

Assignment M5 (Summer 2020)

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Abstract—In this project I will be working on re-designing the search functionality of the 'HBO Now' (which is now re-branded as HBO Max) mobile app. The search functionality in the app is not very well designed and is difficult for the users to find the shows that they want to watch. The app does not store user's recent searches or categorize the search results. The absence of the 'Continue Watching' section on the homepage makes it difficult to look for the episodes which the user is currently watching. In this paper I will be discussing the problems and also brief the need-finding methods I will be performing to make the search functionality more user-friendly.

1 QUALITATIVE EVALUATION

I performed qualitative analysis of the Paper prototype and below are the results. The paper prototype can be seen in Figure 7 in the Appendix.

1.1 Evaluation Report

How many participants took part? : A total of 25 participants took part in the survey. Participants included my peers at OMSCS, friends and family.

How well did the sessions go? : All the participants answered all the questions promptly and I received 25 responses before the survey expired. Many participants also gave few suggestions to improve the prototype. However, there was 1 participant who marked "Neutral" for all questions.

Were all sessions run the same? : All the participants were given the same set of 10 survey questions to answer.

Do differently purely organizationally next time? : I would also like to ask for a reason for each selection when I do the next survey. This will help me better understand the participant's thought process.

1.2 Raw Results

The table shows the how many people selected what satisfaction level for each feature in the prototype. The last question was about suggesting improvements to the prototype and I have included them in the Appendix. I have also attached the raw data in the Appendix.

Table 1—Survey Results.

Question	Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied
Search icon on top right corner of the screen instead of the navigation	7 (28%)	11 (44%)	5 (20%)	1 (4%)	1 (4%)
Splitting the search results into Movies and Shows and displaying them as two separate tabs	9 (36%)	12 (48%)	2 (8%)	1 (4%)	1 (4%)
Highlighting the search keyword in the search results	11 (44%)	8 (32%)	5 (20%)	1 (4%)	0 (0%)
Displaying the search results in list format	8 (32%)	10 (40%)	3 (12%)	4 (16%)	0 (0%)
Viewing the video description and play button of a video on the search page instead of navigating to the video's dedicated page	9 (36%)	7 (28%)	6 (24%)	3 (12%)	0 (0%)
Letting the users perform a search while watching a video	9 (36%)	8 (32%)	5 (20%)	3 (12%)	0 (0%)
Suggesting search keywords related to the minimized video	7 (28%)	9 (36%)	6 (24%)	3 (12%)	0 (0%)
Addition of voice search	8 (32%)	11 (44%)	6 (24%)	0 (0%)	0 (0%)

1.3 Analysis

What are the main takeaways for improving the interface?

Majority of the participants were either Highly Satisfied or Satisfied with most of the features as we can see in the table above. This suggests that the participants think that addition of these features will be useful. However, we also need to consider the other ratings. 4 participants wanted the result to be displayed in

grid instead of list format. A few participants didn't want the ability to minimize the video to perform a search. And 1 participant was not happy with the search icon being on top right corner of the home page and the reason for this was it will limit the user from viewing content while typing. But since our search prototype opens a new page for search instead of on the home screen, there wouldn't be any issues.

The suggestion box also provided some invaluable inputs. One of them was to use swipe to shift between movies and shows instead of having tabs. This is a very good idea to incorporate as this is more natural and supports the Principle of Direct Manipulation. There was also a suggestion to mark the video that the user has already watched with some sort of icon in the search results. This is also a very good idea as the user will easily know if it is something that he has already watched or if the video is new. The other useful feedback was to just display all search result and indicate whether it is a movie or show instead of having 2 tabs. This suggestions makes a lot of sense as user will be shown all the results in one page instead of 2 pages which the user has to switch between.

What feedback surprised you?

I was surprised with the fact that a few participants did not want the ability to minimize the video to perform search.

What feedback did you receive that you expected?

I was aware that the prototype included very basic but very useful features and many of the participants would be satisfied with the additions. As expected, majority of the users were Highly Satisfied and Satisfied with most of the features.

What did the participants' feedback actually tell you about your interface?

Since most of the participants were satisfied with the prototype's features, I would consider that my prototype is good and will make user experience better. Whereas, the suggestions in the suggestion box also gave some very valid ideas that can be incorporated into the prototype to further improve it.

1.4 Changes that feedback would already suggest

The participants provided some very valuable feedback to improve the interface as mentioned earlier. Following are the changes that I will be doing to the prototype.

1. Adding a tick mark icon on the video in the search list if the user has already

watched that video.

2. Supporting swipe functionality to move between the 2 tabs - Movies and Shows.

2 PREDICTIVE EVALUATION

For the predictive evaluation, I will perform a Cognitive Walk-through of my Card Prototype. The card prototype can be seen in the appendix. I selected this mainly because the whole purpose of redesigning the HBO Max search interface was to help all kinds of users, especially novice users perform the search easily.

2.1 Cognitive Walkthrough

The user knows he needs to perform a search and the user will search for the icon at the top right corner even without his knowledge because that is where the search icon is placed in almost all apps. This follows the principle of **consistency**.

As soon as user clicks on the search icon on the top right corner of the home page, Card 1(In Appendix) is the first screen the user will see. This screen is quiet intuitive and will guide the user to take the next steps.

1. As soon as user comes to this page, the first thing he sees is the search bar. The location is easy to find because its **consistent** with all the other search pages across different platforms. The help text will guide the user by informing what to type in the search field. So the user will go ahead and type a search keyword and press enter.
Once the user performs the search, the results are displayed. This can be seen in Card 3 and Card 4.

(a) Card 3 - Grid format

- i. When the user sees the results, he will search for the desired result and click on it if he finds it.

If he doesn't find the video after scrolling a lot, he might come back to type a new keyword but then sees a set of filters that are provided and it is made easily **discoverable**. So if the user might want to refine the search results, the options is easily visible. These are buttons, so it **affords** to be clicked. So the user will click it and see a drop down of options and hovering over the options he can select

one. A green tick icon is provided next to the selected option. This icon can be easily **mapped** to the option being selected. This also **reduces the cognitive load** by not requiring the user to remember what option they selected for each filter.

- ii. Next the user might see the two icons provided at the right top corner of the search results segment. These two icons can be clearly **mapped** to the grid and list format as these are the icons that are used **consistently** across all applications. The user can make out from the above point that green tick is for selection. The user can relate that the selected icon means the result is displayed accordingly. The user might click on both icons to see which view works for him. This options provides **flexibility** to view the results.
- iii. Next after adjusting the display format, the user will click on a result. In the grid format The result icons are spatially placed so that the users does not click the adjacent video by slip. This design supports the principle of **Ease and Comfort**.

(b) **Card 4** - List format

- i. When the user sees the list of search results, he might be tempted to click on the down arrow. The arrow itself explains that clicking on it will show something below. This supports the **affordance** principle.
- ii. Once user clicks on the arrow, the user sees a small description of video along with a play button. This will let the user know that he can play the video directly from here instead of one more additional step of going to the video's dedicated page. This feature provides **flexibility** as the user need not go to the video's dedicated page to get information about the video and play it.
- iii. The user might just want to click on the result. This will take him to the video's dedicated page which will have detailed information about the video with other controls.

2. The second branch is, when user enters the search page, he will see the list

of recent searches right below the search bar. This is easily **discoverable**. The user will be tempted to click on his desired recent search. The user might also want to clear the search with the controls provided using the options to delete a single search or the entire recent searches. the icons for these options are clearly depicted and can be easily **mapped** to their corresponding function.

3. If the user might also just want to browse through the search page and didn't have any particular video in mind, the Recommended Shows section will give user some options to watch. This is displayed based on the user's watch history. The machine learning algorithms in the back-end do a lot of thinking on behalf of the user and come up with these recommendations. The user will click on a video and will be taken to the video's dedicated page. The recent searches and the video recommendations together **reduce the user's cognitive load**.
4. If the user is an experienced and expert user and he knows what he is looking for, the user will make use of the filters provided to find the video quickly. These filters are easily **discoverable** and the labels of the filters can be easily **mapped** to their corresponding meanings. By the horizontal display of the filters, it is clear that by scrolling horizontally, more filters can be seen. This part of the design makes use of the **affordances** principle.
5. When the user uses the voice search feature, the icon is provided near the search field. This mic icon can be easily **mapped** to "recording". This also follows the **consistency** principle by placing the icon at the place where all other search pages place. When the user clicks on mic icon from the main search page, he will be redirected to page shown in card 5.
 - (a) The first thing the user sees is a big image of a mic. This gives him a feeling that he can record now.
 - (b) Next the user will see the message, "Please speak, listening..." message is presented in bold letters which tells the user to start recording.
 - (c) If the recording wasn't clear, "Couldn't get that. Please repeat" message is displayed that tells the user to record again.
 - (d) If the user wants to stop recording, the cancel button is provided to stop the recording and get back to the search page.

- (e) If the voice was recorded properly, the app returns the user to results page with the search results (Card 3). This is kind of a feedback that the voice was analyzed and the search results are displayed.
6. If the user wants to perform a search by taking a picture, the first thing he will look for is an icon. The camera icon can be easily **discovered** and be **mapped** to the process of taking picture This can be seen in card 2.
- (a) When user clicks on the camera icon, camera opens and the user will be provided with an opportunity to click the picture.
 - (b) The camera and its functionalities is **consistent** with any other camera app on a phone. The user hence know clicking on the big button at the bottom center will capture a picture.
 - (c) Once the picture is captured and analyzed, the user will be again sent to search result page as shown in Card 3. This is kind of a feedback that the picture was analyzed and the search results are displayed.
7. When the user performs search using any of the above methods and the app wasn't able to return any results, Card 6 is displayed.
- (a) The message "Sorry, no search results were found" clearly tells the user that the app could not return any results for the entered search keyword. This is the principle of **mapping**.
 - (b) The user looks down to see a few suggestions that will help him get the desired results. The suggestions are clearly explained and easy to perform. This reduces the **cognitive load** on the user by telling him what to do instead of just showing no results.
 - (c) The user then sees the bunch of popular searches and recommended shows that the user can watch.

3 EVALUATION SUMMARY

3.1 Understanding the User

I would ask the users if they would actually make use of the voice search and the ability of minimizing a video to perform search. I would also ask the users if they had any other difficulties while performing search or if the users had any

suggestions.

3.2 Additional design alternatives

The other design idea I got through this experience was to create something like a search-bot. The user can use that to interact with it in the way a user would interact with another human being. It will be natural language. This is supported both in text and voice modes.

For example,

User: I am looking for films released in the year 2015.

Search-Bot : Here is the link that contains the results. Are you looking for anything in specific?

User : The lead role played by some actor.. And so no...

3.3 Revisions to the prototypes

Since most of the reviews were positive for the prototype, I would next be creating a **wireframe** of the prototype. However, I received a few very good suggestions during the survey that would increase the usability of the prototype. So I will be incorporating those into the prototype before creating the wireframe. Following are the changes that I will doing to my prototype.

1. Adding a tick mark icon on the video in the search list if the user has already watched that video.
2. Supporting swipe functionality to move between the 2 tabs - Movies and Shows.

3.4 Next Evaluation Plan

After making the above changes, I would again like to perform a Qualitative analysis of the additional design alternatives and will make the necessary changes based on user's feedback. I will also do a walkthrough to see if user's can easily work their way through the interface.

After incorporating the suggestions from the above two evaluations, I will perform the empirical evaluation. For the empirical evaluation, we can take the time taken to perform the search in this designed prototype and the existing interface to compare if the prototype brings in improvement(i.e., reduction of the search time) in the search time.

4 APPENDIX

4.1 Survey - Raw Results

Below are the questions that were asked in the survey. The raw results are mapped based on the Question number.

Q1 : Do you agree that having the search icon on top right corner of the screen instead of the navigation at the bottom is good?

Q2 : Do you agree with the idea of splitting the search results into "Movies" and "Shows" and displaying them as two separate tabs?

Q3 : Are you satisfied with the idea of highlighting the search keyword in the search results?

Q4 : Are you satisfied with the idea of displaying the search results in list format?

Q5 : Are you satisfied with the idea of viewing the video description and play button of a video on the search page instead of navigating to the video's dedicated page?

Q6 : Do you agree with the idea of letting the users perform a search while watching a video?

Q7 : Are you satisfied with the idea of suggesting search keywords related to the minimized video?

Q8 : Are you satisfied with the addition of voice search?

Q9 : Do you have any suggestions to improve the above prototype?

response	Q1	Q2	Q3	Q4
1	Agree	Agree	Neutral	Dissatisfied
2	Strongly Agree	Strongly Agree	Extremely Satisfied	Extremely Satisfied
3	Agree	Strongly Agree	Extremely Satisfied	Dissatisfied
4	Agree	Disagree	Satisfied	Satisfied
5	Strongly Agree	Agree	Extremely Satisfied	Satisfied
6	Agree	Strongly Agree	Neutral	Satisfied
7	Strongly Agree	Agree	Satisfied	Extremely Satisfied
8	Neutral	Neutral	Neutral	Neutral
9	Neutral	Agree	Extremely Satisfied	Satisfied
10	Agree	Agree	Satisfied	Extremely Satisfied
11	Neutral	Agree	Extremely Satisfied	Satisfied
12	Strongly Agree	Strongly Agree	Extremely Satisfied	Extremely Satisfied
13	Neutral	Neutral	Neutral	Neutral
14	Agree	Strongly Disagree	Extremely Satisfied	Dissatisfied
15	Agree	Strongly Agree	Extremely Satisfied	Satisfied
16	Agree	Agree	Neutral	Satisfied
17	Agree	Strongly Agree	Satisfied	Satisfied
18	Agree	Agree	Satisfied	Satisfied
19	Disagree	Agree	Dissatisfied	Satisfied
20	Neutral	Agree	Satisfied	Neutral
21	Strongly Agree	Strongly Agree	Satisfied	Extremely Satisfied
22	Strongly Agree	Agree	Extremely Satisfied	Extremely Satisfied
23	Strongly Agree	Strongly Agree	Extremely Satisfied	Extremely Satisfied
24	Agree	Agree	Satisfied	Extremely Satisfied
25	Strongly Disagree	Strongly Agree	Extremely Satisfied	Dissatisfied

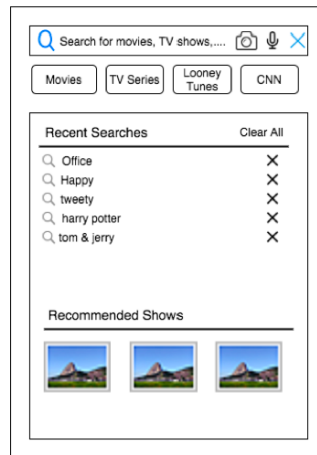
Figure 1—The figure shows the survey answer for Questions 1, 2, 3 and 4.

Q5	Q6	Q7	Q8
Dissatisfied	Agree	Dissatisfied	Satisfied
Extremely Satisfied	Agree	Satisfied	Satisfied
Neutral	Disagree	Satisfied	Neutral
Extremely Satisfied	Neutral	Satisfied	Satisfied
Extremely Satisfied	Strongly Agree	Extremely Satisfied	Extremely Satisfied
Satisfied	Agree	Neutral	Neutral
Neutral	Strongly Agree	Dissatisfied	Satisfied
Neutral	Neutral	Neutral	Neutral
Satisfied	Disagree	Satisfied	Neutral
Satisfied	Strongly Agree	Extremely Satisfied	Satisfied
Extremely Satisfied	Agree	Satisfied	Extremely Satisfied
Extremely Satisfied	Agree	Neutral	Extremely Satisfied
Neutral	Neutral	Neutral	Neutral
Satisfied	Agree	Extremely Satisfied	Extremely Satisfied
Neutral	Strongly Agree	Neutral	Satisfied
Satisfied	Disagree	Satisfied	Satisfied
Satisfied	Strongly Agree	Satisfied	Satisfied
Extremely Satisfied	Agree	Satisfied	Satisfied
Dissatisfied	Agree	Dissatisfied	Satisfied
Dissatisfied	Neutral	Extremely Satisfied	Extremely Satisfied
Neutral	Strongly Agree	Neutral	Neutral
Satisfied	Strongly Agree	Satisfied	Satisfied
Extremely Satisfied	Strongly Agree	Extremely Satisfied	Extremely Satisfied
Extremely Satisfied	Neutral	Extremely Satisfied	Extremely Satisfied
Extremely Satisfied	Strongly Agree	Extremely Satisfied	Extremely Satisfied

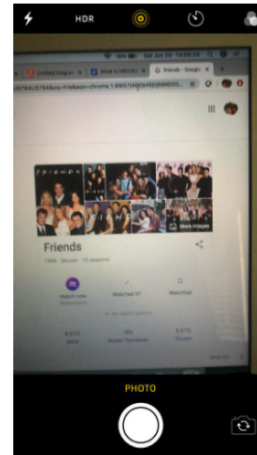
Figure 2—The figure shows the survey answer for Questions 5, 6, 7 and 8.

Q9
Needs a bigger image to remind and inform the user about the difference between all of the search results.
NA
Seems a little too cluttered.
I personally would want one list and each item said "Movie" or "TV Show" as this would be easier than switching tabs for me.
satisfied with the prototype
Just checking, but video should play both on taps on the preview on the left of each search result as well as the play button when the dropdown is opened
n/a
na
Accessibility feature might be nice
No
I like the idea of voice search a lot.
Looks good to me
.
Improve search
For viewing video details, the screen could be divided in half. One half, to the left, would contain the existing prototype features. The other half, to the right, would display details for the selected movie/show
In my opinion, when performing a search, I don't really need the current video to keep playing.
maybe a tick or an icon to show movies or shows that I've already watched/started watching? I 'd like that
Maybe make it configurable to always show full description for each movie/show.
NA
Maybe you can have 'swipe' feature to swipe between movies and shows... something natural.
Nope
No
The rating(IMDB or similar) of a movie or a TV show could also be included
Nothing at this point
I think search page on top limits the user from viewing the content while they're typing.

Figure 3—The figure shows the survey answer for Question 9.

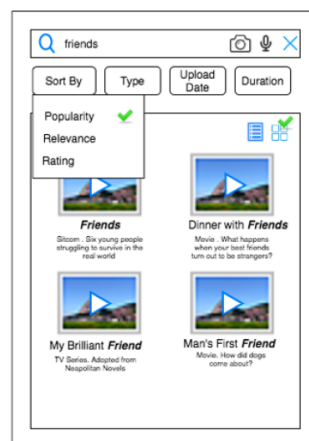


Card 1

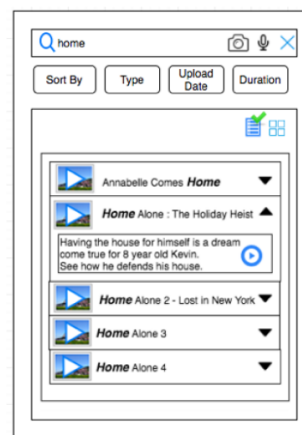


Card 2

Figure 4—The figure shows the Card 1 and Card 2 of the Card prototype.



Card 3



Card 4

Figure 5—The figure shows the Card 3 and Card 4 of the Card prototype.

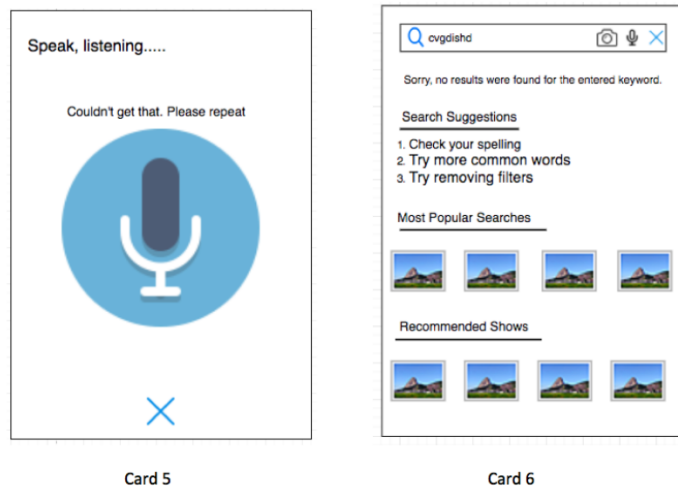


Figure 6—The figure shows the Card 5 and Card 6 of the Card prototype.

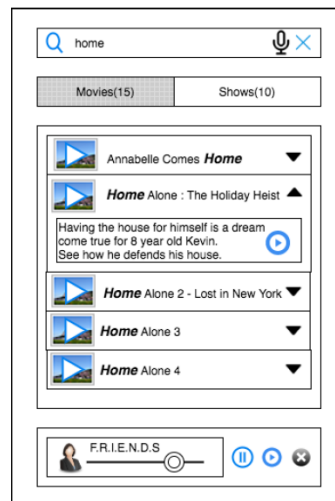


Figure 7—The figure shows the Paper Prototype.