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Music Streaming Services,
Programming Culture, and the
Politics of Listening

An Honors Paper for the Department of Music

By Walker Davis Kennedy

Bowdoin College, 2015

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Introduction

In 1999, Napster was founded, marking the beginning of widespread file-sharing on peer-to-peer networks. This was the beginning of user-curated content, an age that Axel Bruns calls the “produsage” age, where users had access and control over unlimited music files. This was in stark contrast to the “pre-internet” age of record company domination when, as legendary producer Steve Albini describes it, “people [had] to make do listening to whatever [was] on the radio playlist,” and they were “limited to owning what the store decide[d] to stock.” The total control of the music file, provided by the produsage age, to remix, sample, annotate, and redistribute in any organized (or unorganized) fashion led to a techno-optimist belief that music and our relationship with it as listeners and creators were changing for the better. No longer would we have to adhere to the music industry’s control over our musical options. Niche musical interests could be pursued in a way that was never realized before.

But, the produsage age is over and its only remnant is a now-outdated techno-optimism. The current era is the curated age of online streaming services like Spotify, Pandora, and Songza, used by millions of people.¹ This curated age is closer to the industry-controlled “pre-internet” age than the user-determined produsage age, and in many ways, it is far more controlling. With curation, we, as listeners, feel in control of our choices, even as these services push us toward far more limited options – all under the guise of purporting to know what we want to listen to better than we know ourselves. We are no longer the tastemakers, and, once again, our relationship with music as listeners has changed. Now, companies are becoming tastemakers, as curation becomes more marketable. I argue that this economic influence on curation has caused it to be

¹ Spotify has more than 40 million active listeners (Steven Bertoni, [Forbes](#) May 21, 2014), Pandora has 81.5 million listeners (Craig Smith, [Pandora Press Release](#) April 3, 2015), and Sonza has more than 5.5 million listeners (Jordan Crook [TechCrunch](#) July 1, 2014)

aimed at consumers with mass appeal in mind, curating for larger, more generalized groups rather than smaller niches. In this way, it has changed the ways that we listen and interact with music fundamentally.

Throughout this paper, I will show how online music streaming services limit our musical choices using new strategies to guide us toward certain styles of music over others. Alongside this limitation in choice, I will analyze how (and in what contexts) we listen to streaming services and the ramifications of this. With millions of users, particularly in the age range of 16 to 30, streaming services have already begun to affect the future of listening at its very core. I will explain this through in-depth studies of Pandora, Songza, and Spotify.

I have chosen to focus part of my examination of these curated services on the developer and programming mentality because I am a developer/programmer, who has spent many days perusing tech blogs while being taught “proper” coding techniques and interacting with other developers. Through this, I have learned much about what is expected of a developer and what mentality most developers have when writing code. An understanding of programming and programmer mentality is key in understanding streaming services as programmers make fundamental decisions on interface and structure that directly affect our listening experience. In addition, my methods for this study are based on my age and peer group.² I have interacted with each of these services both personally and within various social settings. Because I am within the targeted age group of these services, I have been able to study the use of streaming services and the context of that use. I consider my own personal experience important, in this case, in order to understand how a conscious user approaches each service. I was using streaming services, before I began this research, which has given me a good point of comparison to

² I am 22 years old and a college student.

the average user. I have conducted a few brief interviews, pressing friends and family to articulate why and when they use streaming services. These in-depth interviews have remained fairly conversational, while giving me valuable insight into why people are drawn to streaming services and for what purpose these services are used. Finally, I have conducted a brief survey online to gain more data into the people's daily use of streaming services.³ This has allowed me to get a broader sense of some more general questions such as how many hours a week people use streaming services, what they like and dislike about certain services, and in what context they use them. Between the interviews and survey responses, I have received data from 53 people. This ethnography has led me to the conclusion that our listening, musical interaction, and musical discovery are moving toward a more passive state. These three parts are closely connected and overlapping. Musical interaction and musical discovery affect listening, and the communication between these is fully realized and contained within streaming services.

³ see Figures 9 to 13

What's At Stake? (The Politics of Listening)

Ultimately, what I am describing is a shift in how we negotiate our identities. This negotiation is facilitated through the nature of musical interaction, the means of musical discovery, and the technique of listening. Fundamentally, this shift involves an increased restriction of interaction and discovery under the façade of the exact opposite. It appears as though we have many choices when they are really all the same. The consequence is a removal of our active role in musical discovery, creating static identities.

An active role in musical discovery involves the ability to explore infinite choices in a space not mediated by any controlling factors other than the individual's constraint of time. In its most extreme case, this would involve full, unfettered access to all music without any sort of mediation. The fundamental goal of the listener would not be differentiation by finding music unknown to others.⁴ As Veit Erlmann describes, domesticated versions of difference are easily made superficial and absorbed by sameness.⁵ Instead, the ideal active musical explorer would strive for self-definition, and would have an awareness of the paradoxical nature of homogenization and differentiation. He or she would be more focused on listening to any new-found music, rather than ignoring certain music based on some pre-conceived notion (often marketed to him or her) on how listening to that music would cause others to identify him or her. This active participant was what techno-optimists hoped to obtain in the produsage age. However, the shift to the curated age has pushed us toward a more passive state, where one is unable to fully negotiate one's identity through paradoxical and contradictory

⁴ The importance in this is relating one's musical discovery to others. I do not wish to ignore the social potential in musical discovery, but I do want to argue that a competitive comparison to other's musical awareness often spouts from exterior influences with ulterior motives (for example, marketing). A competitive comparing of oneself is not conducive toward a more active identity though it may feel like it.

⁵ "The omnipresence of the commodity production is the roof, as it were, under which differentiation and homogenization now comfortably reside as members of the same family...the more people around the globe purchase the exact same garment, the more the commercial celebrates difference." Erlmann, p. 265

shifts. Instead, one's identity remains more static, rarely changing, and similar to many others.

To understand this, we must look at the shift in musical interaction from the produsage age to the curated age. In the produsage age, our musical interaction had far more depth. To start, there was a drastically different type of choice than the choice we face today. In Slavoj Žižek's talk on "The Freedom of a Forced Choice," he describes a difference in type of choice. One type of choice is very predetermined for us. For example, we go into a bakery, and we have a choice of "strawberry or chocolate cake." This is a much more restricted choice, giving far less freedom to the chooser because the choices are essentially the same when we consider all the other options: tarts, pies, other types of cake, etc. Another type of choice is a more unpredictable choice. This type of choice involves the chooser not having a full idea of what they may be getting as a consequence of that choice. It is more unpredictable, and Žižek argues that it is more freeing because of this unknown factor. He explains this in terms of predestination.

"Yes, your fate is predetermined, but you don't know how. You don't know where you are. And, I think when you are in the position of 'my fate is predetermined but I don't know how,' the choice you make is a radically free choice...the freedom is the freedom to choose your fate because once you will make this choice, retroactively you will create your own fate."⁶

P2P filesharing gave us a freedom that stemmed from not knowing exactly what we might be getting from a musical download. It was very difficult to predict what might be packaged in a folder downloaded from another peer. One could only guess from the title of the music file. There was no means of previewing the music. Any description of a file was written by people coming from various socio-economic and cultural backgrounds,

⁶ Slavoj Žižek, "Freedom of a Forced Choice"

and, because of this there was a lot more randomness to this system. With streaming services, as we will see, the choice echoes more of the store selling strawberry or chocolate cake. Music is grouped into standardized packaged and labeled groups that lead to a higher degree of predictability.

Our musical interaction was limited differently in the produsage age as well. In fact, the only limiting factor to our musical interaction and discovery was time. Simply put, users did not have the time to listen to every downloaded track all the way through or even download every track in existence. However, this limitation brought a freedom. Fundamentally, we, the users, got to decide how time limited us and how time determined our listening. The combination of unlimited choice and the ability to decide without any sort of mediation gave us a greater freedom and active role in navigating our identities. In the curated age, the limitation is much greater. Aside from the inability to download (thus taking away any control over the music file to create new content through remixing, sampling, etc.), streaming services tend to limit our musical options by grouping music into pre-defined groups such as music to study to, music to party to, or narrowly defined genres. If certain musics do not meet the requirements of a musical grouping, they are left out entirely or in an area of the service that is often difficult to find. Streaming services guide our choices through ease-of-use, advertising, and structuring on the interface. This becomes not just a limitation of music but also a limitation of the freedom of listening.

Similarly, musical discovery has made a shift from being more active and limitless to more passive and limited. In the produsage age, musical discovery and exploration were very direct and clear goals. The purpose of finding new music was the primary means of interaction on services like Napster, allowing a greater degree of musical discovery. Without any clear organization of music, the consequence of P2P and

the mixture and clash of different individual organizers was that one was drawn to explore this musical world, in part, because that was what many others were doing. In contrast, the curated age provides a very different technique of listening. Exploration is quite easy on these services. At times, it is even automated for us. Streaming services provide a highly organized system that allows us to choose what we want. In this case, it is easier to predict what we are going to get by the descriptive labeling provided from streaming services. Thus, we tend to choose not to explore quite so haphazardly, not to risk “the possibility of failure and accident” that a true listening technique, or practice, brings.⁷ Because of this, musical discovery takes on a much more passive role. Musical discovery comes through slight “surprises” within a pre-existing framework that give us pause and cause us to look a little deeper.

In the context of this paper, I am describing a shift from a more active state of being with a true freedom of choice to a more passive state of being where many choices are made for us, restricting freedom. The shift in platforms for listening is a big factor of this. But first, it is important to note that all of this involves a serious issue in identity.

Listening helps us to situate ourselves to our current surroundings, relating to those around us, and adjusting our psychic state to the demands of the surrounding environment. In this way, listening helps us to situate our identity within a given space. People use music every day to frame themselves in a certain setting, society, or mood. We use music for little purposes like creating atmosphere to much greater purposes such as fostering spiritual connections. All of these little purposes, these little musical interactions allow us to shape our identity. Tia DeNora describes this as “music as a technology of self.”⁸ She says,

⁷ Jonathan Sterne, *The Audible Past*, p. 92

⁸ DeNora, *Music in Everyday Life*, p. 46

“The self is called upon to be increasingly agile, to be able to manage perspectival and circumstantial incongruity, as happens, for example, when individuals move rapidly through numerous and often discrete worlds where personnel and values may clash.”⁹

I consider what DeNora describes to be a more active state of self-defining, an active identity. There is a rapid shift, involving exploration, leading to clashing identities that make an identity more unique in many ways. This active state of identity was realized more in the produsage age, in part, because, people were given a freedom to define themselves through the freedom of unlimited choice. With unlimited choice and a lack of standard musical groupings on services like Napster, the likelihood that users found and listened to music of many different styles and genres (potentially clashing with one another) was very high. In the curated age, it is becoming increasingly possible to embody a more passive identity, one where individuals do not move so quickly or so often into numerous and clashing worlds of values. In part, this is due to a more standardized means of musical groupings and organization. This is a much more static state of being.

The active identity is able to explore infinite choices in a space not mediated by any controlling factors other than the individual’s constraint of time. By this, I mean to emphasize that a more active identity involves a clash of different values, different styles of music. It is not that the active participant embodies a truly unique identity. Rather, identity, as an overarching and all-inclusive story about ourselves gives way to a more open, fluid, and contingent set of multiple, even contradictory, identities.

What I have found throughout my ethnography is that, in the curated age, we have become passive in our identities as a result of being passive in our techniques of listening.

⁹ DeNora, *Music in Everyday Life*, p. 52

The consequence of this entails, at its most extreme, “the disappearance of the individual subject,” as Frederic Jameson describes. This is caused by the listener being given limited choices under the guise of there being no other choices – moreover, these choices are offered as being tailored specially for the individual listener, even as these choices themselves define the listener. It is both the limitation of choice and the masking of these choices to appear different from each other that lead to the shared identities of pre-defined, all-encompassing, inescapable groups that are grayed-out, homogenized, and simplified. The listener in the curated age remains unaware of the deletion and alienation of his or her identity by being given the illusion of control or choice, thus perpetuating the passivity of his or her state of being.

From Producersage to Curation: The Developer and Pandora

The shift from the producersage age to the curated age was not sudden, and it did not happen by chance. It emerged quite organically through particular economic, technological, and cultural factors. Economically, music streaming services allowed the music industry to retain the copyrighted song as its unit of trade against peer-to-peer filesharing. Its ability to do so depended in part on the rise of curation as the industry's value-added contribution. Given the dizzying variety of musical choices in P2P filesharing, streaming services provided listeners with a means of overcoming a central problem of producersage-era musical practices – time – by speeding up the music-finding process.

Curation was a very logical step for the music industry for another reason as well. During the same time that the industry was struggling to find its role in the upheaval of the Napster/Internet age in music, artists were struggling to have their music found by fans who had to sift through the endless sea of music online. Curation was the solution, allowing the industry to provide a value-added contribution through the means of recommendation, which, in this case, is essentially advertising. In this way, curation allowed the industry to find its place by addressing the issues of time and quantity of music online. In this way, curation has become extremely mediated by the market's goals of economic gain.

The shift toward curation goes beyond the needs of the music industry as well. The particularities of programming culture can be used to explain how we moved from producersage to curation. The importance of developers in shaping listener experience is belied by the total lack of ethnomusicological attention to them. I have found that programming culture has crucial repercussions on listeners' ability to have free and unfettered access to musical diversity and active and reflexive musical experiences. Thus,

we can understand the shift from produsage to curation as a logical step in terms of economic gain, current cultural mentality, and, of course, the general advancement in technology that led to the improvements needed to achieve streaming.

Pandora

This shift is best explained by looking at Pandora in the context of the Long Tail model, which was often discussed in techno-optimist perspectives since its formulation by Chris Anderson of *Wired magazine*. In 2006, Anderson wrote,

“People are going deep into the catalog, down the long, long list of available titles...And the more they find, the more they like. As they wander further from the beaten path, they discover their taste is not as mainstream as they thought.”¹⁰

The assumption was that listeners would put in the time to discover new music. Thus, listeners would be more active in defining their own state of being. The Long Tail was a means of commoditizing this phenomenon of exploring music away from the “beaten path” that occurred in the produsage age. It is this process of commoditization that led to curation in many ways and this is best seen through the example of Pandora.

The music streaming service Pandora was conceived by its founder, Tim Westergren, as the realization of the Long Tail. Pandora is an Internet Radio service in which users create stations by inputting a song name or artist.¹¹ Pandora takes this input and generates a never-ending radio station that plays music similar to the inputted artist or song along strictly musical guidelines. Pandora calculates this musical similarity through the Music Genome Project, a database created by musicians, musicologists, and ethnomusicologists who, after 5 to 15 minutes of analysis, tag each song with attributes from a pool of roughly 450 “genes.”¹² These genes, reminiscent of Alan Lomax’s

¹⁰ Chris Anderson, “The Long Tail,” p. 1

¹¹ see Fig. 1 in Appendix

¹² see Fig. 2 in Appendix

Cantometrics,¹³ describe attributes varying from obvious elements like *gender of the singer* or *long guitar solos* to less palpable elements like *smooth and silky vocals* or *use of dirty-sounding organ*. With this database, Pandora is able to link songs with similar “genetic” fingerprints to create stations to a user’s tastes. As with Cantometrics, a fundamental problem with this database is the choice of the genes used. To add further complexity, an algorithm is used with this database to prioritize certain genes over others. The developers at Pandora rather than the users end up deciding what attributes of a song are more important than others. For example, in the past, Pandora has been critiqued for not focusing enough on rhythm.¹⁴ It is worth noting here that developers’ aesthetic parameters come from their own socio-cultural background. Recently, the world of computer science, particularly developers, has received large amounts of justified criticism due to the fact that it is overwhelmingly white, middle class, and male. The influence of this places the power in this demographic to be cultural tastemakers, deciding what, in this case, defines music itself.

The arbitrary nature of genes like *dirty-sounding organ* means that the people who tag these songs can only listen to prior songs tagged with the same attribute to provide some sort of metric of how that attribute should sound. This circular and self-fulfilling process ends up canonizing and over-determining expectations of what, for example, a dirty-sounding organ might actually sound like, ultimately narrowing the varieties of dirty-sounding organs possible.

The techniques of listening to Pandora are significantly narrowed as well. From my ethnography, many people listen to the service when they are driving or working. Most people do not focus on what Pandora is playing unless they are fine-tuning their

¹³ see Lomax, Alan. *Cantometrics: An Approach to the Anthology of Music*. Berkeley: University of California, 1976.

¹⁴ Dave Mandl, “How Pandora’s Music Genome Project Misrepresents The Way We Hear Music,” Nov. 2014.

station. Users enjoy not having to make their own playlist and allowing Pandora to remove the time factor from taste-making. Some people do use Pandora for musical discovery, but their success seems limited by a common criticism that I have heard: “it plays the same things.”¹⁵

Ultimately, Pandora removes a large degree of choice, narrowing the techniques in which we can listen to it and pushing users toward a more passive state of being. In fact, users have very little control over this system, and their participation is limited to inputting the original artist or song name and liking or disliking a song.¹⁶ Users can only use these controls to fine-tune their stations into the exact music that they want to hear, meaning that these controls, narrow, rather than expand, the musical options available. There is no means of exploration for new music because the only music discovered contains the sameness of the music already known. Nonetheless, the user is happily content with two means of control, believing he or she controls the whole station. This is the fundamental problem with the Long Tail in Pandora: it requires some means of recommendation to push the user toward unknown music, but this means of recommendation is controlled and framed by arbitrary characteristics that are not only over-determined by the accumulated framing and precedent of the tagging process, but are necessarily guided by the profit motive of our capitalist society. Therefore, the individual can never have full freedom of choice, and he or she is given a limited choice of music. A curated version of the Long Tail can never bring us to a more active state of being.

The Developer in the Producers Age

The developer’s role in Pandora touches on larger mentalities that the producers age revealed within programming culture. Extremely influenced by entrepreneurial spirit,

¹⁵ These statements stem from responses to my survey and interviews of various Pandora users.

¹⁶ see Fig. 3 in Appendix

developers are taught to code to solve a problem, to make a task easier. This is the same as a fundamental goal of starting a company in a capitalist society: find an untapped market and make a task easier. This was the incentive for the founders of Napster. They wanted to make sharing music easier. However, there were a few elements of Napster's system that created some difficulties in terms of ease-of-use for users. One was Napster's search bar, which provided a more level-playing field between bigger and smaller artists, thus making it more likely that users would be exposed to a greater variety of music. In order to search, a user had to type in an artist name or song title and, assuming correct spelling, the location of those files would be given. There was really no mediation in this system, what you saw was what you got. Labels had not realized the importance of advertising on the Internet yet. In essence, this was people communicating via chat and sharing music with each other in an environment unmediated by companies with economic interests. Another element was the lack of organization, a general consequence of P2P systems. Music was simply grouped according to how each peer chose to organize his or her own personal selection. This made searching and knowing what you were going to get in a download a far more uncertain experience.

Developers identified these problems and worked to solve them. Searching became "smarter," prioritizing the options that were most commonly searched into an "auto-complete" function that would help speed of search on both the client and server side. Developers sought a standardized means of organization for music as well. The simplest solution was to have human tagging of audio files. Essentially, tagging involves people going through each audio file and labeling them according to some pre-defined system. The simplest example is Pandora, where the tags were the genes from the Music Genome Project. The ability to universally label or tag each song provided developers with the ability to make music listening services far more powerful, using much more

robust algorithms. This solution, tagging and grouping music based on human choices and prioritization, was much more practical, simpler, and faster than creating a powerful software that could analyze the sound in music files more objectively. The difficulties of implementing such a software make it almost impossible to remove any cultural biases, and a human grouping more accurately represents the way we listen and organize music in our head, that is, not entirely based on musical qualities but cultural factors as well. It is far easier for a programmer and faster for a computer to organize music based on arbitrary labels than have a program do an in-depth analysis of every audio file in order to organize them. These were very natural steps in development, ones that would be taken in any field of business, not simply music. In this context, it is clear to see how curation came to fruition.

Curation – Songza and the Developer Now

When I refer to curation, I want to emphasize that this is very different from user access. User access is when the user (i.e. anyone with access to a computer) explores an unlimited source of musics, choosing from this source, and organizing the chosen music. Curation removes the user from the equation. In curation, a service uses algorithms to guess what you, as a user, want, and the service provides that to you. Curation started in music, but it has spread to many different industries. The goal is to streamline the process so that you, the user, have more time for other activities. What surprised me most during my ethnography is the amount of people who said that they preferred for a service to make the decisions for them. At a small party, the host informed me that the music playing was from a playlist generated by the Songza platform. He said, “I’m tired of having to make a fresh playlist every weekend for parties. Songza can do it for me, and it does a perfectly good job. Why not?” This gave me pause. After all, a service like Songza can provide convenience, particularly for specific-event playlists that will likely sound similar.

In its current marketed form, I find curation to be extremely problematic when it comes to identity. Conveniences aside, curation dangerously leads us toward more passive states of being. It makes so many decisions for us and it becomes so predictable that we lose a considerable degree of possible accidents that could lead us to a new, different experience. We lose the clash of different identity world values as we negotiate our own identity. We become static.

Songza

Songza is the perfect example of curation in music. Recently acquired by Google and integrated into Google’s own online streaming service, Songza is a service that

provides curated playlists for various contexts throughout the day. Co-founder Eric Davich best explains Songza's goal. He says,

“We've always felt that listening to music online could be easier. Having to choose between an infinite amount of songs, radio stations, and playlists to listen to can be a very overwhelming experience and most people, when presented with that burden of choice, go back to their stale iPod.”¹⁷

Songza's solution was the Concierge, which provides a short series of choices to guide users to “contextual playlists.” The Concierge appears when you first access Songza, and the interface is extremely playful, game-like, highly automated.¹⁸ The Concierge looks at the user's location, current weather, and time of day to find a list of 5 possible activities (for example, Having Friends Over, A Sweaty Dance Party, Bedtime, Sitting by the Fire, or Putting on Your Party Dress) that the user could be doing at that moment.¹⁹ After the user selects their current or desired activity, they are taken to a list of 5 possible categories (for A Sweaty Dance Party they are Today's Dance Pop, Classic Party Starters, Rap & R&B Dance Hits, Club Rap, and Epic EDM House). After this selection, the user is given a choice of 3 playlists, and the first option starts playing immediately.²⁰

Already, the normative way in which the users' potential activities are listed is clear. What if I am not doing any of the current activities? Should I go put on my party dress so I can listen to that playlist? I am alluding here to Songza's assumption of what everyone should be doing at a given time of day along with their suggestion that only those activities are socially acceptable at that time. In fact, Songza seems to want you to self-regulate, quite passively, into certain activities, occasionally for Songza's own economic gain: Songza offers advertisers the ability to sponsor such playlists as

¹⁷ Eric Jackson, “Why Mobile and Music Are a Must: Interview With Songza Co-Founder Eric Davich.”

¹⁸ see Fig. 4 in Appendix

¹⁹ see Fig. 5 in Appendix

²⁰ see Fig. 6 in Appendix

“Cleaning Your House with Mr. Clean.” In this way, a company mediates the playlists and activities with economic interests, rather than people communicating directly to each other.

Curation builds expectations, creating truths about music that the listener follows and perpetuates. For example, when the user listens to one of the “Putting on Your Party Dress” playlists for the first time, that becomes the gold standard for both the user and others who make a playlist with the same title. Whatever the original playlist creator decides on how that activity sounds, that becomes a kind of truth that is perpetuated through repeated use. It creates a false, group identity for the user to attach while losing his or her individual identity. The consequence of Songza is the creation and perpetuation of the listener grouping music according to Songza’s groupings. This perpetuation leads to increasing amounts of content that follows this expectation, lessening the possibility for variety and creating a homogenized grouping of music that is not meant to be listened to in an active state. It is listened to for self-regulation, and the consequence of this becomes a social issue of expected behavior at every time of the day.

Davich describes Songza as your “cool friend who knows more about music than you” and has described making the interface more seamless so that it learns when the listener is exercising, driving, or falling asleep and automatically provides a playlist for that moment. This pseudo-sociality is alienating to a user, who is lulled into feeling a social experience through the “human-ness” of the playlists and playfulness of the interface. In the end, the listener takes on a role similar to that of the bad old days of the pre-digital music industry, as decried by theorists like Adorno or Clay Shirky (1999), who describes listeners as “nothing more than a giant maw at the end of the mass media’s long conveyer belt, the all-absorbing Yin to mass media’s all producing Yang.”²¹ This

²¹ Found in Axel Bruns “Distributed Creativity: Filesharing and Producersage”

force-feeding of music is complicated by the complacency one feels while interacting with a service that, essentially, claims to be human.

The Developer Now

The problematic nature of curation arises in part from the particularities of developers, and specifically the emphasis on code-recycling. For developers, “good code” is code that other developers can use. Developers constantly post code to sites like GitHub, where it can be accessed, edited, and viewed by other developers. The assumption is that *if someone else wrote a function that does something I need, why would I reinvent the proverbial wheel?* In essence, this becomes a kind of passive coding. The re-use of code in streaming services, much like the accumulated precedent of arbitrarily delineated “genes” in Pandora, can work to overdetermine particular musical aspects or ideas. For example, in the massive and complicated system of a service like Spotify, developers use pre-written code and applications like Echo Nest, a programming library Spotify uses to create playlists of music with similar aesthetic qualities like liveness, acoustic, or danceability. Echo Nest and other re-used features function as black boxes for programmers, in that they process an input and produce an output without the developer ever seeing the code. He or she reads the documentation and then writes a one-word function in his or her own code to use a pre-written function. If, for example, the developer wants to access a list of “danceable” songs, he or she calls Echo Nest’s danceability algorithm to generate that list. This means that the developer is relying blindly on the definition of danceability that the original developer who made the algorithm decided was correct based on his or her specific background. As with Pandora’s tags, the algorithm creates an expectation of how a danceable song should sound, which is perpetuated when the code is reused, moving the grouping of danceable

songs to an increasingly homogenous aesthetic. The result of this homogeneity is a limitation of choice, further pushing us into a passive state.

This passive coding emphasizes that even the builders, the coders, of streaming services are creating the service passively. As listeners tend to do with these services, programmers choose the easy and predictable route when writing algorithms for recommendations, musical groupings, and other elements of streaming services that directly affect our interaction with the interface. In many ways, this shift from active to passive that I am describing with listeners and streaming services stems from the shift toward passive coding when it comes to organizing music, which is inherently subjective.

The Playlist and Spotify

All of the services I have described above, particularly Spotify and Songza, utilize the playlist. The playlist existed before streaming services. It was the primary tool for many active listeners in the produsage age and, in the form of the mixtape, even earlier. They spent time constructing personal or shared playlists based on downloaded files. In order to spend the amount of time required, a true passion and interest in the music was needed. A study done by the Pew Internet & American Life Project during Napster's reign found that

“music downloaders believe music occupies a special place in their lives and in the world, a place that they believe is not subject to the same rules and regulations found in the world of commerce. In general, the Internet appears to have given them an opportunity to experience music in ways not as connected to income and commerce as music buying.”²²

The playlist has the potential to bring meaningful interaction between people about music. Particularly during the produsage age, playlists were made without any economic incentive, and, because of the time required to make one, playlists demanded a true, unmediated interest from listeners. This creation of content by the user gave the playlist a musical worth that helped facilitate this more active form of identity that I have been describing. But, the playlist has changed in key ways to prevent its use by the active listener. In many ways, the playlist has been “cheapened” by both the speed and ease at which a playlist can be made now and the introduction of the playlist into streaming services for economic gain. In many ways, this was already seen in Songza. Employees are paid to make playlists, incentivizing making playlists quickly that will be widely accessible to a massive audience. These playlists lack a personal touch and serve an

²² Jones and Lehart (Found in McLeod)

economic purpose rather than a musical one. These playlists remain much more starkly defined in terms of acceptable content. However, Spotify is another service that uses playlists in a more user-focused way.

Spotify

Spotify is a kind of online jukebox that can stream any song from a database of 30 million.²³ It was founded by Daniel Ek, who came from the world of produsage. For a time, he was the C.E.O. of uTorrent, a company that monetized the file-sharing of music and movies through BitTorrent. Ek has the attitude of a member of programming culture. “Ek’s phlegmatic manner makes his unshakable, almost spiritual belief in Spotify burn all the more brightly. His vision, that Spotify is a force for good in the world of music, is almost Swedenborgian: salvation in the form of a fully licensed streaming-music service where you can find every record ever made.”²⁴ Ek’s purpose in founding Spotify has been to help reverse the huge decline in revenue that the music industry has had to withstand since the introduction of Napster. One can think of Spotify as a sort of “commodified” Napster.

In some ways, Spotify’s users are potentially more active than users of Pandora or Songza. Users have full control over playlists, deciding the order, number of songs, and songs themselves in a way that appears to harken back to the produsage age. However, this is not the case. First, the means of finding music is fundamentally different. If not using the EchoNest curated playlists, users must use the search bar to find music, producing a list of song names, album titles, and artist names. By clicking on a result, the user is taken to an artist page. Besides this, the user can discover music by looking at the recommended artists on each artist page. Through this, Spotify rewards the most played, most popular artists, which tends to be those industry-supported artists that

²³ see Fig. 7 in Appendix

²⁴ Seabrook

have the money and resources to promote themselves as they have done for years before Spotify.

In contrast to Napster's search function, when a user begins to type a name into the search bar, Spotify attempts to auto-complete the input by providing a dropdown menu of suggestions.²⁵ These suggestions are ordered based on number of plays and searches for each artist, and this order cannot be altered in any way. The most popular are the first and largest options that the user sees. As mentioned before, this is a clear example of the developer's role in streaming services. This auto-complete functionality for search bars makes sense in a lot of ways, but, in the case of musical artists, it helps the rich get richer and the poor stay poorer. It is difficult to suggest a superior search function (one that would combine both the convenience of finding what you are most likely searching for with the more level-playing field of accidentally stumbling upon a new artist), but it remains that the search function prevents any accidental musical discovery to a large degree.

The recommendation function perpetuates this advantage for the most popular artists. On an artist page, Spotify provides a related artist list. This list is generated from user data. For example, if a lot of users have searched for Beyonce and Jay-Z, both artists will show up as related artists on the other's artist page. Thus, the listeners are just being guided into the same cycle of artists as everyone else. Similarly, the only other means of recommendation for the user comes from the Browse page on the application. At the top of the main Browse page, the current trending album is recommended to the user, typically regardless of what artists and music that user tends to play. On the Discover page, more artists are recommended but through the same means as the related artist list.

²⁵ see Fig. 8 in Appendix

The Discover page heads each section of recommendations with, “Similar to _____” where the blank is some artist that the user played.

There are many features to Spotify, but I chose to focus on these two, search and recommendation, because they are the most commonly used in playlist constructing on Spotify. Making a playlist is very easy to do with Spotify, and having access to such a large database of music means that the possibilities are astronomically high. However, many people from my ethnography have complained about Spotify’s recommendations, stating that they are not particularly helpful.

Surprisingly, a majority of people in my survey answered that they did not make many playlists, choosing instead to listen to individual artists and albums. In this case, the problematic nature of Spotify’s search and recommendation functions remain the same. This is particularly true when considering that almost everyone I have interviewed or surveyed has said that they use Spotify to discover music, more than Songza or Pandora. Spotify does seem to want to help users discover new music, but its current model of achieving this, influenced by monetary gain, aids the most popular artists by far. Many songs have never been played on Spotify. So many have not been played, in fact, that a service called Forgotify plays songs at random from a list of 4 million.²⁶

²⁶ <http://forgotify.com/>

Sociality in Streaming Services

Up to this point, I have focused on the individual in terms of streaming services. I have done so because many of these services remove the social elements of listening to a large degree. However, people do use these services to provide music at social events and, in the case of Spotify, these services can provide some social media features for users. The fundamental issue with the social elements of each of these streaming services is the falseness and mediation that come with them. Each of these services handles this in a different way, but the result is the same. In the produsage age, with unmediated social interactions via online chat, people were able to recommend music with no ulterior motive. There was no monetary gain from recommending artists to fellow music-lovers online, just the creation of a community that supported and shared interests with one another.

Pandora and Songza have very few social elements. For Pandora, users can share stations and see who else has listened to a similarly titled station, but there is no chat function to facilitate anything beyond this little social feature. In fact, Pandora's interface barely advertises this feature. One has to click a small "options" button by the station name in order to access this. Songza is lacking in sociality as well. I have already mentioned Songza's attempts to feel like the user is interacting with a "cool friend" rather than a website or mobile app. This creates a false social feeling for users.

These services are played in social settings, however. Often at small gatherings I have attended, people have pulled up a Pandora station or used one of the Songza party playlists. While I acknowledge the convenience factor of this, particularly for impromptu social gatherings, what interests me is the response to these playlists. Rarely do people comment on one song unless it is a familiar (often popular) song. Instead, people discuss the playlist or station holistically: commenting on whether or not they like the playlist,

asking what the playlist or station is called, etc. Essentially, the conversation turns toward the platform (Songza or Pandora) rather than a discussion on a specific song. I do not think that this is an accident. Our social interaction with these services is guided toward talking about the services themselves. This helps advertising for the services, but it also speaks to our own consciousness as to the way the service frames music. We are so distracted by the novelty of the service that we lose part of the conversation involving the actual music being played. This creates a kind of pseudo-sociality that serves the economic goals of the service rather than fostering true, meaningful social interactions around and about music.

Spotify's social features and the use of them are more difficult to pin down. Spotify has a few social features from its heavy integration with Facebook. The first is the right-hand bar, showing a user what his or her friends are listening to at a given moment. While this appears to foster some form of social-ness, users are unable to communicate on Spotify what songs they like or dislike and why they might be listening to a certain song at a given moment. This can only be done through a different, separate service like Facebook chat. However, Spotify does have a few potential social features that could foster more of a real social interaction between users. One example is the ability to share playlists, either publicly on profiles or privately to specific people. While this feature is not the easiest to find, I have been surprised at the amount of people from my ethnography who share playlists on Spotify. In general, there does not appear to be a common, standardized use of this feature. Some people never share playlists, while others share playlists all of the time. For those that share, some simply send a playlist to a friend and never discuss it. Other times, this playlist sparks a much longer conversation. However, these conversations are always through phone calls, texting, Facebook messaging, etc. Spotify's only attempt at a chat function is to attach a message to a shared

playlist. There is no real conversation about the music, but this feature does have the capacity to foster conversation in a very active and participatory way. To add to this, users are able to follow each other and see what their friends have been listening to over the past week. This feature seems very capable of creating a social space for a more active type of listening and forming of identity.

There are other services that are worth mentioning as well, particularly for the social atmosphere that they foster in terms of allowing users to have a more active relationship with their listening. While my analysis of these services has been far less in-depth than Songza, Spotify, and Pandora, they are worth mentioning. The first is SoundCloud, which allows anyone to post audio tracks on the platform.²⁷ Aside from the obvious difference in the ability to create content that SoundCloud provides, this platform fosters a great social space to discuss music. In particular, the ability to add comments at any point in time on a track has great potential for a more interactive role for listeners. The issue here lies with the significantly smaller amount of users on SoundCloud than a service like Spotify. The music posted is not within the highest tier of popularity, and, if it was, the entire service would gain a hierarchy amongst artists that would be extremely problematic for the current level-playing field that SoundCloud provides. With more famous artists, it seems likely that SoundCloud would be incentivized to have artists pay the service for higher placement in the search list. Even if this did not occur, those high-tier popular artists would be the primary focus of users, who would begin to ignore the less popular artists. Perhaps, it is worth conceding that this is the natural flow of artist hierarchy, but I believe that less popular artists have a greater chance of becoming more widely known and enjoyed on a platform where they do not have to compete with artists who are already well established. Another service is 8tracks, which allows user to create

²⁷ <https://soundcloud.com/stream>

their own playlists online that others can access.²⁸ One can comment and follow other playlist makers, fostering an active, creative environment for listeners. 8tracks smaller user base is problematic for the same reasons as SoundCloud. To add to this, a more in-depth study of how 8tracks organizes tagging for playlists is needed to definitively understand 8tracks role for listeners.

²⁸ <http://8tracks.com/>

Conclusion

What I have described is a shift in our listening because of streaming services. This shift is incredibly important because it has fundamentally changed the way we negotiate our identities in a given environment. Curation has pushed us away from the more active, creative, and social elements of the produsage age. During that time, our various framings of identity could clash and change rapidly in a way that fostered difference-making and meaningful music listening. Now, curation places us in a more static position in our environments. By creating these boxed, separate groups of music for us to access, we allow ourselves, our identities, to be simplified for economic gain, while social and active listening disappears.

This analysis has focused on the user-experience and the foundational databases of each streaming service. This is because a user, before starting to listen on any service, must click, must interact with, the service. He or she has to make some degree of choice, and that choice is influenced by what is seen on the screen. This is why user experience and the interface are so important to this analysis. All interfaces consist of elements that are easy to use and easily accessible while other elements are not. Developers are the ones who decide ease of use and accessibility for each element, and they are fundamentally influenced by programming culture. This has led to a shift back toward a time where companies produce, organize, and present content as a commodity rather than users sharing content freely. The result of this is the alienation of the listener from other listeners and the perpetuation of power to those who currently have it. I think it is important to emphasize that I am talking about musical discovery. I will admit that there are plenty of times that we use streaming services for activities like driving or working, where we are not concerned with what is playing to a degree. Streaming services can provide background music quite well in this case. However, the fundamental problem

occurs when we try to use these services, which are often the go-to option, to find new music. I cannot stress enough the danger of the curated age. This form of passive listening is far worse than before. Now, we feel in control, and this illusion of control keeps us complacent while wiping us of any individual identity. Our choices are limited, and we must understand and be aware of those limitations. By understanding *how* we are limited, we can begin to see streaming services as tools towards becoming active listeners rather than the causes of our current passive listenership. Without this awareness, the techno-optimism of the produsage age must go because we have failed at a great opportunity.

Appendix

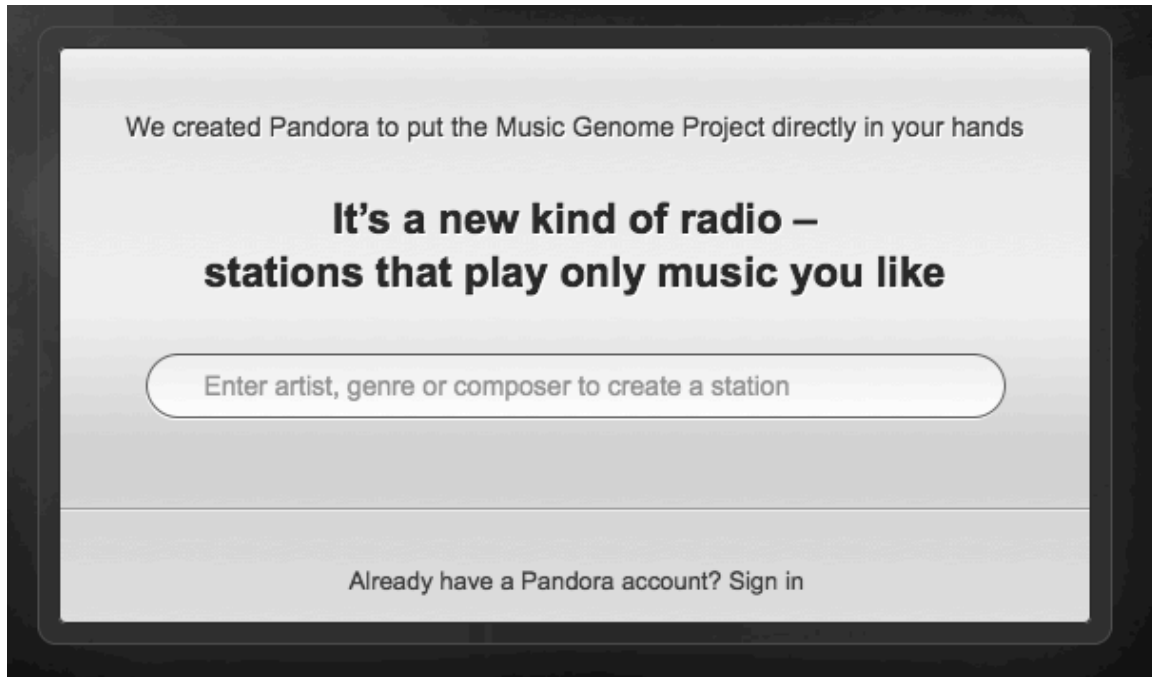


Figure 1 – Pandora's page for new users

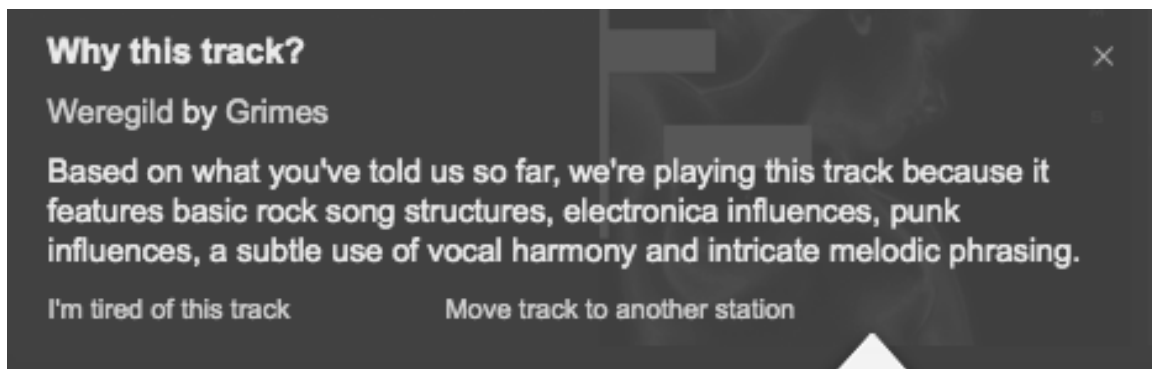


Figure 2 – Explanation of Pandora's choice in a song using the Music Genome Project

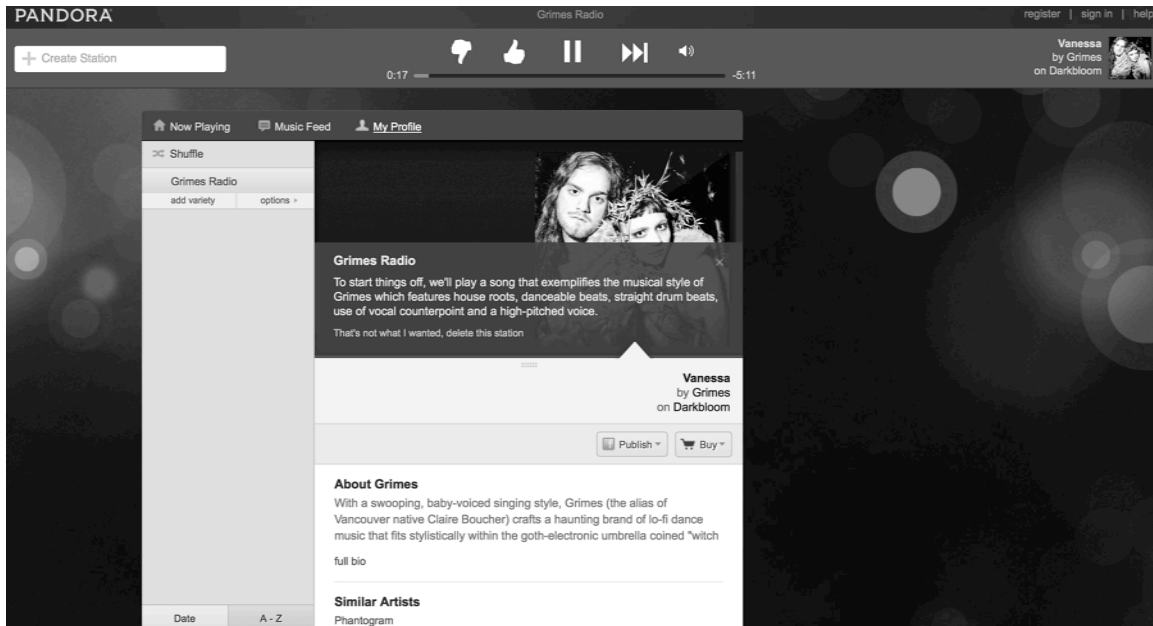


Figure 3 – Pandora’s whole interface

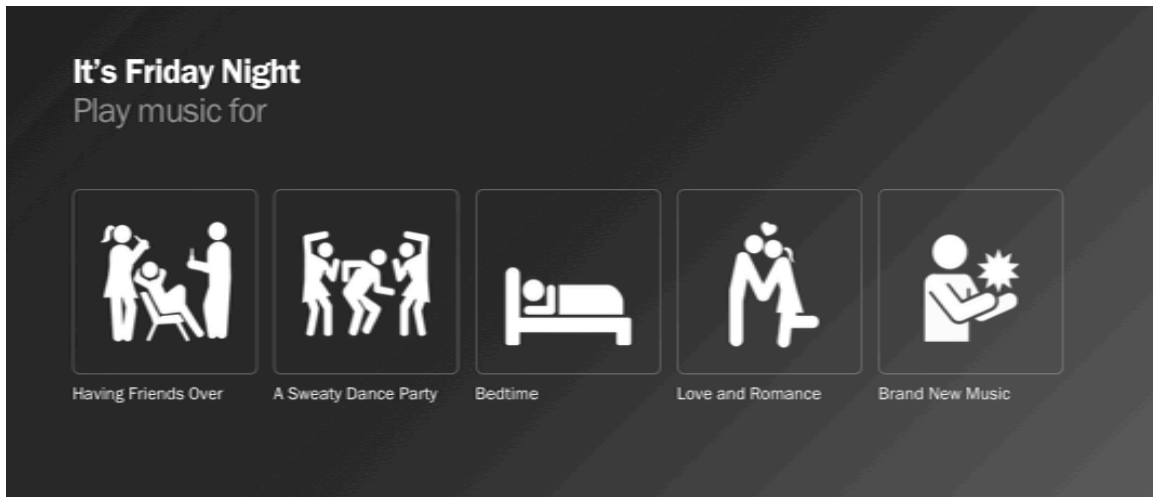


Figure 4 – Songza’s Concierge (This is the first page a user sees when accessing Songza)

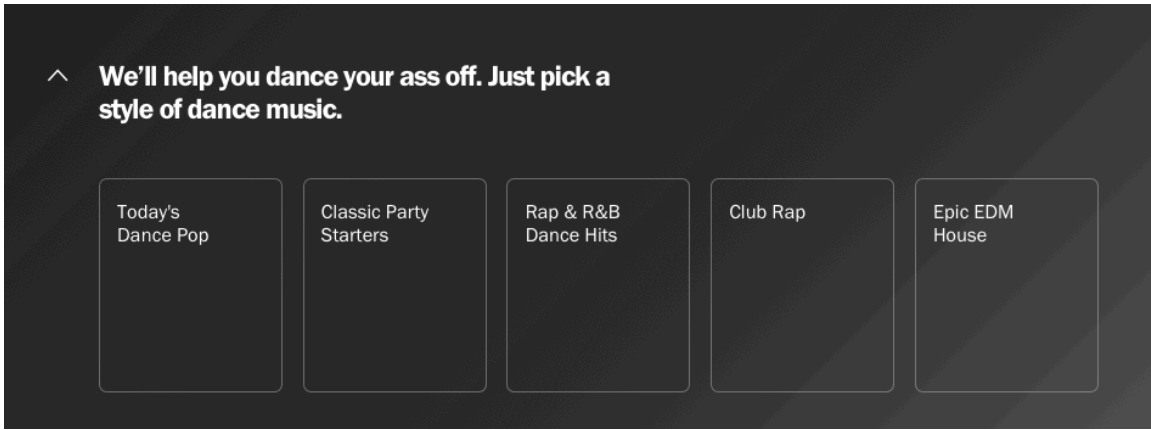


Figure 5 – The second page of Songza after selecting “A Sweaty Dance Party”

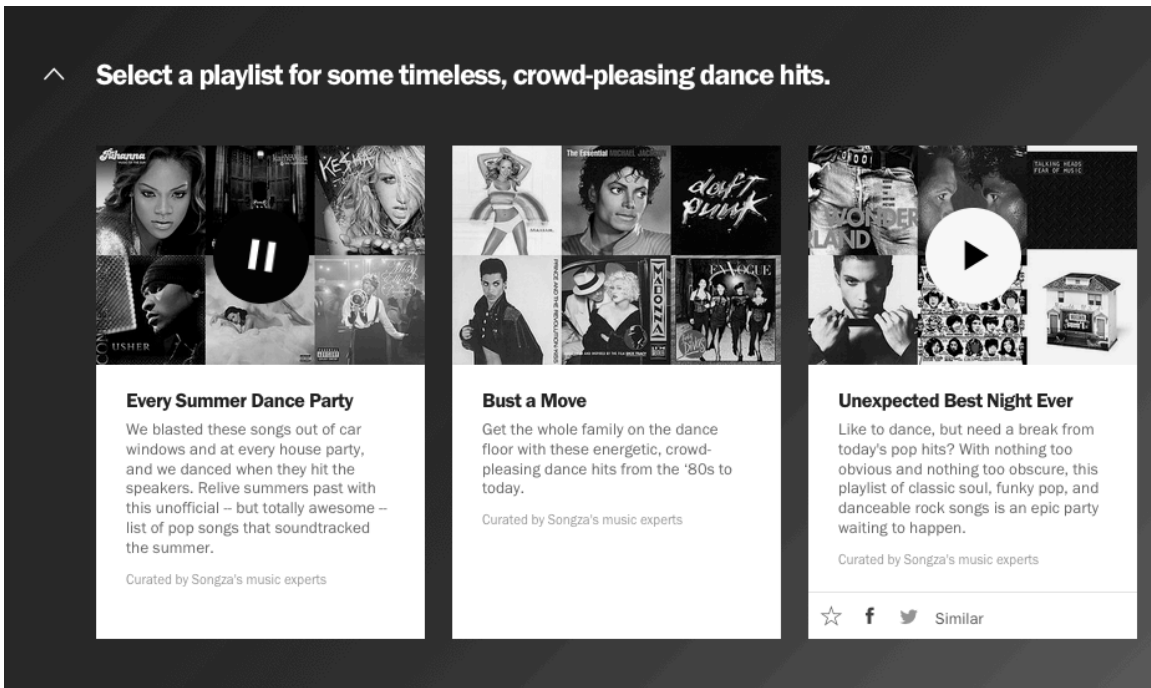


Figure 6 – The final page of Songza with a list of 3 playlists

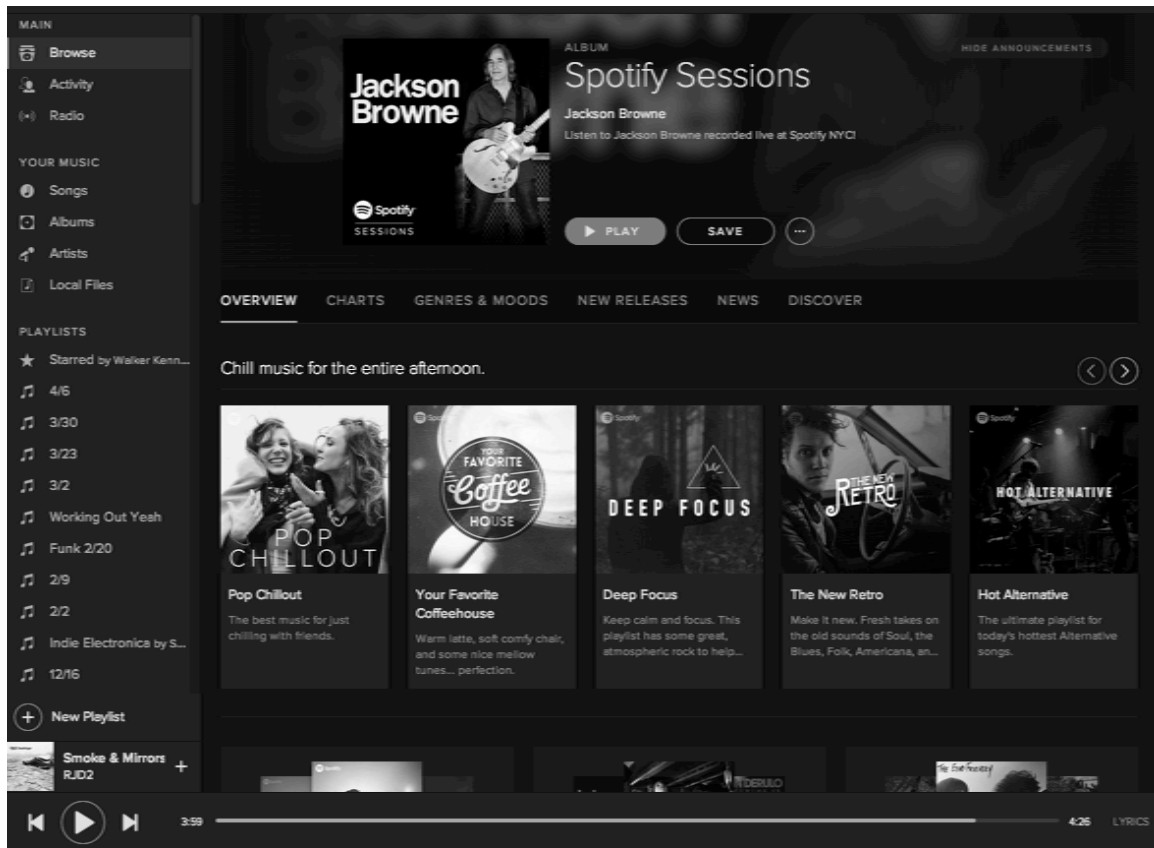


Figure 7 – Spotify’s whole application (The opening page is “Browse”)

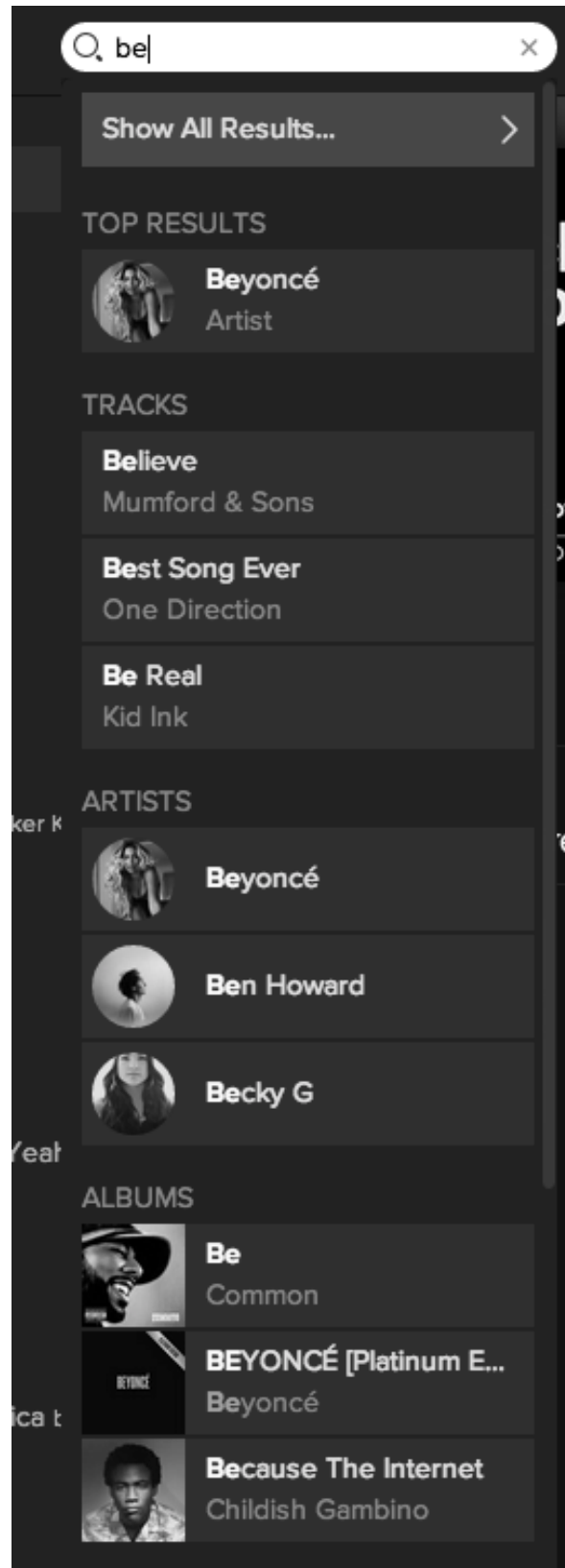


Figure 8 – Spotify’s search and auto-complete feature

Online Music Streaming Services - Ethnomusicology Questionnaire

* Required

What is your age?

What is your gender?

- Male
- Female
- Other

Do you use online streaming services? *

ex. Spotify, Pandora, Songza, 8tracks

- Yes
- No

How often have you used the following services per week? *

	< 1 hour	1 to 5 hours	5 to 10 hours	10 to 15 hours	15 to 25 hours	> 25 hours	Never
Spotify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pandora	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Songza	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue »

 20% completed

Figure 9 – First page of survey

Spotify

What do you use Spotify for?

Choose all that apply

- Exercising
- Working/Studying
- Driving
- Discovering Music
- Party Music
- Other:

Do you make playlists on Spotify?

- Yes
- No

Do you listen to premade playlists on Spotify? *

- Yes
- No

Why do you use Spotify?

(ex. it is cheap, it helps me discover new artists, etc.)

What do you like about Spotify?

What do you dislike?

« Back

Continue »



Figure 10 – Second page of survey

Songza

What do you use Songza for?

Choose all that apply

- Exercising
- Working/Studying
- Driving
- Discovering Music
- Party Music
- Other:

Why do you use Songza?

(ex. it is cheap, it helps me discover new artists, etc.)

« Back

Continue »

 60% completed

Figure 11 – Third page of survey

Pandora

What do you use Pandora for?

Choose all that apply

- Exercising
- Working/Studying
- Driving
- Discovering Music
- Party Music
- Other:

Do you spend a lot of time fine-tuning your station to your preferred genres or do you let the station play without liking or disliking songs?

- Fine-tuning
- Let the station play
- Other:

What do you like about Pandora?

What do you dislike?

Why do you use Pandora?

(ex. it is cheap, it helps me discover new artists, etc.)

« Back

Continue »

 80% completed

Figure 12 – Fourth page of survey

General

Would you rather do more work in creating content on online streaming services or do you prefer the service to do that? *

(i.e. creating playlists, giving recommendations, connecting you to users)

- I prefer to create content
- I prefer the service to do this for me

« Back

Submit



100%: You made it.

Never submit passwords through Google Forms.

Figure 13– Last page of survey

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