Methods Assignments: M2

Redesigning Youtube Recommendation System

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Abstract. We all want to design things that touch our lives somewhere so that we can interact with them better. I want to design a better intuitive recommendation system for the Youtube mobile application. Specifically, I want to focus on the task of playing with the recommendations of videos in the mobile application like it's a child's play to remove recommendations, to add recommendations, to mark/block videos from recommendations[1].

Needfinding Execution 1

Analysis of existing user interface

The first needfinding plan was to get the idea and user experience about the existing user interface. For that purpose, I chose Netflix[2] and Amazon Prime[3].

Amazon Prime

Amazon prime has a neat and clean interface. The application is lightweight and opens quickly. Sometimes when you open the application it starts with a recommended video to watch. An interesting observation is that this video is showcased randomly when you open an app. The app is most likely similar to its webpage, where you have your regular contents under different categories like "Latest Movies", "Top Movies", "Drama Movies", where each of the categories contains its videos in terms of your interest. The categories don't showcase the

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[1] From the results of M1 feedbacks, I am going to focus on a single task here to redesign the recommendation of videos more dynamic and controllable. In the previous article I had mentioned en extra task of redesigning the like/dislike functionality, which I am not going to target in this project.

[2] https://play.google.com/store/apps/details?id=com.netflix.mediaclient&hl=en_IN

[3] https://play.google.com/store/apps/details?id=com.amazon.avod.thirdpartyclient

movies, episode which you have already watched. The way it shows the recommended video is under a different category named "Recommended Movies for you", "Top Movies For you". So, they add suffix "For you" to let the user know that these are the videos worthwhile to consider. There is no option where you can reset your recommendation preference, nor can you go like "incognito" while surfing the movies and shows so that your history won't get saved.

Netflix

The interface of Netflix has put a lot of effort in ease and comfort for watching videos. The first thing which Netflix ask when you create a new account is to pick 2 or 3 movies and shows that you prefer to watch so that the Netflix can showcase better recommendation at the first time you logged in to the account. Next thing to observe in the interface of Netflix is that it is also based more likely on its web page design, where you see different movies or shows under different category but the interesting part here is that all the categories here will showcase you the results based on your watch history. For example, if you have watched an action movie of say an actor Tom Cruise, then next time when you log in to the account you will see a lot of action movies recommendation and movies which are starred by Tom Cruise. This is just one of the example through which Netflix recommends the videos. One way we can control our recommendation is indirectly through filters but those filter results will also be recommendations under a different category. Netflix also has a notification feature where it notifies you the next movie to watch based on your watch history.

Summary

Different apps seem to focus on different aspects of their redesigning. I want to imbibe the best features of both the application without increasing any complexities already within the application.

- Netflix and Prime both have movies and shows under different categories to avoid mix and match type of situation already youtube application have, but having the same feature in the youtube might increase some other complexities like youtube is not particularly a movie or TV shows viewing app, people may want to watch a minute video one after another which I think is served better in the youtube application currently.

- I like the idea of showcasing one particular blockbuster recommendation randomly to the user when he opens the application.
- I also like the idea of Netflix to provide notification to a recommended video whenever a new recommendation is available.
- I like how videos are distributed horizontally in comparison to the youtube videos which needs scrolling top to down.

Countering Biases

There are strong suspicions of confirmation biases as the needfinding is done solely by me. To defend against the biases, I will be verifying my takeaways in the second and third needfinding exercises.

Needfinding Execution 2

Analysis of product reviews

To figure out what most of the people think about the recommendation system, I looked at the reviews from trustpilot[4], google play[5], reddit[6] to know the behavior and experiences of the other users. I have mentioned the raw results of the product reviews in the appendix and here I will only mention the crux of those reviews which will be helpful for my study towards redesigning the recommendation system.

Summary

- The most important information I received from the review is that the youtube "Not Interested" feature does not work as expected. This is the top post in the Reddit youtube official page. Youtube is receiving feedback from the users for their experiences regarding the same to fix the problem. This is interesting as it gives me a sign that yes the direction I am going is right.
- Some of the Netflix reviews were focused on not finding the correct content to watch due to misguided recommendations.

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[4] https://www.trustpilot.com/review/www.youtube.com
[5] https://play.google.com
[6] https://www.reddit.com/r/youtube/

- Some reviews suggest that the recommendations in the youtube should ask people also about the kind of video they do not want to watch, that way youtube can block the channel and all the videos for the user. For example, if I am not interested in a Fortnite video than all the channels related to Fortnite and videos should be blocked for me from recommendation.
- Reviews from the amazon prime videos weren't really very helpful as most of the reviews were focused on the quantity of content in prime or the amazon prime membership as a whole.

Countering Bias

There are possibilities of voluntary response biases and to counter those biases, I consider only using the expert reviews on the app website, but on the second thought it seemed that I need to use the real user reviews as well because an expert may view the product from a critique point of view and his review might not be helpful that way.But it was important to consider their reviews as well because they will find what a real user might not be able to find in the application.

To counter the confirmation biases, I looked at the top 15 reviews for the applications review from google play store website, sorted by most helpful. But this could also result in another type of bias as Selection bias, as my study revolves around those 15 play store which might result in the features prominent in those reviews only. The solution to counter this review would be to consider more and more reviews so that it doesn't bias from the only top 15 people.

Needfinding plan 3

Surveys

The survey was conducted for 25 people based and questions revolving around the survey were mostly around the design of a recommendation system of youtube. I have attached the questions of the survey at the end of the appendix.

Summary

Here are some important takeaways from the survey conducted:

- Most of the audience from the survey actually uses youtube more than 2hrs per day.
- Most of the people (15 people out of 25) responded that they somewhat or not at all satisfied with the current recommendation system of youtube.
- 14 people out of 15 were not aware of the "Not Interested" feature in youtube to remove a video from recommendation, and from the people who know about this feature hard to get its functionality as it still shows them related content even after selecting the "Not interested". This confirms our finding in the Needfinding plan 2 from Reddit youtube reviews study.
- 20 people out of 25 want to watch new content but couldn't due to the similar content is thrown at them all the time.
- There is no single better app which does this job better. Everyone has a different opinion on an application which is better than youtube in suggesting content to the user.

Countering Biases

Confirmation bias and observer bias are the 2 biases I have expected while designing the survey material. To counter these biases I asked my flatmates to reviews and give feedback to all the survey questions so that they can be rephrased in a somewhat different way to remove these biases and those were actually helpful. A lot of question were rephrased to remove these biases.

There was also Voluntary response bias as many questions were optional to answer. For example, the last question asked is to tell some other application which is better than youtube but a lot of people marked it "NA" resulting they might not be interested to answer or they might not know. Hence I cannot use this question to conclude anything.

Data Inventory

Who are the Users?

I specifically made my targets as 18+ age people who are comfortable with understanding the technologies around and this was confirmed from my survey findings as well. All the responded people fall into the category of 18+ years of age

with most of them using at least 2 hours of youtube everyday meaning they do know how to use the application and understand the terms. For the Needfinding execution 2, the reviews involved experts, Reddit users and google play store users. In general, users fall into the category of students and professionals.

Where are the Users?

I cannot answer where the users were located at the time of response to the needfindings. I have read the reviews from professionals and student and depending upon that they could use the application from office or from home or while traveling as well. From the survey, the people can use the app in an ad-hoc way and since the design is targeted towards the mobile application, the user can be moving. I can, therefore, assume that the user can be from a wide variety of locations.

What is the context of the task?

Mostly the users who use youtube mobile application wants to control their recommendations and watch history. They want new content apart from their recommended list in the youtube. They would want to mark a video as "Not interested" to remove them from their recommended list and to block all the channels and video related to that video. Another context here is that the user has the ability to see or mark its choices or recommendation in a more subtle way than it is done currently.From the survey as well as the reviews from Reddit, most of the user confirms they want to view new content and they do not like the current recommendation system, and it's not quite easy to use the "Not interested" feature that youtube currently having which doesn't work the way it is supposed to.

What are their goals?

From the survey result findings and from the product reviews finding it was evident that the user wants to control the behavior of the recommendation system of youtube. They want to mark videos as "Not interested anymore" and they want to watch contents different than their watch history. The second most important goal the user wants is to control the way the videos appear while scrolling down the application.

What do they need?

Users are looking to :

- Search new content or video while browsing the application.
- Mark a video as "Not Interested" to block that category of video from showing up.
- Easily manage their recommendations or interest to watch videos.

What do their tasks?

- Scroll down the application to view videos.
- Mark a video as "Not interested anymore"
- Mark your interests after watching a video to manage recommendations.

What do their subtasks?

- Open application.
- Browse application.
- Mark or touch to execute a specific task.

Defining requirements

Functional requirements

1. Ability to browse videos and control videos recommendation
   a. When user browse either the videos comes into categories of their genre or interest.
   b. A video can be easily marked as "Not interested" while browsing through the list of videos in the application
2. After watching a video, view suggestions or recommendations of that video in a more design efficient way to complement visual feedback.

Learnability goals

1. Most users who use youtube are expected to use the application heavily as confirmed from the survey result. So it should be ok even if it has a steep learning curve.

2. Having said that, the design should definitely consider novice users as well. So more the design should consider reducing the Gulf of executions and gulf of the evaluation gap as much as possible so that a user can find features very easily and can also compliment the action he does.The user needs to mark a video as "Not interested" which should be done with minimum click or touches and can control the browsing in a subtle manner.

Metrics

1. **Learnability:** Is the user able to mark or flag a video "Not interested"? How easily he is able to find the content? How long he is watching the youtube now? All this shows that the user's interest in the application has grown and therefore a success for us.
2. **Functional:** How many videos a user has marked "Not interested"? Does the marked video category is blocked? Does he able to view his interest and mark his interest after watching a particular video? The answer to all these questions will reveal our success in the functional requirements.

Continued Need Findings

I think I know users need from the applications and where do they find gaps as well. I could not get the answers to some needfinding questions like "who are the users?", "where are the users?", and the reason I believe is the generic nature of these questions. Also in today's world of privacy and security, it is hard to know where your users are from the app reviews. In the needfinding plan 1, I did a self-analysis and therefore skipped all the data inventory questions because everything there revolved around me. I think I should have gone with a Participatory observation. That way, I would get more information about the context of the task. I also should have chosen one more platform to do investigate as amazon prime wasn't of very much help. Its reviews weren't helpful in understanding the context. Perhaps I should have included one more platform like Hulu whose reviews are widely available.

Appendix

Product reviews(Needfinding 2):

The reviews mentioned below are from Google playstore, Reddit and Trustpilot.

Youtube:

1. I'd like a block channel option. There are times when I say not interested in the channel and I still get stuff from the channel.

2. Give us an option to flat out block channels we don't like.

3. Also, the "not interested" feature is retroactive. It's too late at that point. You want to serve up what the user is interested in on a daily basis, not a one-off the video they watched.

4. The more proactive the recommended or home page is, the less retroactive users will have to be and the less work you have to do fixing the not interesting feature.

5. Not interested is down the chain. Fix the issue that makes people click on it first.

6. I see way more complaints about recommended than I do the not interested feature probably by a factor of 100 or so.

7. Creators on this platform who stake their living on making content for us to watch are being thrown under the bus by YouTube's lack of attention towards it's own creators. The copyright protection system is constantly abused by people and revenue is hard to secure for creators on the platform. Eventually YouTube will have no creators who actually care and their income will be severely diminished unless they start taking care of their community.

8. Still not able to skip through video. Also a brand new issue, says "You're offline. Unable to connect", on WiFi and 4G. Despite both connections being perfectly fine. Will Google ever pull themselves together? To make matters worse, the ad protection and demonitizing of even the slightest "offensive.

9. sometimes you 👉 feel better than ever...... 👍 💯 best in class because nothing is impossible for it its itself and ➕ factor for many situations where many are 📍 ❓ ..... SO

10. Hear you re: proactively making recommendations better so you don't have to tell us you're "Not interested". This is the team's primary goal.

11. We added the "Not interested" feature because we recognized that we're not always able to recommend the right thing, and we wanted to give people an outlet to 1) have some control to influence their recommendations in the future and 2) give us feedback so we can learn not to recommend the same video to similar viewers. We do pay attention to how often people tell us they're "not interested" and aim to reduce this through better recommendations. In fact, one of our improvements last month led to a 25% drop in "Not interested" usage right after we launched it.

12. For the "block channel" feature: if you select "Not interested" on a video, then click the "Tell us why" and say "Not interested in the channel" then you should no longer see any videos from that channel in your recommendations. If you do continue to see the channel, it's likely a bug and we'd like to investigate the details so we can fix it. You can also block channels from recommendations by clicking the X in the upper right of a channel section on your homepage (on desktop).

13. i get the same recommendations (after either saying not interested a couple of times, or reporting for spam when they keep it up) LITERALLY the very next refresh…

14. A ton of foreign language videos are showing up in my feed, primarily Spanish and Portuguese, even though my account is set on English.

15. I wish I could use the *not interested* feature on my full homepage. I just want to keep things simple. Subs on my home page and nothing else.

Netflix:

1. I've heard netflix is awesome from several people, now i do not understand why! Very disappointing!!!!! More than half the movies i have searched for netflix does not have! Mainly being movies that are 2 to 10 years old... Extremely OVERRATED company.
2. I love netflix - its a fairly priced app where you can enjoy movies, series and much more. the only flaw i have with it is that it keeps on saying "cant play video. error" it is a bit annoying
3. Should have a Delete functionality.
4. Love the app! I never knew I had so many projects in development and for that I respect their decision in making shows and movies. It does lack somewhat in a well developed navigational page for mobile. For instance if your just constantly browsing for a movie or TV show to watch and clicking the bottom linked videos but you decide to go back to your previous choice it brings you back to the beginning of your search or to the home page. Other than that the app is near perfect
5. I've had Netflix for years and my whole family watches, but we all would like a delete button for movies and shows we know we're never going to watch so those places can be replaced with new options also what happened to because you watched? That works perfect for finding like shows and movies
6. Really good app. I have bad internet, yet it loads very fast. I only have one problem. on mobile, (the platform i use it on most) you might end up with really bad video quality (like 140 p on YouTube). this doesn't happen alot. Also, it sometimes (rarely) would not resume the movie/ episode from where you left off, and instead starts over. this has only occurred when it is something i didn't watch for a long time. that is all.
7. I have used this app for a while and I dont usually write reviews but I think that it's a very great app. It has a bunch of options when it comes to show/movie availability. However they dont have a lot of shows I would like to watch. Other than that its great. I also love the feature to download episodes to watch offline. Its great.
8. Since the last update, I can't add or remove shows from My List. I've tried refreshing, closing the app out and even logging out and logging back in.

Please fix. Otherwise it's five stars. *Edit - Problem solved. Thanks! Five stars once more.

9. The netflix app wont work ony my phone it says (Sorry, we can not reach the netflix service Please try again later -14). i uninstalled it to see if it would work but it still says that. i feel unpset that i wont be able to enjoy netflix like before

10. Great app let's you watch many movies and shows and notifies when a new episode of your fave show is up and if new movies are on. Only downside is that here in England we are probs paying more for the subscription than in America for lesser shows 🙄 😃 😃 😃

11. Option to hide titles you dont want to see. Use the 'N' logo on titles instead on having NETFLIX displayed on each Netflix title. It's not pleasing to the eye, we get it, it's owned/produced by Netflix.1

12. It would be great of you can turn off the auto trailer on Xbox, Vizio tv apps.. That's annoying af when you see the trailer for the 1,000th time and uses up data.

13. Finally offline viewing and external storage but... The viewing progress indicators are very confusing. According to Netflix I've never finished watching any shows. Still, it's a great service and now I can really watch Netflix wherever I want. The Chromecast option is outstanding too.

14. It stop working on my galaxy s8 couple days ago. all it does is say loading and wont load.. very annoying, please fix! It works on my ps4 fine n TVs but not my phone😡

15. Horrible app. Login fine on other devices but it tells me invalid login with this app. Anytime I try to stream a video I get the error 1.20 video cannot be played. Hulu plays videos just fine! Will be cancelling my subscription. Thanks for nothing.

Amazon Prime

1. works on phones but not Chromebook. have used this for years on my phone, but my son got a Chromebook and it worked for a few weeks then after an update in January it stopped eyeing. it started stuttering and not playing video. then after another update it played advertisements but the

screen was black and it would never load the video. i know it is an app issue because we can watch through the browser. less convenient and no voice control, but it's what we have to do…

2. good content and average user interface. but the shittest part is that you can't use Chrome cast. i know you want to promote your devices. recently i had to choose between 3 content provider and you made it easy for me because watch movie on the go is good and all but when i am at home i wanna see it on my 55" TV and you only supposed Amazon devices for external streaming. so i choose to drop prime. i hope you ignore your rivalry with Google, for better user experience.

3. This app is a serious dissapointment. The single and biggest issue i have is streaming quality. While Netflix offers 2K HDR content on my phone, Prime video lacks it. The video maxes out at 480p. This just seems to be lazy work on the part of Amazon, They have excluded many popular phones that have the DRM capabilites. All they need to do is whitelist phones like the Pixel amd LG phones. Why does Prime only give HDR content to Sony phones?

4. Shouldn't have commercials and advertisements on a steaming service. Most ISP's have data caps now. Advertisements are eating my money…Advertisements I don't want and Programs I have no interest in are being forced on me every time I que a program. Would be 5 star without the data theft.

5. 16 tries and 16 fails to login on new cell! Terrible experince… Finger typing with huge mittens is difficult. Who designed this app… itsy bitsy pixies?.. Audio number challenges are way to fast too.. Slow them down a tad. This is a new phone after all…

6. I'd give higher but it has quirks. Besides a bit too much schlocky conetent, navigation is made hard to see with very faint cursor highlighting of topic picks. Also, once backing out of a played selection the cursor defaults to the very top of the menu rather than in the genre group you were in. It's irritating!

7. One word: ChromeCast.. this app cannot be taken seriously now that ChromCast functionality has been removed. I'm fed up with consumers

getting caught between the egos of large corporations (that's Google and Amazon) who should know better. Shameful.

8. Prime Video is perfect for me! I'm so fed up with TV whether I have sky or not! Prime has sooooo many films I can choose from & above all their instant 5 ***** from me Sooze

9. it hangs at times. the controld lock up on the Amazon prime phone. i mean its the amazone phone, it should sork great but it doesn't

10. The only redeeming part of Prime Video is that there are workarounds for the Chromecast; but even then it still won't work on Android. Other than that it's useability absolutely sucks.

11. it will not play a movie all the all threw with out the video going back and the sounds continues. and the error just says unknown.....

12. Fix your rebuffering where the quality is unacceptably low. If I resolve the connection issue then your app should recognise this and stream the best quality visual possible. I shouldn't need to turn the app off and back on again.

13. When playing something, the video gets stuck and then have to forward to get it playing again. It realwis irritating as some really important scenes or dialogues gets skipped.

14. Still no Chromecast. If you don't have it by my next renewal, I'm canceling prime altogether. Brutal, still?

15. crashes when trying to open, I updated the app. restarted phone, uninstalled and reinstalled app. cant use at all. receive error code.

Survey Questions(Needfingding 3):

1. **Question:** Select your age from the range available(1-10,11-18,18-30,30-above).

2. **Question:** Level of expertise in using youtube, i.e how familiar are they with youtube functionalities from 1-5 rank.

3. **Question:** Amount of hours spend on an average on youtube daily(a blank form as the input may be variable)

4. **Question:** What another platform you use other than youtube like Netflix, prime. The objective here is to know whether a user already knows the other interfaces or not.

5. **Question:** How do you watch videos on youtube(on a laptop or on mobile). This question is very crucial as to know the interface as the designing mobile platform is different than designing web application.

6. **Question:** How satisfied are you with a youtube recommendation system on a scale of 1-5.

7. **Question:** Do you get bothered with so many recommended videos popping up when scrolling down the youtube mobile application.
   A. Not really
   B. Sometimes
   C. I never noticed
   D. Always

8. **Question:** Are you aware of "Not interested" feature of youtube to avoid recommendations(Yes or No)?

9. **Question:** If you answer "YES" to the above question then how easy you find it to use.
   A. Very Easy and does what is expected.
   B. It doesn't really work still after selecting.
   C. It's hard to find the option and easy to forget as well.
   D. Waste feature to use

10. **Question:** Rank youtube in your overall experience?
    A. Good.
    B. Extremely Good
    C. Somewhat Good
    D. Not good.

11. Question: Rank yourself in terms of your expertise in the usage of the youtube mobile functionalities like finding a video, liking a video, etc?

12. Question: Is there any other application you think which does a better job than youtube?