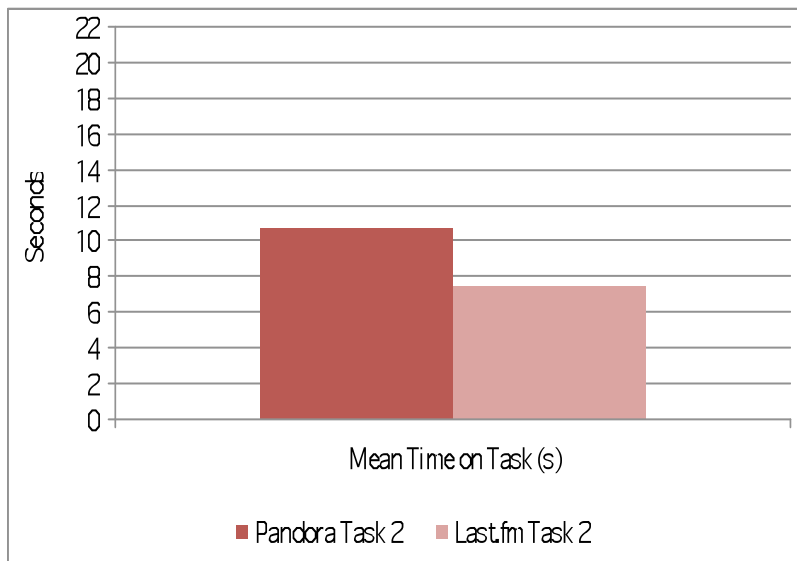
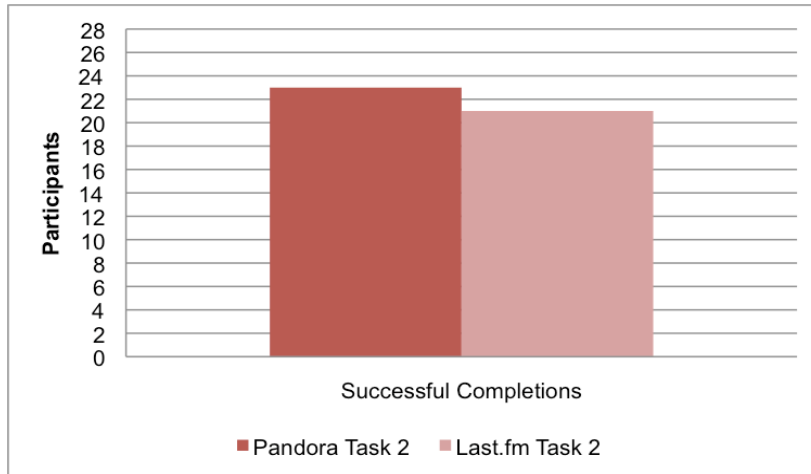


Pandora – Remove track from station



Last.fm – Remove track from station

## Task 2 – Findings



### Task 3 – Findings

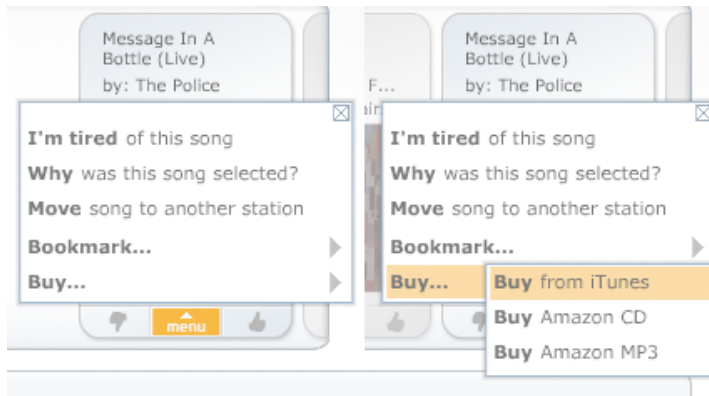
*“Say you want to buy this song. How would you do that?”*

We conducted Fisher’s Exact test to compare the task completion rate of purchasing a song on Pandora.com (86%) with the task completion rate of purchasing a song on Last.fm (96%) and found no statistically significant difference at alpha level .05.

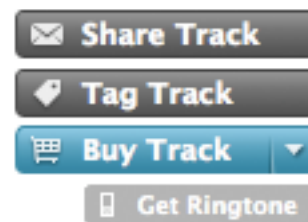
We conducted a paired t-test to compare the time on task for purchasing a song between the two sites. We found a significant difference ( $t_{(21)} = 2.74$ ,  $p < .05$ ), such that participants took longer to purchase a song when using Pandora.com ( $M = 10.6$  s,  $SD = 12.1$ s) than when using Last.fm ( $M = 3.4$  s,  $SD = 1.8$  s).

We also conducted a paired t-test to compare the ease of use ratings participants gave the websites for the task of purchasing a song. We found a significant difference ( $t_{(21)} = -3.36$ ,  $p < .05$ ), such that participants found it easier to purchase a song when using Last.fm ( $M = 4.9$ ,  $SD = 0.5$ ) than when using Pandora.com ( $M = 4.0$ ,  $SD = 1.0$ ).

The difference in purchasing songs on each site was due to the visibility of the buy option. On Pandora.com this option is in a menu of options related to each song. Several participants who had used Pandora before did not know that they could purchase songs from the website prior to the test. On Last.fm the button is visible on the page just below the radio station controls. Participants commented that the blue color of the button drew their eye to this button.

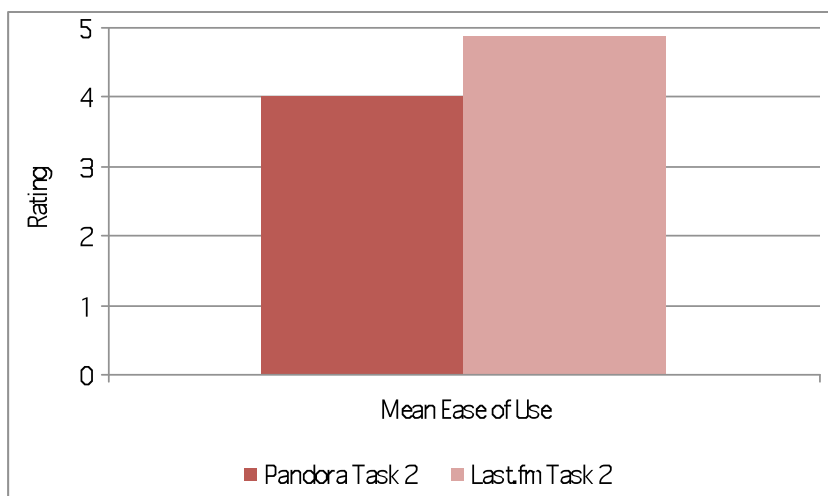
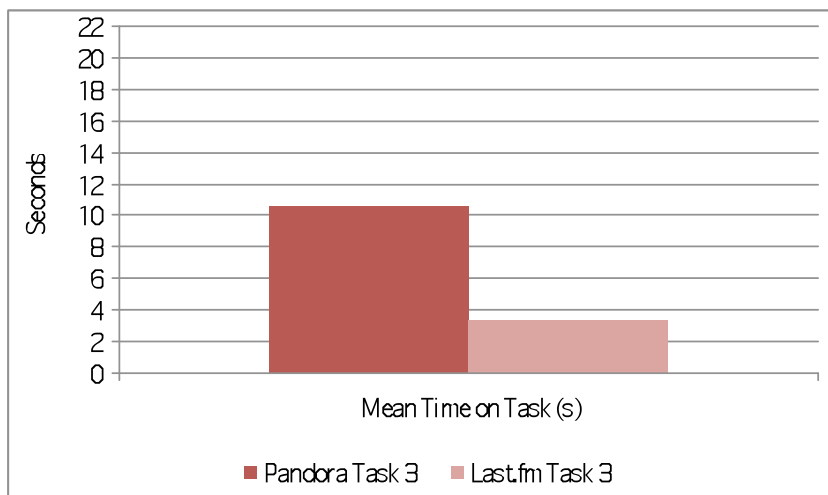
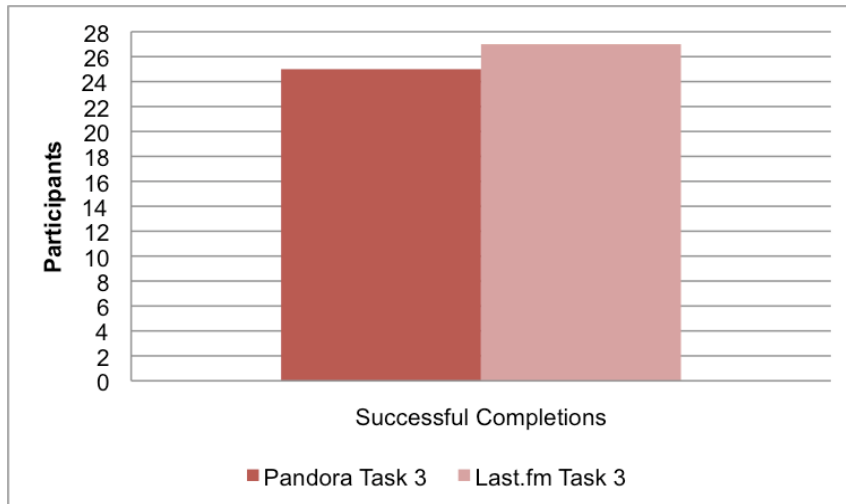


Pandora – Buy options in menu



Last.fm – Buy Track button

### Task 3 – Findings

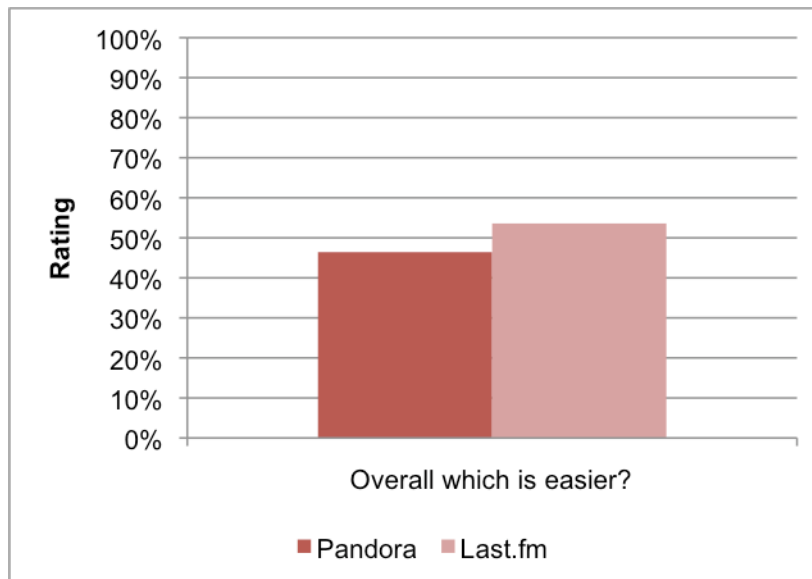


## Overall Ratings

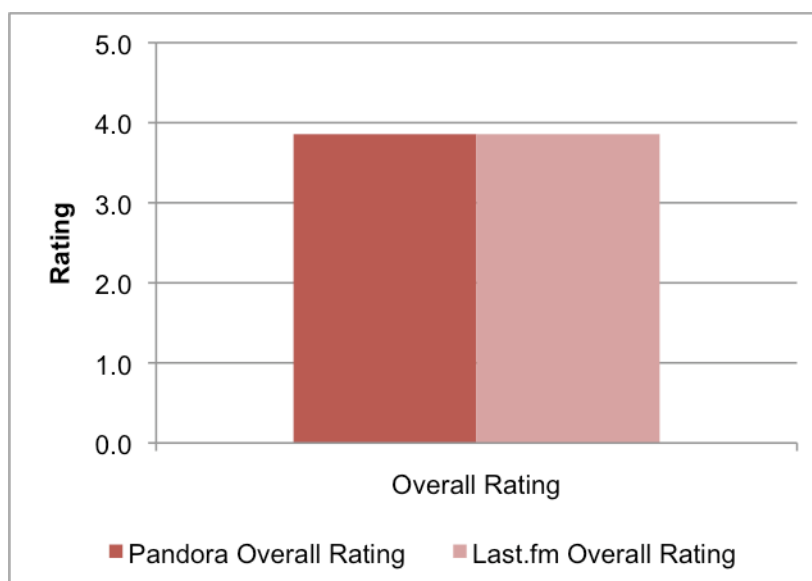
At the end of the test sessions we asked participants which site they preferred. There was no significant difference between the amount of participants who preferred Pandora (46%) and those that preferred Last.fm (54%).

We also asked the users to give an overall rating to each site. We conducted a paired t-test and found no significant difference in the overall scores of Pandora (M=3.9, SD=1) and Last.fm (M=3.9, SD=.9) at alpha level .05.

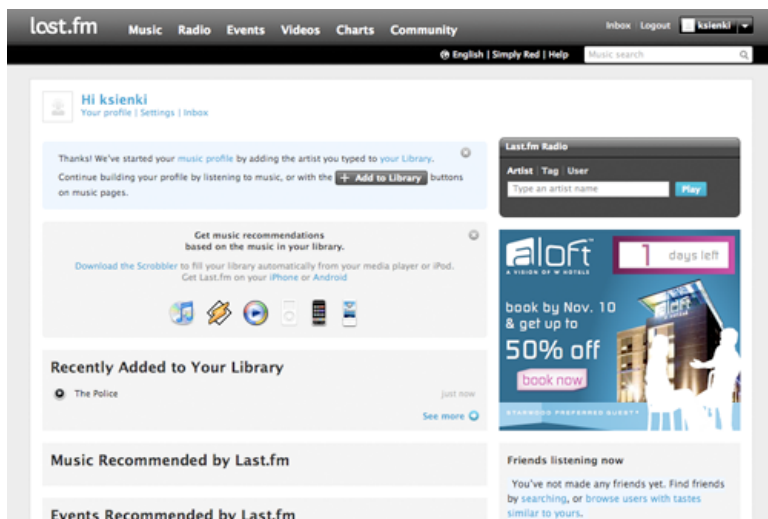
### Site preference based on user feedback



### Site preference based on overall rating



## Appendix A



Last.fm – user entered a band name in large “Welcome” box on left side of start page



Last.fm – user clicked on the band name in their library and viewed the band information page