Interaction Design Project: Final Report

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Website Name The Record Room
Website URL https://recordroomaz.com/
Your Prototype Site URL (xx.axshare.com) https://u5d6tp.axshare.com

Executive Summary

The study we conducted involved testing the usability of a music website and trying to improve it by creating a redesigned one. A total of twelve participants were part of the study divided into two groups: the original website testers and the redesigned website testers. The redesigned website was designed with an emphasis on creating better efficiency, functionality, and learnability. The results of our study show that the redesign significantly improved the usability of the website.

Method

Who we tested

Twelve participants, having the following demographic characteristics, evaluated The Record Room. Six participants used the original website and six participants used the redesigned prototype.

Prior Experience with Shopping Websites (Scale from 1-5)	Participants
1	1
2	0
3	4
4	5
5	2
TOTAL	12

Age	Participants
17 or younger	1
18-24	10
25-34	0
35-44	0
45-64	1
65+	0
TOTAL	12

Gender	Participants
Male	6
Female	4
Other	2
TOTAL	12

What participants did

Participants were assigned either the original website or the redesigned website at random and spent around 10 minutes with the study facilitator. After a brief demographic survey, they completed the following four tasks:

Imagine that you are a music buff who wants to purchase some vinyl records and CDs online. Use *The Record Room*'s website to do the following tasks:

Task 1 - You want to sign into your account on the website and subscribe to the newsletter.

- Sign in with the following information:
  Email: 463test@gmail.com
  Password: 123456
- Navigate back to the homepage if needed.
- Find "EMAIL SIGNUP" on the homepage—Enter any name (if prompted) and "463test@gmail.com" into the fields. If it prompts you to confirm the email address, you do not need to do anything; proceed to the next task

Task 2 - Now that you are signed in, you want to add a variety of music in different formats to your cart.

- Use the Search function on the website to find *Get Born* by Jet and add the vinyl record (new) to your cart.
- Use the Search function on the website to find *Meddle* by Pink Floyd and add the CD (new) to your cart.
- Navigate to the New Releases page for the week of 3-17-2023 and add a vinyl of *Creatrix [Coke Bottle Clear LP]* by Now More Than Ever to your cart.
- The task ends when all of the above items are in your cart

Task 3 - You heard that there is a new Jonas Brothers album coming out soon and you want to learn more about it before you purchase it.

- Navigate to the "Preorder Upcoming Releases" page and find *The Album* by Jonas Brothers. Click it to proceed to the product page
- Please answer the following questions to confirm task completion.
  i. On what date is this album releasing?
  ii. Locate the section that gives you more information on the album. How long was the Jonas Brothers' hiatus before they released the single called *Sucker*?

- Add the vinyl pre-order to your cart. The task has ended.

Task 4 - You want to make changes to your cart and start the checkout process.

- In the shopping cart, change the quantity of *Meddle* by Pink Floyd CDs to 2
- Complete the checkout process until you reach the checkout page. The task ends when the checkout screen is reached.

Afterward, they completed this 10-question survey measured with the System Usability Scale with one of five responses that range from Strongly Disagree to Strongly Agree:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

What metrics were collected

The metrics collected included

- **Task completion time**
  - Calculated using the difference between start and finish times of each specific task outlined in *What Participants Did.*
  - Time starts when the participant starts moving their mouse on the website. Time stops when the participant clicks on the tab where the study questionnaire is.

- **Lostness**
  - Lostness represents the user's deviation from the "optimal path" in the completion of an individual task, it is calculated using the following formula:
  - L = sqrt((N/S-1)^2 + (R/N-1)^2)
    - Where
      - N = The number of different screens visited during the task
      - S = The total number of screens visited during the task, including returns to previously visited screens
      - R = The "optimal" or minimum number of screens that must be visited to complete the task.

- **System Usability Scale (SUS)**

- Participants were asked the difficulty of each task immediately after completion. In addition to this, participants were given a post-session questionnaire each using a Likert Scale.

- Calculated:

  x = (Sum of all Odd question responses) - 5

  y = 25 - (Sum of all Even question responses)

  SUS Score = (x + y) * 2.5

Task completion time:

Participants / Tasks	Task 1			Task 2			Task 3			Task 4			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
Participant 1	1:38	3:47	2:09	4:02	7:43	3:41	8:07	10:37	2:30	10:58	11:38	0:40	9:00
Participant 2	0:00	2:12	2:12	2:40	4:57	2:17	5:08	6:47	1:39	7:02	7:22	0:20	6:28
Participant 3	0:00	2:01	2:01	2:37	7:37	5:00	8:20	10:37	2:17	10:55	11:51	0:56	10:14
Participant 4	0:29	1:35	1:06	2:15	4:56	2:41	5:52	7:33	1:41	8:50	9:20	0:30	5:58
Participant 5	1:54	3:43	1:49	4:51	8:49	3:58	9:13	12:30	3:17	12:52	13:38	0:46	9:50
Participant 6	0:20	1:58	1:38	2:19	8:19	5:00	9:20	10:02	0:42	10:4	10:17	0:13	7:55

Table 1: Original website Task Times

Participants / Tasks	Task 1			Task 2			Task 3			Task 4			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
Participant 1	0:00	0:53	0:53	1:00	1:40	0:40	1:50	2:50	1:00	3:00	3:20	0:20	3:57
Participant 2	1:21	2:28	1:07	2:45	3:47	1:02	4:03	4:30	0:27	4:42	5:14	0:32	3:08
Participant 3	0:45	2:47	2:02	3:13	4:59	1:46	5:19	6:21	0:58	6:38	8:43	1:05	5:51
Participant 4	2:28	3:41	1:13	4:00	6:20	2:20	6:39	7:53	1:14	8:06	8:20	0:14	5:01
Participant 5	1:06	1:59	0:53	2:19	4:27	2:08	4:47	5:47	1:00	5:57	6:10	0:13	4:14
Participant 6	0:42	2:03	1:21	2:18	4:19	2:01	4:37	5:13	0:36	5:22	5:36	0:14	4:12

Table 2: Redesigned website Task Times

Lostness:

	Task 1	Task 2	Task 3	Task 4

	R	N	S	R	N	S	R	N	S	R	N	S
P1	4	4	4	7	11	14	2	2	2	2	2	2
P2	4	4	5	7	13	14	2	3	3	2	3	3
P3	4	5	6	7	10	19	2	5	7	2	3	3
P4	4	5	6	7	11	15	2	3	3	2	3	5
P5	4	4	4	7	12	15	2	5	7	2	3	5
P6	4	7	8	7	12	12	2	5	5	2	3	3

Table 3: Original website Lostness

	Task 1			Task 2			Task 3			Task 4		
	R	N	S	R	N	S	R	N	S	R	N	S
P1	1	1	1	4	5	5	2	2	2	2	2	2
P2	1	1	2	4	4	4	2	2	2	2	3	3
P3	1	1	1	4	4	4	2	2	3	2	2	2
P4	1	1	1	4	7	8	2	2	2	2	2	2
P5	1	1	1	4	4	4	2	2	2	2	2	2
P6	1	1	1	4	7	13	2	2	2	2	2	2

Table 4: Redesigned website Lostness

	Task 1	Task 2	Task 3	Task 4
P1	0	0.4220779221	0	0
P2	0.2	0.467032967	0.3333333333	0.3333333333
P3	0.2603416559	0.5606930812	0.6645544771	0.3333333333
P4	0.2603416559	0.4509351573	0.3333333333	0.5206833117
P5	0	0.4621808208	0.6645544771	0.5206833117
P6	0.4464285714	0.4166666667	0.6	0.3333333333

Table 5: Original website calculated Lostness

	Task 1	Task 2	Task 3	Task 4

P1	0	0.2	0	0
P2	0.5	0	0	0.3333333333
P3	0	0	0.3333333333	0
P4	0	0.4464285714	0	0
P5	0	0	0	0
P6	0	0.6298342805	0	0

Table 6: Redesigned website calculated Lostness

SUS:

	SUS Q1	SUS Q2	SUS Q3	SUS Q4	SUS Q5	SUS Q6	SUS Q7	SUS Q8	SUS Q9	SUS Q10	SUS Score
Participant 1	2	3	1	1	1	4	1	4	3	4	30
Participant 2	3	3	4	4	4	1	5	3	4	2	67.5
Participant 3	2	4	2	1	2	4	2	4	3	3	37.5
Participant 4	2	2	1	1	2	5	2	5	4	2	40
Participant 5	1	3	2	1	2	3	3	4	3	3	42.5
Participant 6	2	4	4	4	3	3	3	3	4	2	50

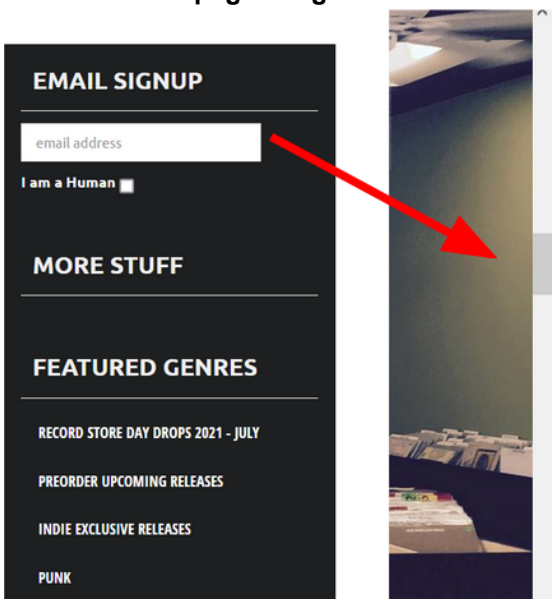
Table 7: Original website SUS

	SUS Q1	SUS Q2	SUS Q3	SUS Q4	SUS Q5	SUS Q6	SUS Q7	SUS Q8	SUS Q9	SUS Q10	SUS Score
Participant 1	5	1	5	1	5	1	5	1	4	1	97.5
Participant 2	3	3	2	1	5	1	5	3	4	3	70
Participant 3	4	2	5	1	4	2	5	3	5	1	85
Participant 4	5	1	5	1	4	1	5	1	4	1	95
Participant 5	5	1	5	1	5	1	4	1	5	1	97.5
Participant 6	5	1	5	1	5	2	5	1	5	1	97.5

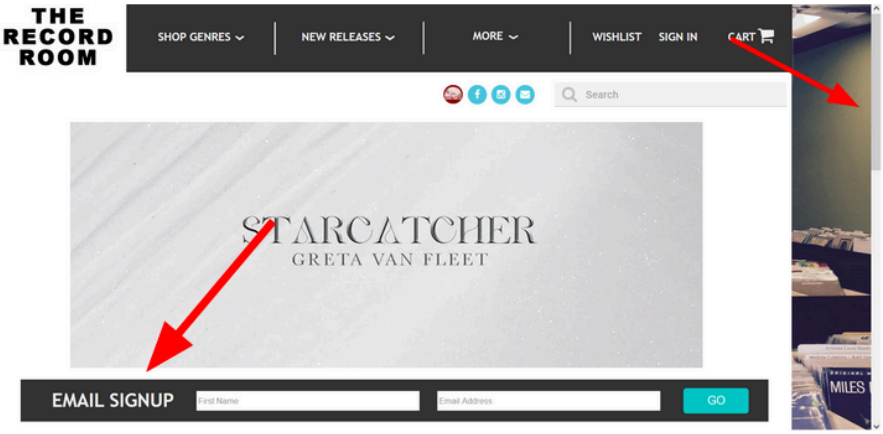
Table 8: Redesigned website SUS

What improvements were made to the site

1. **Reduced Homepage Length**

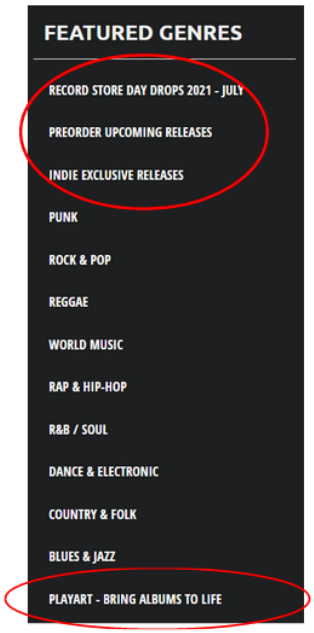


The above image depicts how long it takes to scroll down the homepage before this navigation on the right side is revealed.

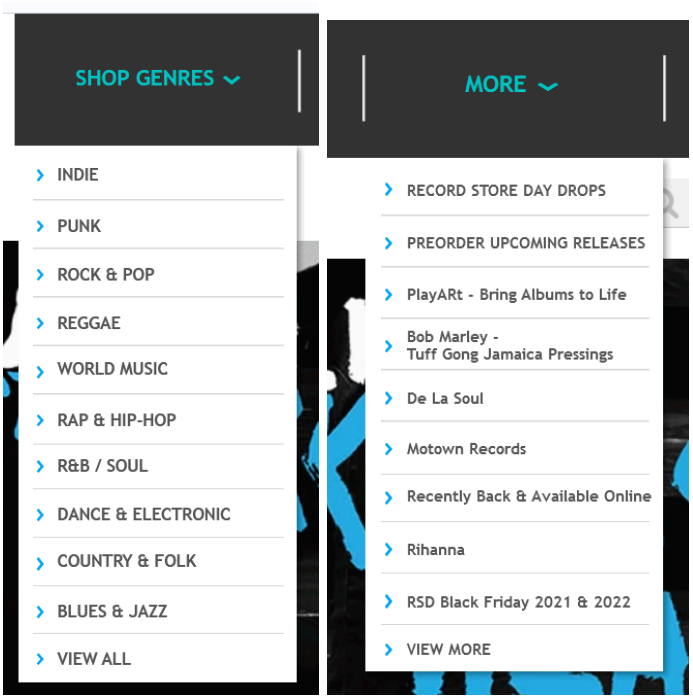


In our redesign, we made sure that the homepage was kept shorter, and vital things could be found more efficiently, like the email signup for their newsletter.

2. Proximity of page links

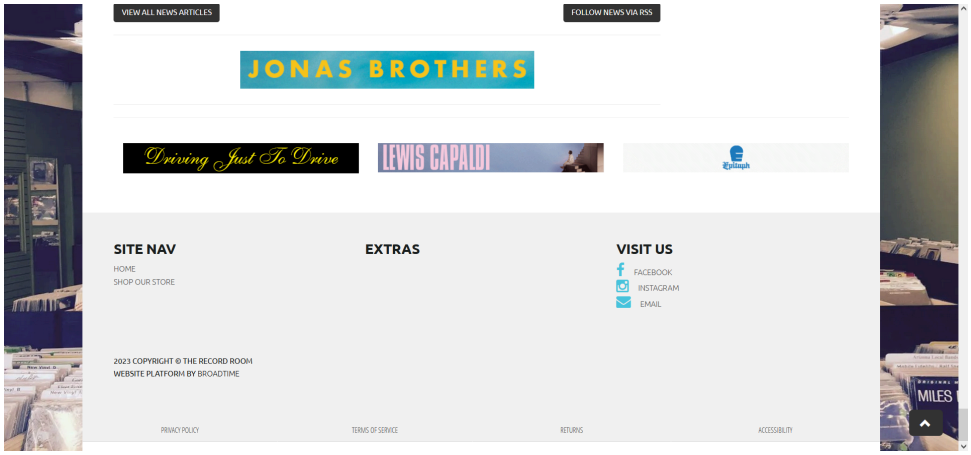


Above is an example found on the homepage of the site, where this “featured genres” section has a lot more than just genre links, and said links are placed arbitrarily. “Pre-order upcoming releases” should not be that close to the list of genres because it limits site readability. This same order of page links is also found on the dropdown menu for “Shop Store.”

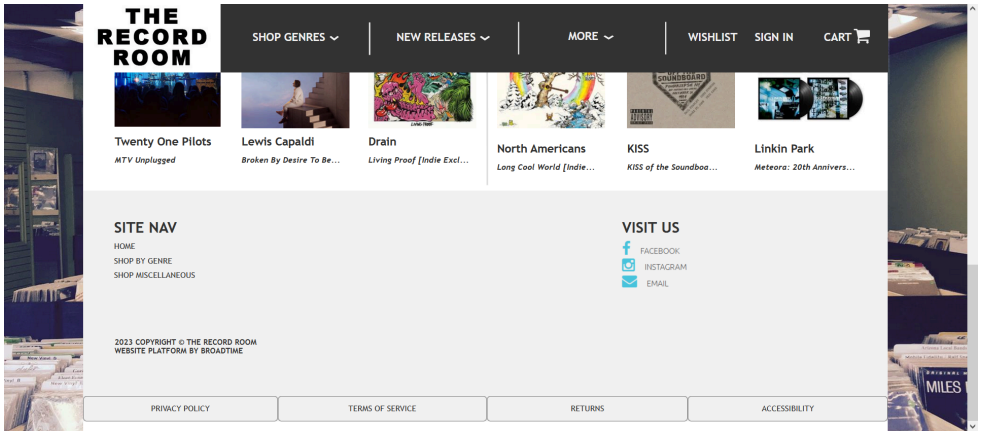


In our redesign, we split these into two dropdown menu sections: Shop Genres and More. Designed like this, the genres, which are similar pages would be close to each other, and the other miscellaneous categories are separated into their own section, so users aren’t confused and can easily navigate to where they want to go.

3. **Persistent navigation bar**

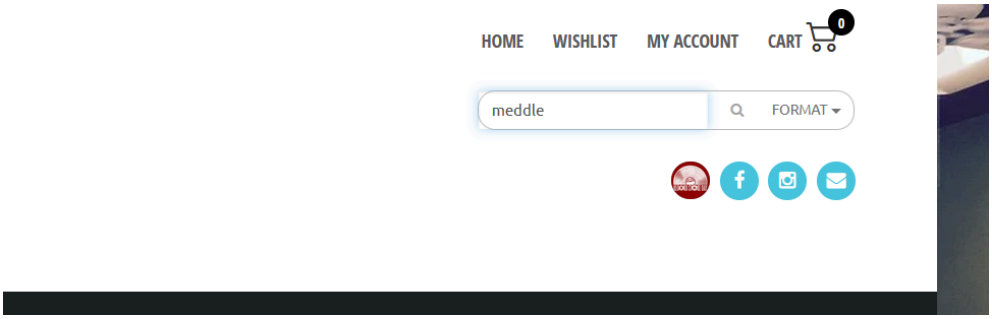


The screenshot of the original site above shows that there is no sticky header as you scroll down the page.

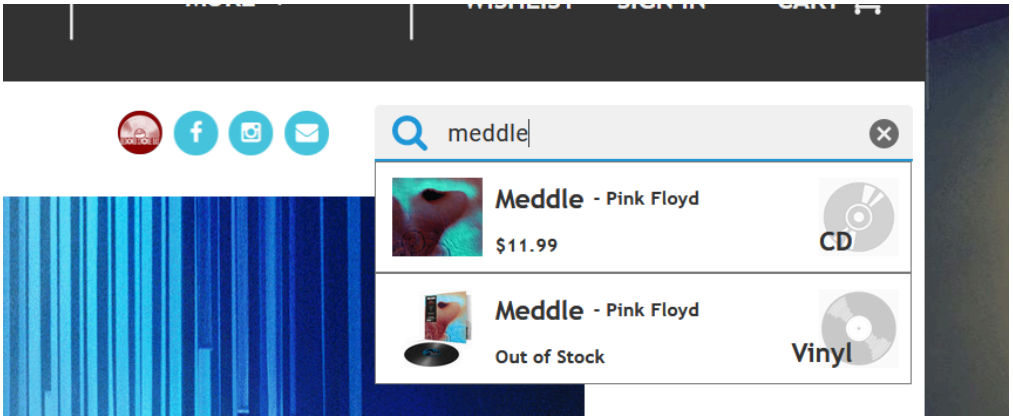


This screenshot of the redesigned site shows that no matter how far you scroll down, the navigation bar will always be at the top, allowing the user to access the options at any time.

4. **Search Function**

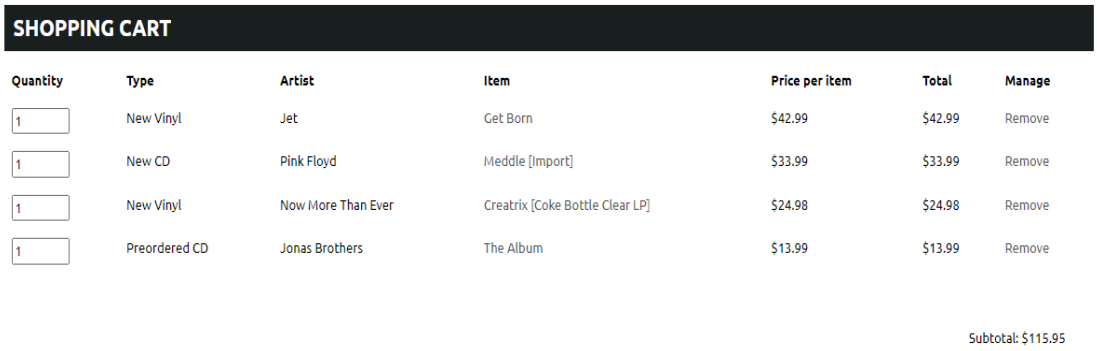


In the original website, the search function lets the user input a search term, and it brings the user to a new page with a list of results. The results don't mention the price of the items or if they are even in stock or not, so the user has to click on each one individually to compare prices.



To cut back on the number of clicks it takes to complete a task and the amount of time, we designed a search bar that automatically displays results as you type. The results include the price, whether it's in stock or not, and the format in an easily digestible way.

5. Layout of cart

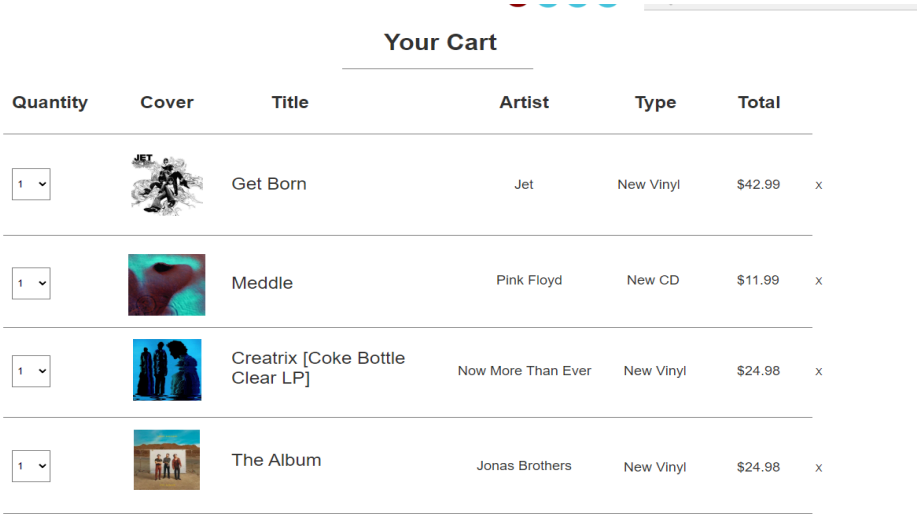


SHOPPING CART

Quantity	Type	Artist	Item	Price per item	Total	Manage
1	New Vinyl	Jet	Get Born	$42.99	$42.99	Remove
1	New CD	Pink Floyd	Meddle [Import]	$33.99	$33.99	Remove
1	New Vinyl	Now More Than Ever	Creatrix [Coke Bottle Clear LP]	$24.98	$24.98	Remove
1	Preordered CD	Jonas Brothers	The Album	$13.99	$13.99	Remove

Subtotal: $115.95

The screenshot above is the layout of the cart on the original site.



Your Cart

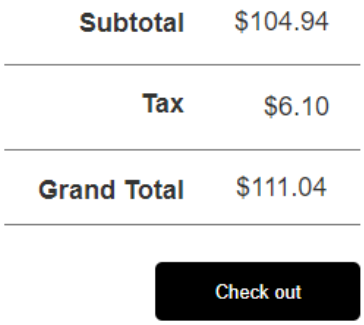
Quantity	Cover	Title	Artist	Type	Total	
1		Get Born	Jet	New Vinyl	$42.99	x
1		Meddle	Pink Floyd	New CD	$11.99	x
1		Creatrix [Coke Bottle Clear LP]	Now More Than Ever	New Vinyl	$24.98	x
1		The Album	Jonas Brothers	New Vinyl	$24.98	x

The screenshot above is the layout of the cart on the redesigned site. In the redesign, we spaced out the items in the cart and displayed the details of the items in a more efficient manner. This layout will make it so the user is not confused about what is in their cart due to being able to see the album cover and read the details more clearly.

6. Interactive buttons on the Cart page



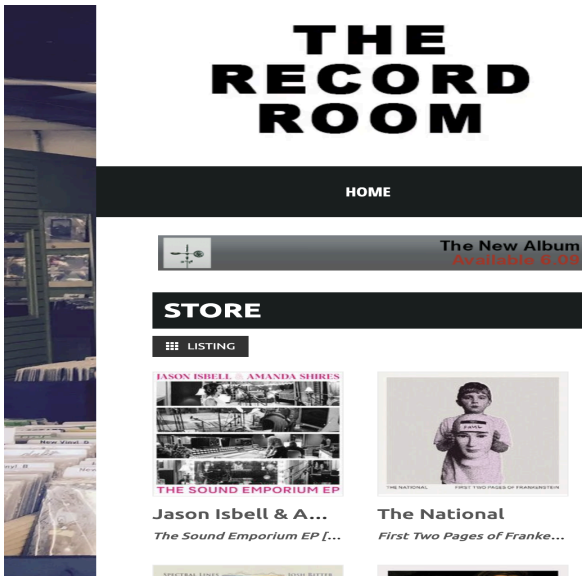
Attached above is a screenshot of the bottom of the cart page on the original site. It is difficult for the user to understand if those are actual buttons or not as there is no gap between them. Additionally, the subtotal does not stand out and does not provide any additional details such as the tax and grand total.



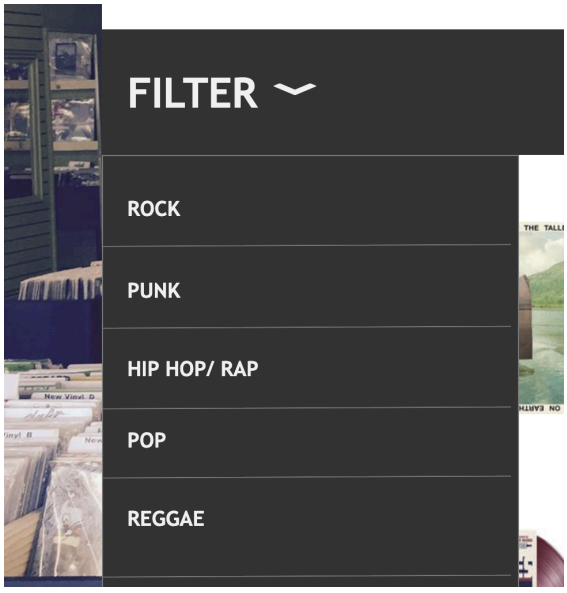
This is a screenshot of the bottom of the cart page on the redesigned site. As you can see here everything is shown a lot more clearly as the text and buttons stand out more. As a benefit on the redesigned site the top navigation bar is locked at all times so if you do have the option to continue shopping, you can always navigate by using the header.

7. Accessibility on the Product Page

The product page was redesigned to have a higher level of accessibility making it easier for the user to navigate throughout the site and look for their desired product or just browse. The original site does not have a clear filter tool, in the redesign we have added a filter feature in order for the user to be able to narrow down the search by different categories.



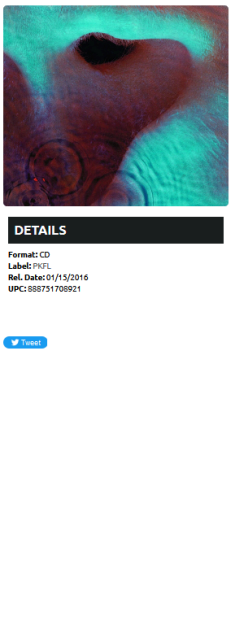
This is an image of the original website which does not include a feature to filter but instead to see all the listings



Above is the redesigned site which includes the filter feature.

8. Individual product pages decluttered

Included are screenshots of the original (left) and redesigned (right) pages of the product pages which have been redesigned to eliminate the clutter from the page and to feature the most relevant aspects of the product in the front and center of the page.



Meddle
Artist: Pink Floyd
Format: CD
New: Not in stock
$11.99 UNAVAILABLE
WISH

FORMATS AND EDITIONS
CD - Import $33.99

$11.99 BUY MP3 ALBUM

DISC: 1
MP3

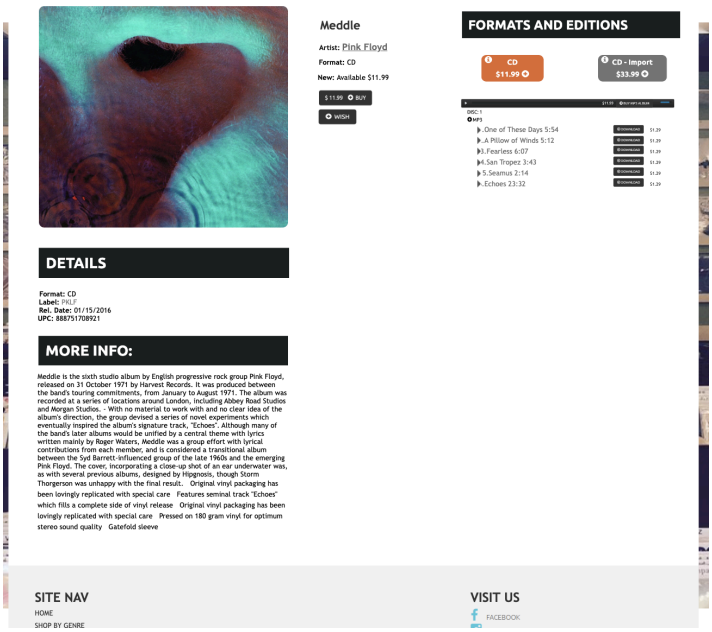
1. One of These Days 5:54	$1.29	DOWNLOAD
2. A Pillow of Winds 5:12	$1.29	DOWNLOAD
3. Fearless 6:07	$1.29	DOWNLOAD
4. San Tropez 3:43	$1.29	DOWNLOAD
5. Seamus 2:14	$1.29	DOWNLOAD
6. Echoes 23:32		

Powered by Broadtime Tuneportals

DETAILS
Format: CD
Label: PKFL
Rel. Date: 01/15/2016
UPC: 888751708921

Tweet

MORE INFO:
Meddle is the sixth studio album by English progressive rock group Pink Floyd, released on 31 October 1971 by Harvest Records. It was produced between the band's touring commitments, from January to August 1971. The album was recorded at a series of locations around London, including Abbey Road Studios and Morgan Studios. - With no material to work with and no clear idea of the album's direction, the group devised a series of novel experiments which eventually inspired the album's signature track, "Echoes". Although many of the band's later albums would be unified by a central theme with lyrics written mainly by Roger Waters, Meddle was a group effort with lyrical contributions from each member, and is considered a transitional album between the Syd Barrett-influenced group of the late 1960s and the emerging Pink Floyd. The cover, incorporating a close-up shot of an ear underwater was, as with several previous albums, designed by Hipgnosis, though Storm Thorgerson was unhappy with the final result. Original vinyl packaging has been lovingly replicated with special care Features seminal track "Echoes" which Fills a complete side of vinyl release Original vinyl packaging has been lovingly replicated with special care Pressed on 180 gram vinyl for optimum



Meddle by Pink Floyd



Get Born
Artist: Jet
Format: Vinyl
New: Available $42.99
$42.99 BUY
WISH

FORMATS AND EDITIONS
CD - Deluxe $26.99
Vinyl - Rocktober 2016 Exclusive Limited Edition Vinyl $21.98
Vinyl $42.99

$12.99 BUY MP3 ALBUM

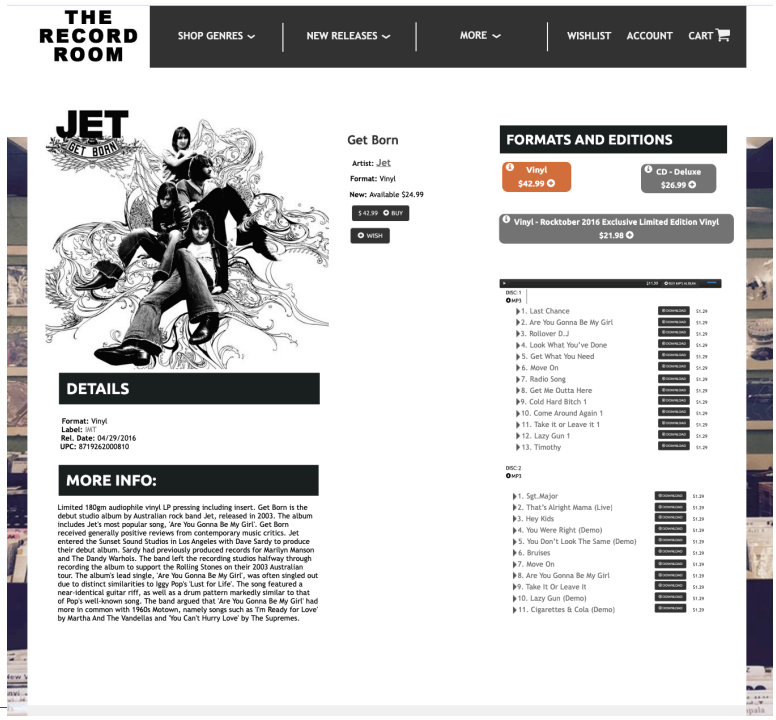
DISC: 1
MP3

1. Last Chance	$1.29	DOWNLOAD
2. Are You Gonna Be My Girl	$1.29	DOWNLOAD
3. Rollover D.J	$1.29	DOWNLOAD
4. Look What You've Done	$1.29	DOWNLOAD
5. Get What You Need	$1.29	DOWNLOAD
6. Move on	$1.29	DOWNLOAD
7. Radio Song	$1.29	DOWNLOAD
8. Get Me Outta Here	$1.29	DOWNLOAD
9. Cold Hard Bitch 1	$1.29	DOWNLOAD
10. Come Around Again 1	$1.29	DOWNLOAD
11. Take It or Leave It 1	$1.29	DOWNLOAD
12. Lazy Gun 1	$1.29	DOWNLOAD
13. Timothy	$1.29	DOWNLOAD

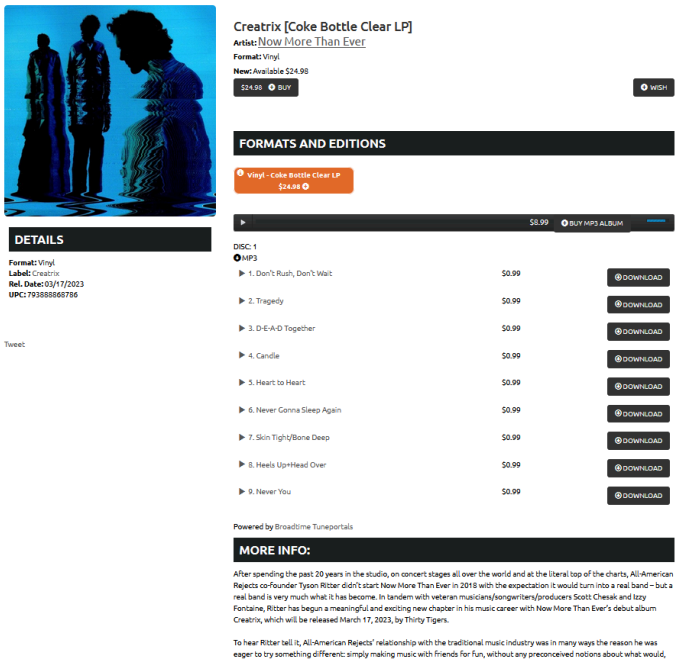
DISC: 2
Digital download
MP3

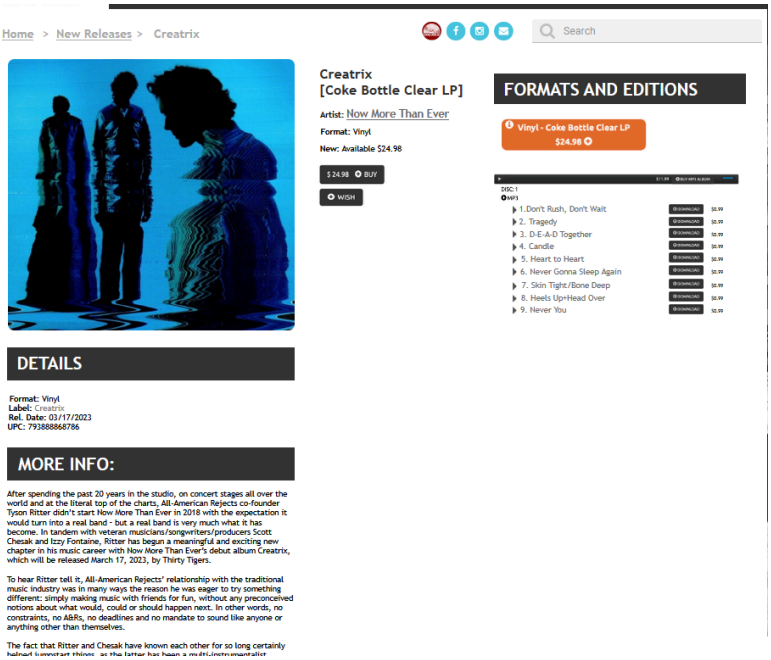
DETAILS
Format: Vinyl
Label: IMT
Rel. Date: 04/29/2016
UPC: 871926200810

Tweet

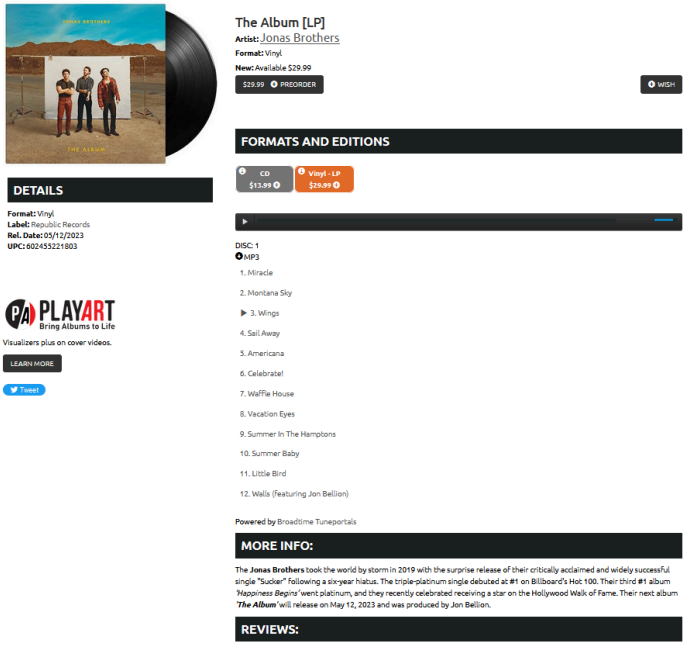


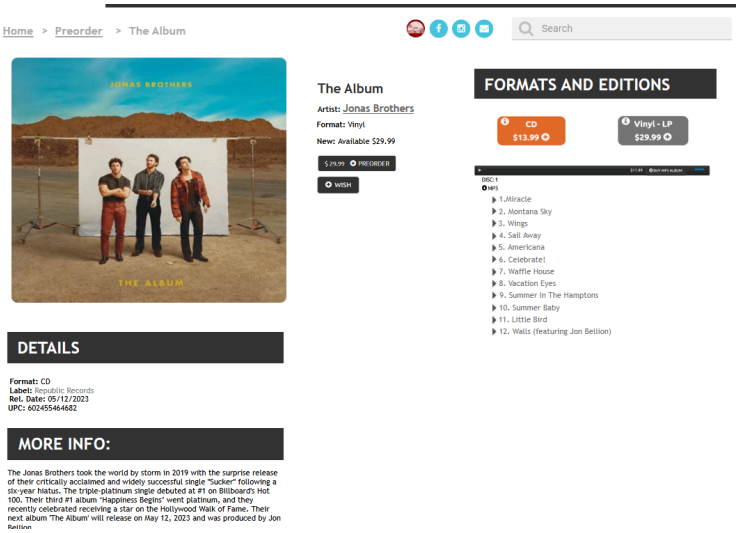
Get Born byJet





Creatrix by Now More Than Ever





The Album by Jonas Brothers

Overall Findings & Recommendations

Time on Task

Each participant was tasked with a total of 4 tasks to complete. The data for time on task has been collected and reported below along with the statistical analysis of the data.

Task #1 - The user was asked to sign into their account on the website and subscribe to the newsletter.

Original Site Time (seconds)	Redesigned Site Time (seconds)
129	53
132	67
121	122
66	73
109	53
98	81

	Original Site	Redesigned Site
Mean	109.17	74.83
Standard Deviation	24.67	25.62

T-Value	2.36479
P-Value	0.039628

The result is significant at $p < .05$.

Task #2 Once signed in, add a variety of music in different formats to the cart.

Original Site Time (seconds)	Redesigned Site Time (seconds)
221	40
137	62
300	106
161	140
238	128

300	121

	Original Site	Redesigned Site
Mean	226.17	99.5
Standard Deviation	68.22	39.76

T-Value	3.92964
P-Value	0.002822

The result is significant at $p < .05$.

Task #3 The user was to navigate to the "Preorder Upcoming Releases" page and find The Album by Jonas Brothers and learn more about it.

Original Site Time (seconds)	Redesigned Site Time (seconds)
150	60
99	27
137	58
101	74
197	60
41	36

	Original Site	Redesigned Site
Mean	120.83	52.5
Standard Deviation	53.21	17.48

T-Value	2.98855
P-Value	0.013607

The result is significant at $p < .05$.

Task #4 Make changes to the cart and start the checkout process.

Original Site Time (seconds)	Redesigned Site Time (seconds)
40	20

20	32
56	65
30	14
46	13
13	14

	Original Site	Redesigned Site
Mean	34.17	26.33
Standard Deviation	16.23	20.25

T-Value	0.7395
P-Value	0.476603

The result is *not* significant at $p < .05$.

Lostness

Task #1 The user was asked to sign into their account on the website and subscribe to the newsletter.

	Original Site Lostness	Redesigned Site Lostness
Mean	0.1945186472	0.08333333333
Standard Deviation	0.1719470851	0.2041241452

T-Value	1.02043
P-Value	0.331576

The result is *not* significant at $p < .05$.

Task #2 Once signed in, add a variety of music in different formats to the cart.

	Original Site Lostness	Redesigned Site Lostness
Mean	0.4632644358	0.2127104753
Standard Deviation	0.05201424632	0.2700056342

T-Value	2.23199

P-Value	0.049675

The result is significant at $p < .05$.

Task #3 The user was to navigate to the "Preorder Upcoming Releases" page and find The Album by Jonas Brothers and learn more about it.

	Original Site Lostness	Redesigned Site Lostness
Mean	0.4326292702	0.05555555556
Standard Deviation	0.2617170289	0.1360827635

T-Value	3.13117
P-Value	0.010669

The result is significant at $p < .05$.

Task #4 Make changes to the cart and start the checkout process.

	Original Site Lostness	Redesigned Site Lostness
Mean	0.3402277706	0.05555555556
Standard Deviation	0.1902766094	0.1360827635

T-Value	2.9808
P-Value	0.013789

The result is significant at $p < .05$.

System Usability Scale (SUS)

	Original Site SUS Score	Redesigned Site SUS Score
Mean	44.58	90.42
Standard Deviation	12.98	11.11

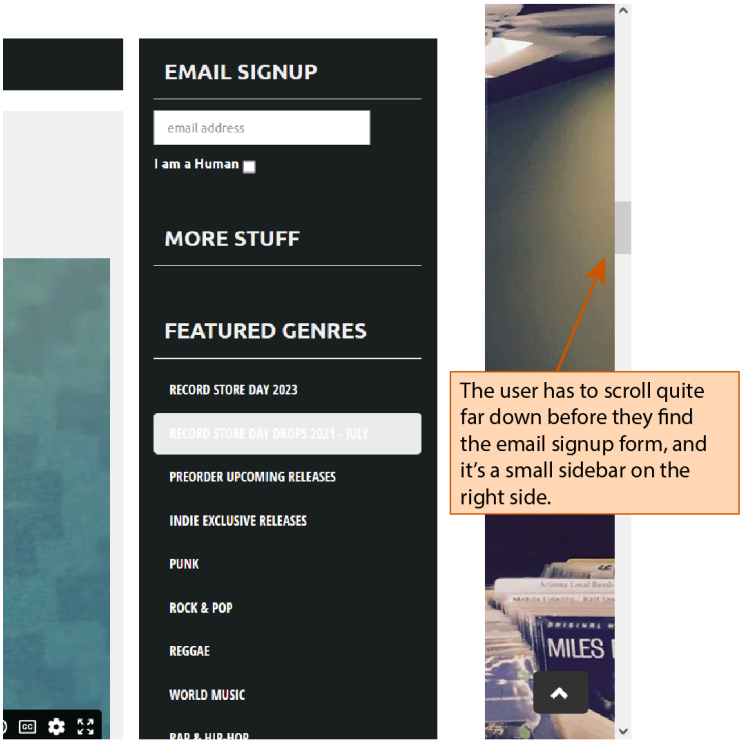
T-Value	-6.56907
P-Value	0.000063

The result is significant at $p < .05$.

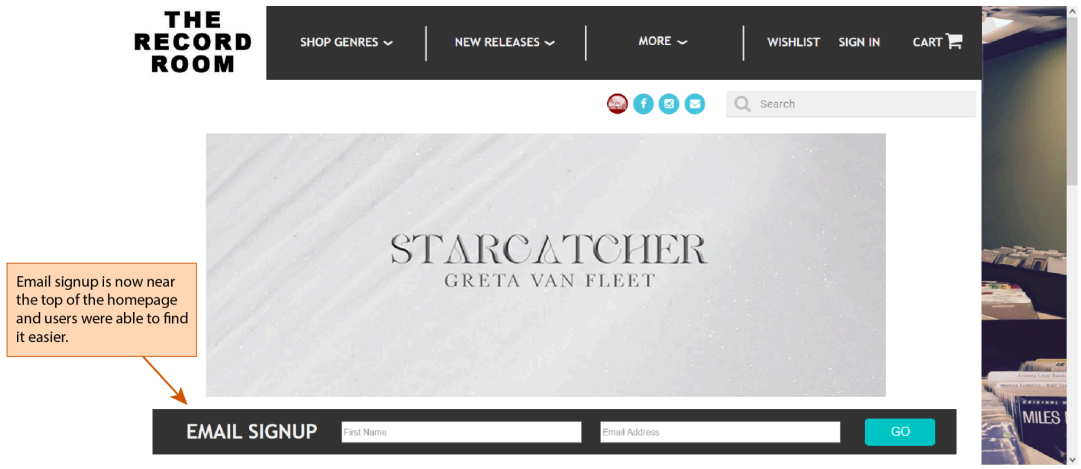
Home Page Issues:

Finding #1: Users were having a hard time finding the email signup.

Finding Screenshot:



Redesign Screenshot:



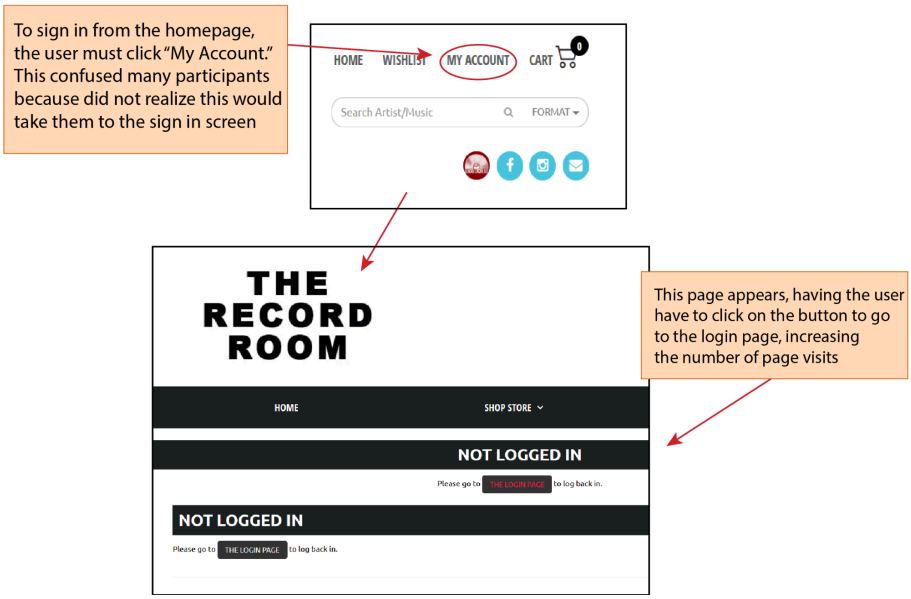
Supporting Evidence	Recommendations/Comments
Time spent scrolling down the page and searching for the email signup for Task #1 added to the total task time. The T-test performed for Task 1's task time proved that	Make the email signup form closer to the top of the homepage to facilitate signing up for the newsletter

the results were significant.	Declutter and only make the most important things on the homepage

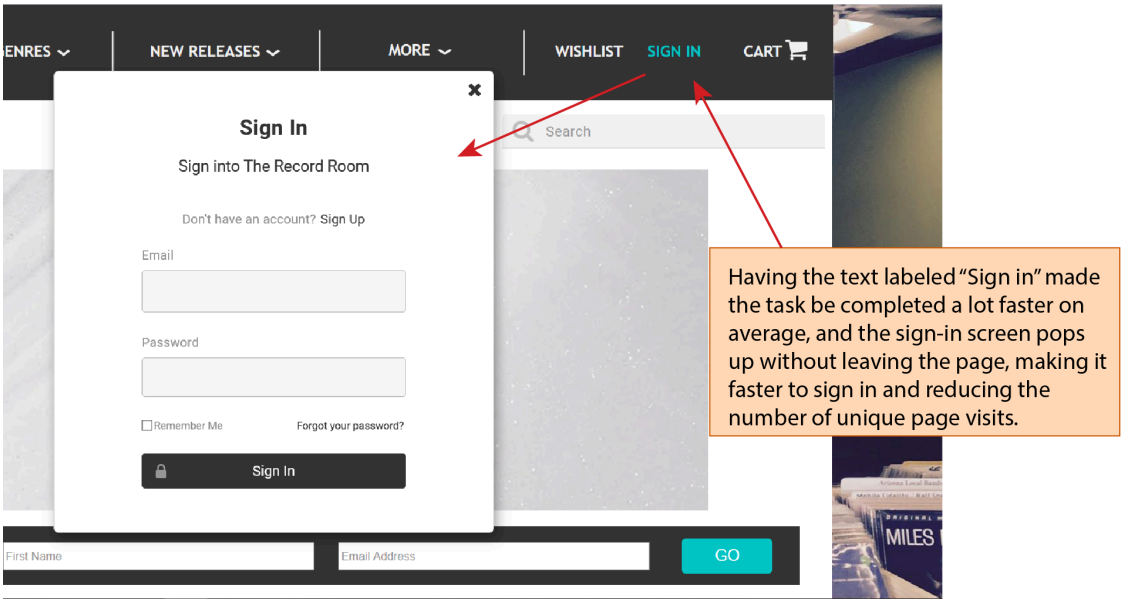
Presentation, Layout, and Visual Design Issues:

Finding #1: Sign-in process took the user through many extraneous pages

Finding Screenshot:

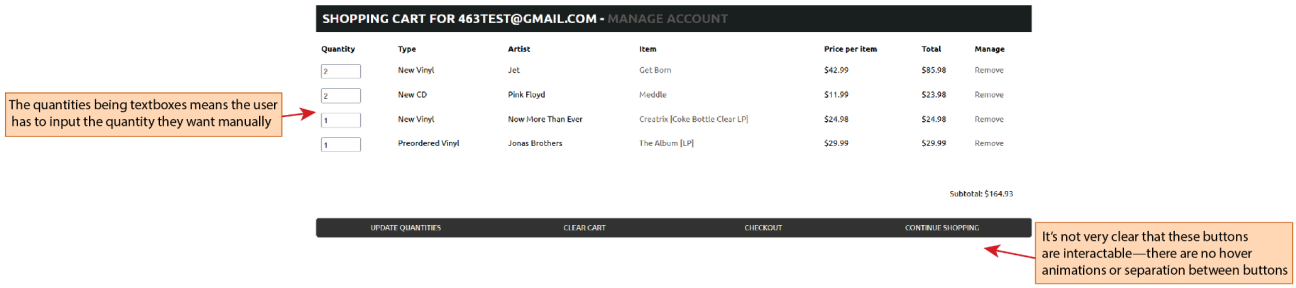


Redesign Screenshot:

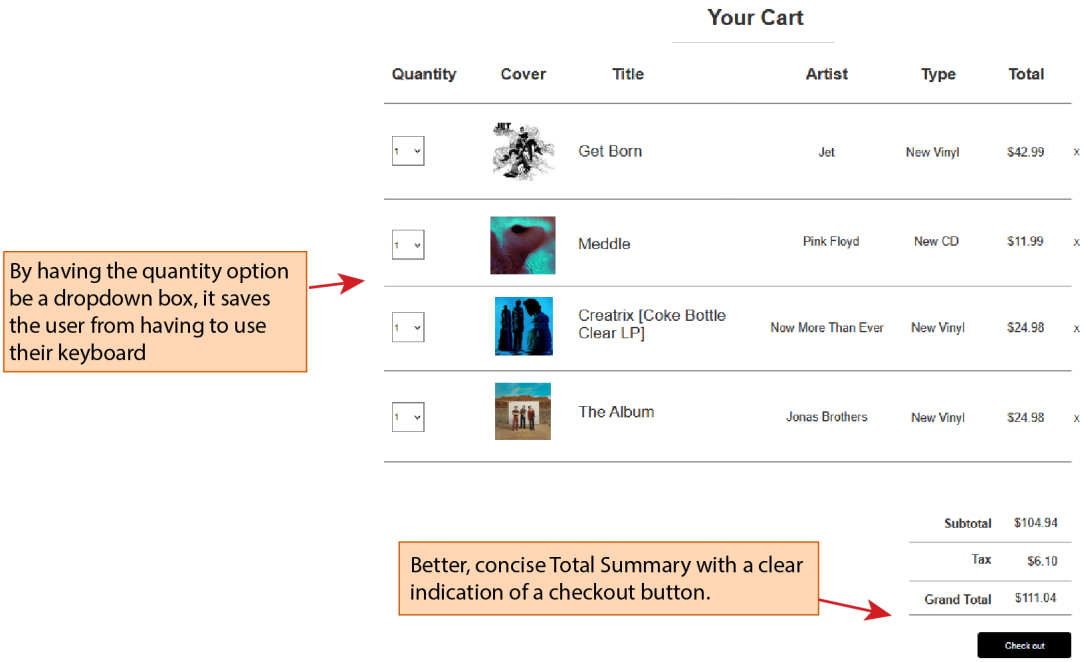


Finding #2: Cart layout and interactive buttons were unclear, causing users confusion

Finding Screenshot:



Redesign Screenshot:

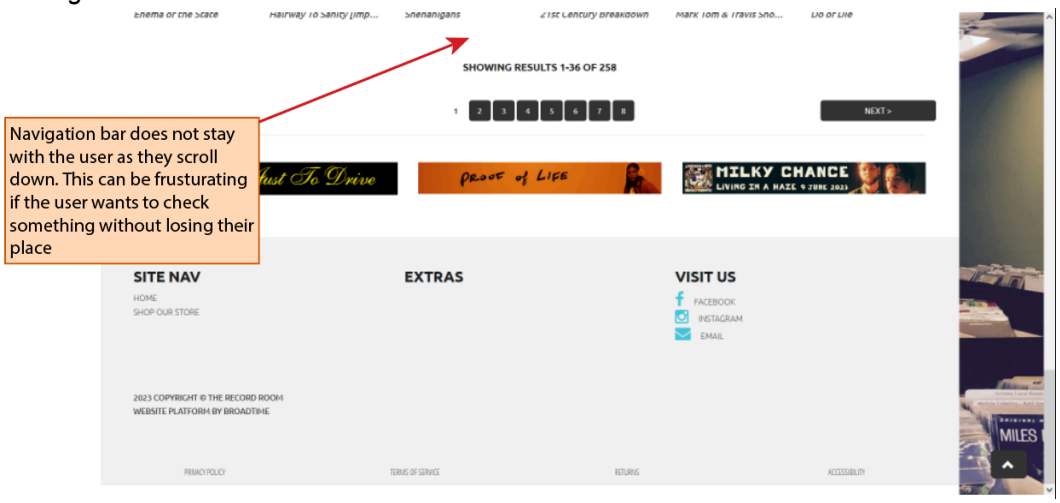


Supporting Evidence	Recommendations/Comments
Having to navigate through multiple pages creates obfuscation in the sign-in process, increasing the time it takes to log in. This was proven with task 1's t-test for time, which showed that the results are significant. A t-test performed on lostness on task #4 proved that the redesigned cart page boasted significantly less lostness.	Change the quantity with only the click of a button. When signing in, keep the user on the same page. Have a sign-in button on the navigation bar so it is easy to find.

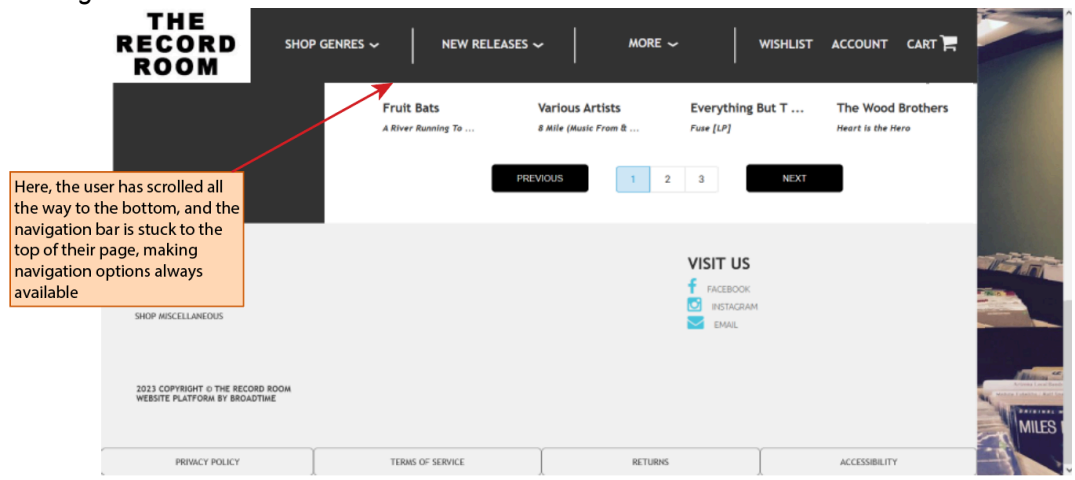
Navigation Issues:

Finding #1: Site navigation was not available at all times/was hard to get to.

Finding Screenshot:

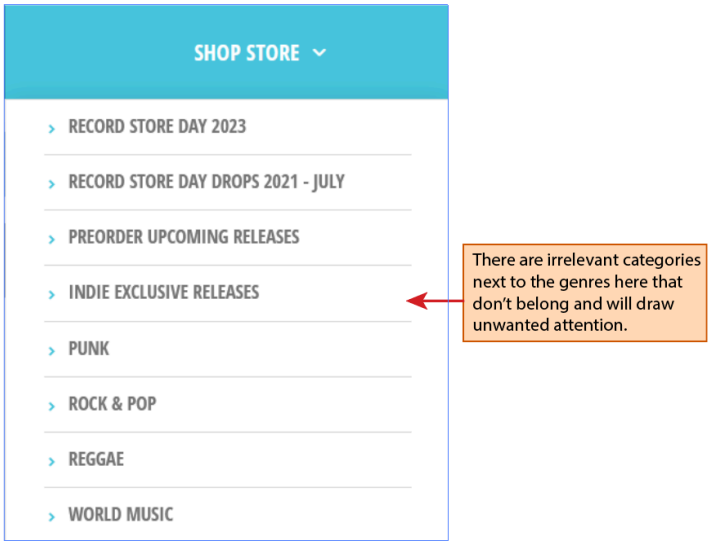


Redesign Screenshot:

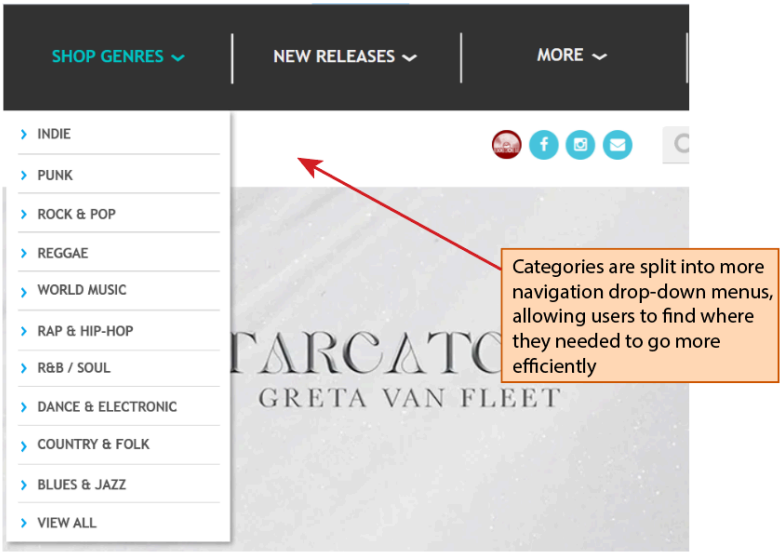


Finding #2: Navigation bar categories were not in a cohesive order, making navigation hard for users.

Finding Screenshot:



Redesign Screenshot:

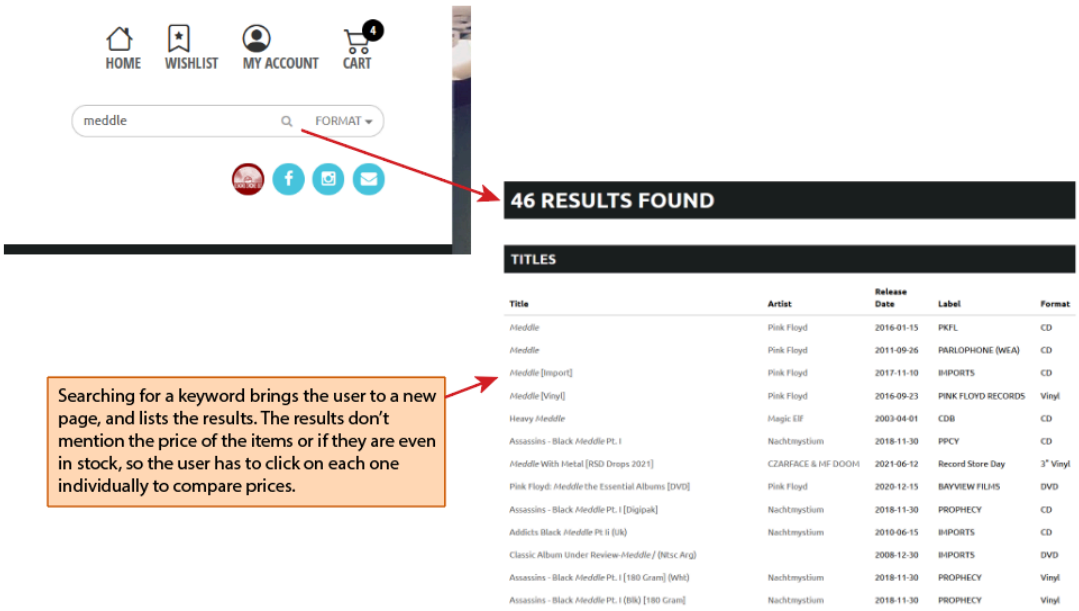


Supporting Evidence	Recommendations/Comments
Time spent using the website's navigation bar greatly increased the time spent on task #3. When conducting the T-test for the time on said task, it proved that these results were significant. This was clear when watching users navigate the unorganized navigation on the original website.	Lock the navigation bar on top of the screen at all times allowing for easier navigation. Create dropdowns that have relevant information inside of them.

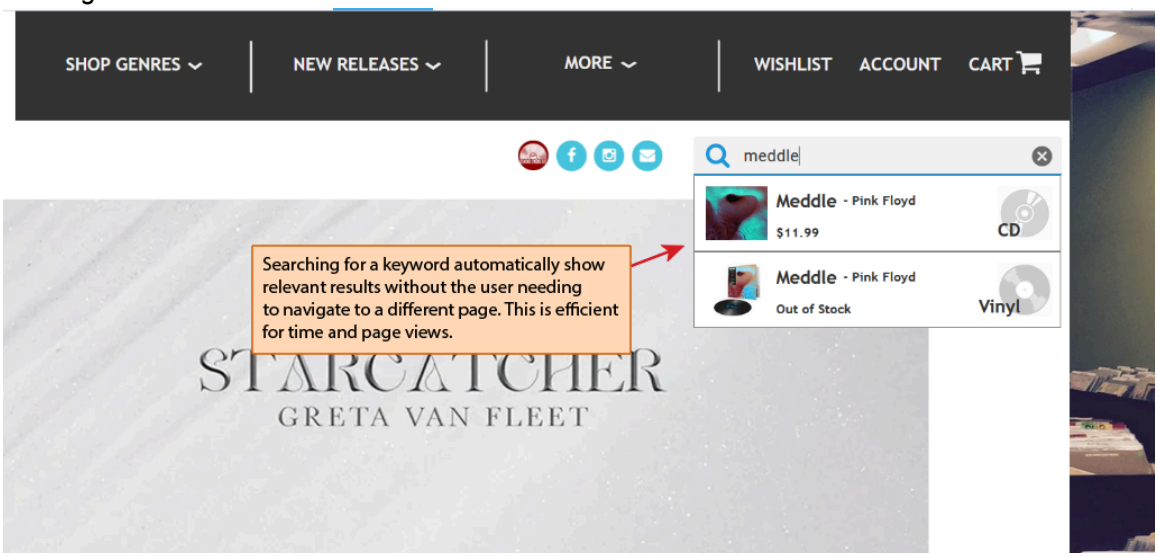
Search Issues:

Finding #1: Searching for something wasn't efficient and didn't yield descriptive results

Finding Screenshot:



Redesign Screenshot:



Supporting Evidence	Recommendations/Comments
Users searching on the original websites for records that they want to add to their cart was inefficient compared to the redesigned website. This was shown by conducting a	Create a dropdown when searching to show results while typing so the user does not have to navigate away.

t-test on the Task #3 results where it showed that the results were significant.	When displaying results show crucial information (Whether it's in stock, price, cover picture)