

Dance: the Power of Music

Automating the process of social music discovery and selection

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The advent of digital music has brought with it plenty of tools for discovering new music. From online music blogs to crowd sourced recommendation services, modern music lovers has no shortage of resources for seeking out new tunes and old favorites to listen to wherever they are. However, current music discovery tools do not address two significant aspects of the music discovery process; music is an incredibly social form of art that connects users, and users often associate certain songs, artists, and genres with specific places, activities, or friends. The social element of music discovery is so inherent to the process of music discovery that some users only listen to new songs or artists on the suggestion of a trusted friend. Currently, the only tools that users have to facilitate this social music discovery require users to actively participate in this process. Dance seeks to remedy this by automating the process of music discovery and selection based on music preferences of peers as well as environmental factors and listening history.

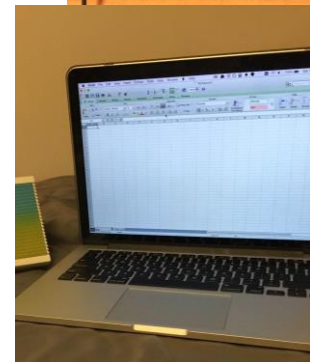
Contextual Inquiry Customers

Mohammed - 23, recent college graduate, young professional working in the Bay Area who was visiting a friend on campus for lunch. We chose to interview him because he represents a user whose lifestyle would be ideal for our product, since he loves new music and uses it to connect with friends. Mohammed listens to many different types of music and loves discovering new music with his friends. He revealed to us that his friends are his primary source of music suggestion, and we used the rest of our interview to learn more about his own personal music discovery process in order to understand how technology could help him. Our interviewees all listen to music in a variety of settings, and observing all of these settings was not feasible. We chose to observe the tools they use to listen to and discover music instead their “work” environment. Mohammed’s primary listening platform was his iPhone and in ear headphones. He noted that he paid a premium for the headphones because he appreciated high sound quality.

Bernie - 21, current Stanford engineering student, housemate of Santiago. Strong technical background, and has plenty of experience using mobile platforms as well as online music discovery tools. Bernie described himself as a fan of many different types of music, but not a “music snob.” We chose to interview him because he represents our target user; someone who appreciates music and wants to find new songs and artists, but does not obsess over the music discovery process. We used the master-apprentice model to discover the different ways Bernie interacts with music and how his friends and peers affect this interaction. Specifically, we had Bernie reveal to us his view of the current tools of music discovery and how he uses them to find music. We also learned about his music listening habits and how

they could be improved through automated music selection technologies. Bernie's primary listening tools are his laptop and headphones, pictured on the right.

Patrick - 24, Consultant, visiting the Bay Area for business. Close friend of Stephen. Self-described casual music listener. Does not normally seek out new music; passively discovers new songs and bands when socializing with his friends. We chose to interview Patrick because he represented a different type of candidate user: one who has little experience with current music discovery tools due to lack of desire to interact with them. By taking advantage of the master-apprentice model, we were able to uncover the various forms of music discovery that he does partake in, such as hearing a song he likes in a bar or on the radio and asking a friend what song it is, as well as how an app would have to function in order for him to consider using it (it would have to be seamlessly integrated into his current music listening habits.) Patrick's primary listening tools are the radio and speakers in social settings, but he also occasionally listened to his iTunes library using his laptop's speakers.



Results

The contextual inquiry process revealed to us the different ways that social activity can relate to the music discovery and selection process. The most common theme in each interview was the influence of the interviewee's peers and their music tastes on the interviewee's music selection process. While our three interviewees represented three different levels of commitment to music and discovery, all three of them reported that they regarded the advice of their friends over any other source of music suggestion. All three of our users also said that they often felt satisfied and validated when their friends complemented their music selections or revealed similar music tastes. Finally, all three of our interviewees revealed that they would not be interested in a product that required significant amounts of user interaction in order to find music, as the process of song selection is one that they want to happen as quickly as possible. From this we concluded that any product we produce would have to be as seamlessly integrated into a user's workflow as possible and would need to minimize both user input and interface complexity in order to return music suggestions as quickly as possible.

Our product focus evolved as we conducted our interviews. We were originally interested in focusing on connecting users to peers with similar music tastes in order to facilitate new connections and friendships. All three of our users seemed wary at the idea of using an app to find peers, regardless of the platonic nature of the connections. Additionally, our interviews with Mohammed and Bernie revealed something we hadn't previously considered; while the task of introducing oneself to another and finding areas of common interest can be intimidating and awkward, people tend to find some common ground very quickly, and the organic, personal nature of the process allows that initial introduction to become another common experience the users share. By introducing an app to facilitate this process, we might hinder the personal nature of meeting new people. As this became apparent during both interviews, we shifted our focus towards music and discovered other areas we could integrate technology and the social aspect of music, namely through music discovery.

The differences between each candidate revealed both commonalities and nuances in the music discovery process that we took note of in designing our product. For instance, in our interview with Patrick, we learned that some users are very apathetic towards the process of music discovery, and only use new technologies if they do not require much effort to get involved. Additionally, we realized from our interviews with Mohammed and Patrick that users are much more likely to use a service if it offers new ways to connect with their friends. Mohammed also revealed something important about music sharing; the idea of sharing his music tastes with all his friends makes him uncomfortable, because he feels that music tastes are something personal, and he doesn't know how all his friends would react to his selections. We believe worries like these could be alleviated by introducing a selective form of music sharing that only reveals a user's music selections to users with the same tastes. During our interview with Bernie, we spent a lot of time discussing music listening habits. From this we realized that music selection is often repetitive and tied to certain environments, friends, or times. An app that recognizes these patterns and predicts what a user wants to listen to based on them could offer a unique, useful improvement to the music selection process.



Our interview with Bernie also guided us in deciding what kind of interaction would be most successful with users. Bernie had significant experience with mobile platforms and music services, and described his experiences with both. According to Bernie, an app that requires significant amounts of user input for a task that is not incredibly complicated to begin with is not worth his time. He also does not like how music services require users to decide what to share and who to share it with. We learned from all three of our interviewees that they feel most comfortable sharing their music tastes with people who they think are most likely to enjoy them. From this, we concluded that our app should be as automated as possible and make use of readily available resources, such as music preferences of the user's friends on social media platforms. By doing so, we could perform a useful service to the user with as little complexity as possible.



Task Analysis Questions and Answers:

- 1) Who is going to use the system?

- a) Our target users are primarily college students living in a social atmosphere who are looking to make new friends. Most college students live in dorms or in housing close by to other students, which allows the proximity features to be the most beneficial. They are also all around the same age, which fosters further connection and compatibility.
- 2) What tasks do they now perform?
 - a) With respect to meeting new people, currently when they first approach someone they cycle through different conversation topics until a commonality is found. This can be anything from sports, to food, to music. If someone shares a similar experience (like living in the same freshman dorm or playing the same sport), it is easier to continue conversations. Something else that we found from the interviews was that people are more likely to approach someone who looks familiar in some way, even if it is a small way. Our interviewees did not use Tinder or other apps like that because they are too weird.
 - b) With respect to sharing music, we discovered that there are two most common methods through technology. The first is sending a YouTube link to friends through Facebook, and the other is broadcasting listening habits through Spotify. Other tangible methods include going into a neighbor's room when they are playing really good music, and playing the music for a friend to listen together.
- 3) What tasks are desired?
 - a) Contextual Playlists (complex, medium importance, high frequency)
 - b) Contextual Song Suggestion (simple, medium importance, high frequency)
 - c) Musical Relationships (moderate, high importance, low frequency)
- 4) How are the tasks learned?
 - a) For the music tasks there are two aspects that the user will learn. The first is that they will expect their friend to share the music unilaterally, in a single direction. The user will also learn to know when to share their music preferences and when to hide it.
 - b) The tasks involved with meeting new people are learned through already-intuitive means. They observe a commonality and start a conversation that way, or they choose a topic to start with and cycle through different topics until something sticks.
- 5) Where are the tasks performed?
 - a) The beauty of music is that it can go anywhere and everywhere. From our interviews we learned that people are listening to and sharing music in the car, in their dorms/residences, on the Internet with Facebook, YouTube, or other means, and live at concerts. Each of these places allow for sharing of music, whether it's public or private, or with people that enjoy the same music or not, but they all allow for exchanging music.
 - b) Meeting new people can happen anywhere as well: in classes, at the dorms, while attending parties, playing sports, during meals or at coffee, while working at the office, or while studying. There are no restrictions here, as discovering and talking to new people can happen at any time. The limiting factor is whether or not people are open to approaching someone else and starting a conversation.
- 6) What's the relationship between customer and data?
 - a) The data we discovered includes music taste, proximity to others, commonalities, and specific songs/artists. However, based on the interviews there is a real disconnect between this data. People don't really have an idea of what other people are listening to,

and there isn't a way to know for sure without asking explicitly. They have to guess and check, the data is dispersed across multiple platforms so there is no one place to look, and the sharing has to be either private or broadcasted without much variance in the middle. There is also stereotyping involved with assuming music tastes without proper data, further showing the disconnect between customer and data.

7) What other tools does the customer have?

- a) The interviews in tandem with our own observations revealed a wide variety of tools that customers currently have at their disposal for discovering and sharing music, but aren't being used effectively. Social media is a huge hub for sharing, because with Facebook customers can message YouTube links to their friends or broadcast playlist and current music habits through Spotify. Rdio is another music platform that encourages discovery and sharing, and concerts are opportunities for people with the same music taste to get together and share their love for that music. Similar to concerts, having speakers in a room allow someone to play music for everyone else to hear and enjoy, sharing with anyone within earshot.
- b) There are also plenty of tools for meeting new people and connecting with them. Tinder has gained a lot of traction and encourages the "random hookup" culture with meeting people. An obvious, tried and true tool customers currently use is simply going up to and talking to strangers for any reason at all. There could be previous connections (friends of friends, dorm mates, sports teams), or even alcohol encouraging these new interactions.

8) How do users communicate with each other?

- a) Our interviewees mentioned that they communicated in a variety of ways depending on the situation. Face to face interactions occur on a daily basis, and with those who are in close proximity. Social media is a constant form of communication, both instant and passive, where users can send messages (with a similar effect as texts) that persist and can be re-read as often as needed. They can interact with people no matter where they are located, allowing for wider webs of friendship. Phone calls are a middle ground between face to face and instant messaging, where both parties must be constantly engaged in order to move the conversation forward. In addition, before, during, and after conversations body language is extremely important when conveying emotions or attentiveness. Their actions, combined with how they dress (and someone's own stereotypes), can influence a user to approach a person or stay as far away as possible. Finally, introductions by mutual friends is another communication method that has great potential to create new friendships.

9) How often are the tasks performed?

- a) The music tasks described above are actually performed very rarely. The people we interviewed mentioned that they only share music on extreme occasions, such as when they discover a really good song and want someone else to listen with them. People can also sometimes perform these tasks accidentally, when someone walks into their room or gets into the car while music is playing.
- b) Meeting new people is a more deliberate and common task than sharing music. Interactions happen daily, and most people interact with at least one other human per day. In addition, this task is very situationally dependent. You could go through an entire day without speaking to anyone or making any new connections depending on schedules.

However, at parties and other social gatherings the tasks are much more frequent, where people are practically forced into meeting and interacting with each other.

10) What are the time constraints on the tasks?

- a) With listening to music, there is only really one time constraint to limit the tasks: once it invades another item on the user's agenda. This could be when the user is in class, has to turn music off to avoid being distracted while studying, or a number of other reasons. The time constraint associated with sharing music is a little different. Usually the optimal time for deciding whether or not a song is good takes about half the song's length, which is just long enough to get the point across and keep the interaction from becoming awkward in person.
- b) The time constraint associated with conversation tasks is within the first 2 minutes of a conversation. If both people struggle to find some commonality for the duration of this time frame, then the interaction turns awkward and can potentially ruin any chance of a relationship. Another constraint is that people talk until they have something else to do on their schedule.

11) What happens when things go wrong?

- a) Mohammad, one of our interviewees, described a time where he tried to talk to someone he just met. He tried cycling through different topics to find one thing to start the conversation, but nothing worked. As a result, the interaction turned awkward, he didn't have much desire to contact the person again, and the relationship was ruined from the start. Without some sort of anchor, like music, that both people can latch on to for conversation starters, there can be missed opportunities that never arise again. Great friendships don't have the chance to start, and new types of music never get discovered.

Tasks We Will Address:

1) Contextual Playlists (complex, medium importance, high frequency)

We learned from our interviews and observation that people listen to different music in different situations. For example, people listen to different things while they are at the gym than while they are driving. We argue that a person's location and activity in conjunction with their listening history proves to be a more accurate indicator to what a person wants to listen to than just their listening history alone. This task already exists, however, current music players require people to manually create playlists for each of the different scenarios. Our app will focus on automating this process.

2) Contextual Song Suggestion (simple, medium importance, high frequency)

We have found that people are often discourage themselves from sharing or playing music aloud because they are afraid that those listening will not like the music they share. The idea that we can take from that is when sharing music, the music tastes of the people you're sharing with matters. If you were at a party deciding what song to play today, you would have to guess. While this is one way of approaching this task, in our app we will consider the music tastes of those around you and provide people with an informed suggestion.

3) Musical Relationships (moderate, high importance, low frequency)

When people meet each other, they tend to bond through the presence of commonalities. Typically, this task is accomplished by cycling through topics in conversation until one sticks. Sometimes this works, however sometimes nothing sticks and a relationship is not formed. We found through our interviews and observations that music is one of the commonalities that can foster conversation. Our app will make the process of conversation with new people easier by providing commonalities in the form of music.

Three Best App Ideas:

- 1) A music player that learns from your listening habits: when, where, and with whom you listen to certain music. For example, people tend to listen to different music in the gym then they do while in the library. The music player would take this information and automatically generate playlists to match your activity.
- 2) An app that detects friends and others geographically nearby to you and suggests songs you should play depending on the musical tastes of those around the you. This app would be used in settings like parties or road trips.
- 3) An app that provides an interface to determine the people near you with the most similar musical tastes. This app could have both a mobile phone and wearable version. It would provide the commonality between people necessary to foster successful conversations.

Idea Analysis:

Idea	Significance	Feasibility	Interest
1	Y	N	Y
2	N	Y	Y
3	Y	N	Y

Ultimately, we have decided to pursue idea number 2, a contextual music suggestion engine. Recognizing that music is chosen based on current atmosphere, we want to create a music suggestion engine that takes into consideration the environment a user is in.

Sketches

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