

# Assignment M4: CS6750

Sachin Jose

[sachinjose@gatech.edu](mailto:sachinjose@gatech.edu)

**Abstract**— Through the assignment M4, I will be looking into the search functionality for Apple Music. Apple Music is the second most popular music streaming App globally after Spotify and contains the largest music library of all music streaming applications. Apple Music is well integrated into the Apple ecosystem however the search functionality for Apple Music leaves a lot to be desired.

## 1 QUALITATIVE EVALUATION

This assignment evaluates the prototypes created in Assignment M3 for the search functionality redesign of Apple Music.

### Selection

The evaluation method that will be selected for qualitative evaluation will be *Surveys* and I've chosen a *verbal prototype* for the purposes of this evaluation.

### Evaluation Plan

From Assignment M3, I'd identified the potential of creating specific modes for the interface that can adapt to different contexts for example creating a 'Drive Mode' for drivers driving cars, Run mode for runners, and a generic 'Handsfree Mode'. The rationale behind creating different modes is 90%+ of the survey respondents in the need-finding section responded that they mostly used Apple Music as a secondary task while performing a primary task such as Driving, Exercise, or Chores, etc. In order to evaluate the effectiveness of this prototype, a survey provides a low-cost, non-intrusive, and analyzable approach.

As this prototype was conceptualized partially from the survey need-finding exercise conducted in the survey as part of Assignment M2 conducted within the student body of HCI the same general feature can be used to see if they find the new interface modes to be productive. So the target body will once again be the student body of Georgia Tech & Peers who use Apple Music as their primary

music streaming platform, the survey will be recorded through Peer Survey ([peersurvey.cc.gatech.edu](http://peersurvey.cc.gatech.edu)).

The questions to be asked in the survey are given below, I would describe my *Verbal Prototype* at the top of the survey.

1. Would you switch to different Modes while using Apple Music in different contexts?
  - a. Yes
  - b. No (Please Specify)
2. Do you make a lot of slips or mistakes when performing a search on Apple Music when driving? If yes, why?
  - a. (Open Text)
3. Which streaming service do you believe has the best interface when it comes to driving and why do you feel so?
  - a. Spotify
  - b. Amazon Music
  - c. Pandora
  - d. Others (Please Specify)
4. When do you primarily use Apple Music?
  - a. Driving
  - b. Exercise
  - c. Chores
  - d. Work
  - e. Dedicated Music Time
  - f. Other(Please Specify)
5. Do you use Voice Assistants when performing a search with Apple Music?
  - a. Yes
  - b. No
6. If Yes, How has been your experience and accuracy been with Voice Assistants been so far?
  - a. (Open Text)
7. Do you create Playlists for specific tasks that you do? (A driving playlist, A workout playlist, etc)
  - a. I organize my playlist methodically
  - b. I create some playlists or follow some playlists routinely for a particular task
  - c. I do not create any playlists and only use my Music Library

- d. Other(Please Specify)
- 8. Are you content with the Search Functionality of Apple Music, Why?
  - a. (Open Text)
- 9. Is there any specific search feature that you would like to incorporate into Apple Music and search in particular?
  - a. (Open Text)
- 10. Additional Feedback
  - a. (Open Text)

These survey questions address the data inventory gathered in Assignment M2. From the initial need-finding, we found that 90% of the users used Apple Music as a secondary task. Hence the pivot to create an interface that uses less cognitive load and is context-specific. This evaluation will help gauge if the prototype actually met requirements by analyzing if the interface helps the user interact less with the interface while performing a primary task and increasing productivity by minimizing distraction.

## 2 EMPIRICAL EVALUATION

The prototype that I've selected for this evaluation is the wireframe prototype that I selected in Assignment M2.



Figure 1 - Wireframe of the search functionality in Apple Music

The goal of this evaluation is to identify if the additional features introduced in the redesign improves the time taken for a user to search or filter a playlist or Library in Apple Music. The comparison in this situation will be with the traditional search interface that is currently found within the Apple Music Application.

The comparison metric would be the time it takes to search for a song or set a filter. The search functionality will change from an index-based search that is currently used in Apple Music to a more fuzzy search functionality which is more commonly found in platforms such as YouTube, which are more tolerant of errors and provide better results when searching in non-English languages. Another metric that will be measured is how often a filter is applied in contrast to choosing a tailored playlist or choosing to play at random.

The *Null hypothesis* from this evaluation is that people do not find the newly redesigned survey to be helpful and a better redesign is needed. The *Alternative hypothesis* of this evaluation is that users find the redesign helpful and there will be an overall increase in user satisfaction if this interface is implemented.

The Experimental Method that is to be used ideally consists of a random assignment of subjects in Within-subject designs with half the group getting the original interface first and the latter receiving the redesign. The data generated would be captured by software logs to test the user numbers objectively. Unfortunately, this is not possible without extensive programming, so this solution would be administered without recreating the interface.

In the first treatment, the users while driving or working out would instead of providing the Genre filters beneath the search bar, There would be manual playlists created for a preselected genre and the User would interact with the application with the Playlists page as the homepage to simulate the ease of access of the genre filter as mentioned in the redesign. The fuzzy treatment would be recreated by adding specific autocorrect pairs to the keyboard when performing search in addition to the real interface

The second treatment would be where the participants will have a normal session where they drive or workout with the normal existing interface. The time would be captured manually in both occurrences.

This approach has a significant lurking variable in that the icons do not match the responses as intended (playlists as genres, autocorrect for fuzzy pair). However, we assume that with the proper mapping the responses would be more efficient. Another lurking data would be that the differences captured in the redesign would be rounded off to the nearest second and it would not be able to provide enough accuracy to disprove the null hypothesis. A third lurking variable would be the user preferences from time to time, at the time of using the traditional interface the shuffle functionality might pop up songs they like more, or they would be less likely to be themselves in a controlled treatment environment and hence would use their phones or search less likely or more than if they were not being monitored

### 3 PREDICTIVE EVALUATION

In Assignment M3, all interface prototypes were designed to be consistent across interfaces and platforms. All the prototypes introduced were to create a consistent interface. I will create a GOMS Model for the task analysis phase of this evaluation. The Predictive evaluation will be conducted on the Textual Prototype as described in Assignment M2.

To simulate the situation, the task addressed will be to utilise the search functionality in Apple Music on iOS and Android.

*The tasks* will be to search for a particular song, filter a playlist and to search for a song in a non-English language. *The operators* available to the user will be to prompt a search bar, respond to a change in music, perform filtering, pause, play, scroll, enter text, speak, tap. *The goal* for the user is to find the song they are looking for or to effectively filter their playlist. *The selection* rules would be based on the context of the task they are in, the user would be more likely to use handsfree modes like voice assistants if other cognitive resources are being utilized by other tasks like driving. However if the user is lifting weights, there is more leeway in selecting the method to perform a particular task.

Since the redesign of the interface is not radically different but addition of features of the existing interface then we assume the user is an expert who is aware of the task ahead of time.

On Apple Music a search is performed by selecting the search icon on top, You are provided with a text field where you enter the keyword you are searching for

which can be the Song Name, Artist Name, Albums or Playlist Name. The text below shows the trending searches in Apple Music at the moment in time. After entering the search keywords the users can choose to search between their personal library or the Apple Music Library. The search functionality returns results poorly on searching for results that are not in English. Upon selecting return the search functionality is performed and the results are returned on the screen. However, within the Apple ecosystem, SIRI provides additional functionality of performing search and filtering which is not available on Android.

From this evaluation, the two systems are fairly similar in function but do have inconsistencies. A big difference lies simply because of the Apple Ecosystem. This can cause confusion for cross platform users such as myself.

The redesigned interface according to the textual prototype would work similarly but instead of a keyword based search which is performed in Apple Music currently the search functionality would be on performing a fuzzy search for a song in English or in a non English language the results provided are more varied and better tolerant of errors also a genre filter for a more consistent use across platforms.

#### **4 PREPARING TO EXECUTE**

The two evaluations I would like to complete for the next assignment is the Qualitative Evaluation and Predictive Evaluation. My prototype is not ready for empirical evaluations and as I do not have access to the underlying logs or code, I would not be able to conduct the evaluation tests with enough accuracy to disprove the null hypothesis. I also believe that the current plan for empirical evaluation would simulate the main features of the interface but not enough to perform any satisfactory quantitative data to reach objective conclusions or perform statistical tests to any degree of accuracy.

## REFERENCES

1. Varghese, Sachin (2020). Assignment M2, M3: Redesigning the Search Functionality of Apple Music. *OMSCS CS6750 Human-Computer Interaction*.