

INFLUENCES ON THE SOCIAL PRACTICES SURROUNDING COMMERCIAL MUSIC SERVICES: A MODEL FOR RICH INTERACTIONS

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ABSTRACT

Music can play an important role in social experiences and interactions. Technologies in-use affect these experiences and interactions and as they continue to evolve, social behaviors and norms surrounding them also evolve. In this paper, we explore the social aspects of commercial music services through focus group observation and interview data. We seek to better understand how existing services are used for social music practices and can be improved. We identified 9 social practices and 24 influences surrounding commercial music services. Based on the user data, we created a model of these practices and influences that provides a lens through which social experiences surrounding commercial music services can be understood. An understanding of these social practices within their contextual ecosystem help inform what influences should be considered when designing new technologies. Our findings include the identification of: the underlying relationships between practices and their influences; practices and influences that inform the weight of relationships in social networks; social norms to be considered when designing social features; influences that add additional insight to previously observed behaviors; and a detailed explanation of how music selection and listening practices can be supported by commercial music services.

1. INTRODUCTION

Music plays a role in social experience and social cohesion [3, 18]. It can function as an icebreaker, to facilitate informal interactions, to initiate friendships, and to strengthen relationships [18]. Different music media and technology such as tapes, CDs, and digital files offer different affordances that influence the activities surrounding music [4]. These music-related activities are also influenced by the physical and social context of the technology [5]. In this paper, we investigate music-related “social practices,” defined as activities a person carries out on a regular basis involving others or in the presence of other people. Social

practices surrounding music previously studied include listening, discovering [12], sharing [4, 12], exploring and peeping [20].

In 2006, O’Hara and Brown’s work [20] on social and collaborative aspects of music consumption technologies provided an up-to-date and comprehensive foundation for research into the social practices surrounding music at that time. Since then, Komulainen et al. [16] explored music sharing of youth in the context of new social media and mobile devices. Leong and Wright [18] explored social practices surrounding music in households. Cunningham et al. also explored social music practices in specific places and situations like parties [8] and cars [9]. Hagen and Luders [12] explored sharing and following behaviors with commercial music services. However, existing research on social practices surrounding music provides only a glimpse of the social behaviors surrounding music respective of that time and then-current technology.

Technological aspects related music practices have also been explored. For instance, Chamberlain and Crabtree [6] explored the workflows and technologies involved in the discovery, identification, acquisition, and organization of music in domestic settings. Goto [11] has also explored the influence of new “intelligent” interfaces on music practices. Several researchers including Barrington et al. [1], Zhu et al. [23], and Kamehkhosh et al. [15] also explored different factors, dimensionality of music, or automated recommendations that affect playlist generation/evaluation and music search. Although their research did not specifically focus on social practices surrounding commercial music services, our research adds new depth and context to their findings.

Streaming music technologies have grown in prevalence [19] and new features such as app integrations, and auto generated playlists as well as new interactive mechanisms like voice control have become more ubiquitous. The majority of music listeners in America are now streaming music [19]. Because of the role music plays in society and the influence of technology on social activities, it is important to gain an updated understanding of the influences on social practices surrounding commercial music services.

Building upon earlier research, our work looks specifically at commercial music services such as Spotify, Pandora, and Google Play, which have become pervasive in recent years. As social practices surrounding music have co-evolved with commercial music services, it is important



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to understand the implications these new technologies have on social practices, both positive and negative. However, updated literature on social practices surrounding commercial music services — as well as influencers on social practices — is lacking. To address this gap in knowledge we conducted six focus groups on two university campuses. We found that social practices surrounding commercial music services exist within a rich ecosystem of influences. We contribute a codebook defining 24 influences identified from user data as well as a model that provides a lens through which these experiences can be viewed and understood. This codebook provides insight into what influences need to be taken into consideration when designing technologies that are used socially. Notable findings based on our codebook and model include the identification of: the underlying relationships between practices and their influences; practices and influences that inform the weight of relationships in social networks; social norms to be considered when designing social features; influences that add additional insight to previously observed behaviors; and a detailed explanation of how music selection and listening practices can be supported by commercial music services.

2. RELATED WORK

Social practices were previously observed and described in context of the technologies of the day. When O'Hara and Brown published their book in 2006, MP3 sharing platforms like Gnutella, Kazaa, and Soulseek had just replaced Napster, and iTunes was a new legal addition to the market. In 2013, Leong and Wright observed changes in social behaviors around the exploration, discovery, and sharing of music in relation to changes in technologies including streaming internet and bluetooth on mobile phones. They noted “an emergence of new sociality and new forms of social practices around music” as well as new social tensions emerging around music selection and listening in shared settings [18].

Previous research in social practices surrounding music highlights the important role evolving technologies play in understanding the social practices surrounding music. A body of related work focuses on technology in shared environments. Brush and Inkpen [5] examine the use and sharing of technology in domestic environments. They found two common models for sharing devices: the appliance model and the profile model. Sharing of devices using the appliance model is mediated through social protocols. In contrast, sharing of devices using the profile model is mediated by allowing users to have individual profiles. Brush and Inkpen [5] also looked at the ownership models of devices - individual ownership versus shared ownership - within domestic environments. The physical locations of technology, privacy, and capability for personalization of technologies all influenced social behaviors [5]. They found that video game systems exemplified devices with shared ownership whereas mobile music players exemplified devices with individual ownership [5]. Jacobs, Cramer, and Barkhuus found four types of behaviors when studying the sharing practices of personal devices

between cohabiting couples: “intentional sharing, explicitly not sharing, unintentional access and unintentionally inhibiting access” [14]. They also observed that couples support sharing behaviors by “hacking” the intended use of the technologies [14].

These studies highlight that practices surrounding technology are influenced by the relationships of the individuals involved as well as the environment. Not only are social practices influenced by individual relationships, previous research also has shown social music practices also *influence* relationships and individual behavior. Boer and Abubakar [3] described the benefits of music listening in families and peer groups in which they found “benefits for young people’s social cohesion and emotional well-being”. Yang, Wang, and Mourali describe the influence of peers on unauthorized music downloading and sharing [22]. The physical context (environment) of previous research into social music practices also includes cars, public locations, workspaces, and dance clubs [20].

Research has also focused on individuals and their practices surrounding music and commercial music services. In 2013, Belcher and Haridakis [2] explored the motives people have for listening to music. Their results included the identification of social motivations influencing music listening and selection behaviors. Lee and Price [17] developed seven personas based on empirical music user data. These personas provide greater insight into design implications for users than user groups based on demographics. Our work further expands understanding of commercial music service users and their behaviors in social situations. Finally, while Hagen and Lüders [12] have looked at the sharing and following behaviors of commercial music service users, we take a broader look at the social practices surrounding commercial music services and their influences.

3. STUDY DESIGN AND METHODS

Six focus groups were held at Eckerd College and at the University of Washington, Seattle (UW). Participants were commercial music service users who were aged eighteen to thirty-four and lived with roommates. Results were analyzed by qualitative content analysis using a constant comparative method. Focus groups were selected to enable rich conversations where participants could prompt and remind one another of social situations they may have encountered. Participants were often prompted by situations similar to what they had encountered but described handling them in different ways. Participants often contrasted their social behaviors with individual behaviors.

3.1 Participants

Recruitment activities for the focus groups consisted of displaying flyers, posting to listservs, and posting on social media. Physical flyers were placed on boards around the Eckerd College Campus, the UW Campus, and in businesses surrounding each campus. Posts were also made to additional listservs and social media outlets known to

the researchers that included student affiliated groups and groups of people not affiliated with either university. Participants were compensated with an Amazon gift card for being part of two additional activities for subsequent research not discussed in this paper. All recruiting activities directed potential participants to a screener survey.

The screener survey was used to ensure all participants were between the ages of 18 and 34, currently living with a roommate or roommates, and using at least one commercial music service. Of the 80 potential participants who filled out the survey, 61 were eligible and available to attend the focus group on one of the preselected dates. Focus groups were filled on a first come first serve basis.

In total, 6 participants from the screener for Eckerd College and 20 participants from the screener for UW took part in six focus sessions - 2 held at Eckerd College and 4 held at UW. Of the 25 participants who reported a gender identity, 16 were female and 9 were male. 24 participants were between the ages 18 to 24, and 2 others were ages 25 to 34. Participants reported using a diverse array of commercial music services currently on the market including Spotify, Pandora, Google Play Music, YouTube, Soundcloud, Apple Music, Online radio services (e.g. NPR music, iHeartRadio, etc.), Indieshuffle, Tidal, and Amazon Music.

3.2 Procedures

Each of the six focus group sessions were approximately an hour long, with 3 to 6 participants per session. Each session had a facilitator and note-taker. Each session was also recorded and transcribed to ensure accurate analysis. Two pilot focus groups were held - one at each location - to test the focus group script, although refinement of the script continued throughout the study.

The script¹ was designed to prompt participants to have open-ended dialogues with each other about their social practices surrounding commercial music services. Generally, each focus group began with a warm-up activity where each participant introduced themselves and described the commercial music services they use, then the group brainstormed different locations where they listen to music identifying the social situations. Participants were then prompted to talk about their social practices in co-listening situations, when sharing, and with technology.

3.3 Analysis

After transcribing each focus group session, we anonymized participant information and analyzed the results in a two-part qualitative content analysis process.

For the first part, we separated each participant comment into individual post-it notes and conducted constant comparative analysis including affinity diagramming [21]. We opted for this method because it allows the creation of categories to be driven by the raw data and not established a priori [21]. When building an affinity diagram,

not only did social practices surrounding commercial music services emerge from the data, but influencers to these practices also emerged. Reflecting on previous work developing personas of commercial music service users [17], we recognized the importance of understanding these influences on individual behavior in social situations.

For the second part, a codebook with social practices and influences was developed following an iterative coding process using Dedoose, custom Python code, and Google Sheets. An initial version of the codebook was produced by a single team member who coded all transcripts asking two questions about each excerpt: 1) Does this describe a social practice surrounding a commercial music service? and 2) Does this describe something that influences a social practice surrounding a commercial music service?

The codebook was then revised and refined through an iterative team coding process, following a consensus model [13]. During each test, each excerpt was coded with applicable codes for social practices and influences. Each excerpt describing a social situation could be coded with multiple social practices and influences. Codes applied to excerpts by different independent coders were then compared. When applied codes differed, the team members who coded the excerpts discussed their reasoning leading to an agreement that one coder erred, that an update to the codebook was needed, or that a third team member was needed as a tie-breaker.

4. RESULTS

4.1 Social Music Practice Codebook and Model

During analysis, 9 distinct social practices and 24 influences emerged¹ (Table 1). These influences were grouped into three categories: group/social influences, external influences, and internal influences.

Many of the practices and influences that emerged could be applied to – and have been observed with – other technologies. For example, Music Technology Management could have been described as Technology Management – something that has been studied in households with all technologies [5].

Co-occurrence of social practices and influences when applying codes to the transcript led to the insight that each social practice surrounding commercial music services happens in an ecosystem. The ecosystem's complexity is captured in our model of the influences on the social practices surrounding commercial music services, as explained in more detail in the following sub-sections.

4.1.1 A Flexible Model of a Rich Ecosystem

Our model of the social practices surrounding commercial music services and the influences thereof represents a rich community of practices and influences. Influences affect other influences. Social practices affect other social practices as well as their own influences. This meant that a simple situation would likely capture multiple social practices and multiple influences, as illustrated by the sample quote below.

¹ Documented here: <https://perma.cc/Z58H-XQJU>

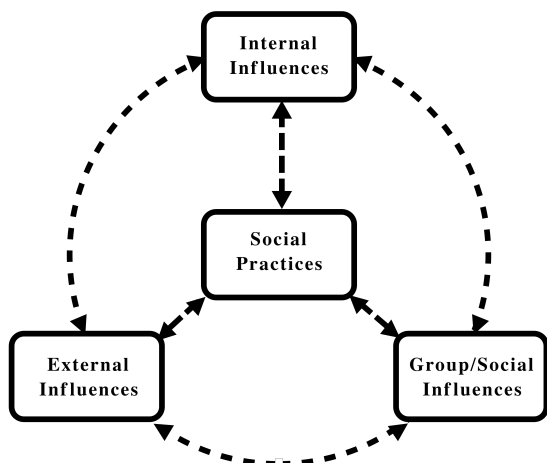


Figure 1. A model of the influences on the social practices surrounding commercial music service.

“...my roommate also likes Phish so I was at a show and they played her favorite song, so I like sent it to her... Like I sent a video recording of it and she was so excited. And we bonded over that.” (P22)

We coded this sample quote of a participant describing sharing a video of a song with her roommate with two social practices (*Sharing Music (Information)* and *Social Interaction/Navigation*) as well as three influences - two external influences (*Technology/Music Collection and Event/Activity*) and one group/social influence (*Level of Group Intimacy*). *Level of Group Intimacy* and *Social Interaction/Navigation* demonstrate the bidirectional nature of the influences and social practices. The practice here - sharing music - is influenced by an existing relationship which it also strengthened.

4.1.2 A Non-Linear Model

Our model does not define the sequence in which social practices occur. Similar to Fosters’ nonlinear model of information seeking behavior, our model of social practices is nonlinear [10]. Practices precipitate other practices, co-occur, and can be repeated. While a practice like *Music Identification* can occur after listening to music, it can also happen during listening or before listening.

“Yeah, for me, they need to be vetted as friend first, and then I’ll see if I’ll take their music recommendations.” (P2)

As described by participant 2, for a social practice like sharing (*Sharing Music (Information)*) to be successful it may need to be preceded by social interactions (*Social Interaction/Navigation*) that build trust and develop intimacy. These preceding practices could also include sharing (*Music (Information) Sharing*).

4.2 The Full Spectrum of Each Influence

Each code refers to the full spectrum of that influence, so users could describe an influence as being very important to them or not at all. For instance, the *Privacy and Security Considerations* code also captures the lack of privacy

concerns when a participant described sharing their phone with friends:

“You can never be too sure, but I just don’t care. If they see anything, they see it. I guess I trust them not to snoop around on the phone.” (P15)

5. DISCUSSION

To illustrate the utility of the codebook and model, we discuss findings that emerged from its application, adding to the overall understanding of music services in social contexts.

5.1 The Unequal Weight of Influences

Understanding the meaning and underlying weight of influences supports quantitative data and adds depth to design considerations. Quantitative network analysis is bolstered by an understanding of both the strength of connections and what is driving each relationship. Understanding which influences will hinder the adoption of a new feature or technology can save time and money, and identify negative externalities that may not have been considered.

5.1.1 Weight of Relationships in Social Networks

Social network analysis is used to study the “connection[s] and interaction[s] between social actors” [7]. Crossley et al.’s 2014 collection of essays explore different applications of social network analysis for understanding “music worlds” - a phrase they use to describe collective actions that are similar to social movements [7]. Rather than looking at large scale social movements, we focused on what practices surrounded commercial music services and why. Understanding why users share music and what sharing indicates about their relationships provides insight into the strengths of connections between social actors.

“Sometimes I will share [playlists] ... but usually just [with] close friends...” (P18)

“She knows music and knows when it sounds good and when it doesn’t. So, if she’s like ‘listen to this because it sounds good’, then I take every opinion that she has.” (P23)

Our findings indicate that a person is more likely to share a playlist with close friends. In addition, participants reported that after receiving music, they were more likely to listen to songs shared by vetted friends. With this finding in mind, quantitative data showing social actors that share playlists and listen to one another’s recommendations could indicate users that have a high *Level of Intimacy*.

5.1.2 Social Norms as Design Considerations

We found social norms exist around vehicles and residences, and have strong influences on social practices. Our participants indicate the location and the type of relationship influence music sharing in social situations. Participants were unlikely to share a request with a stranger, a host, or a driver in a social situation because they did not believe it was socially appropriate. On the other hand, the

A Social Practices Surrounding Music Any activity involving two or more participants engaging with music, or situations where an individual changes his/her music-related behavior based on social influences. Otherwise, does not apply to individual settings.

A.1 Music Discovery When one finds new music with someone, from someone else, or from a social interaction/environment.

A.2 Music Identification When one takes action to determine the title of a song, artist, or album in a social interaction/environment.

A.3 Music Listening When a group (two or more participants) listens to music together.

A.4 Music Management When one actively engages with music and music metadata (e.g., adding an album, adding a song to a playlist, browsing another's collection, using a storing practice to remember a song for later).

A.5 Music Selection When one selects music for co-listening, sharing, and for collaborative playlists.

A.6 Music Technology Management When one regulates how one's music technologies and accounts are protected, shared, accessed, or determined for their uses in a social interaction/environment.

A.7 Navigating Space/Setting When one adjusts their behavior depending on the setting (e.g., leaving a room when roommate is playing bad music or passing the phone around in a car).

A.8 Music (Information) Sharing When one shares or receives music/ music metadata.

A.9 Social Interaction/Navigation Bonding activities, group dynamic formation activities, group norming activities.

B Internal Influences Any activity where a social music practice is influenced by how an individual engages with the practice to a varying degree.

B.1 Assertiveness Level The degree an individual influences or confronts others, or vice versa (e.g., taking over music selection for the group or not feeling

comfortable suggesting a song be changed when one does not like it).

B.2 Considerateness The degree to which an individual cares about bothering others.

B.3 Current State The current emotional state, mood, or preference of an individual. NOT the current event or activity, for this USE: External Influence >Event/Activity.

B.4 Effort/Engagement Level of effort or engagement an individual is willing to put forth or take on responsibility.

B.5 Expertise/Knowledge of Music Having an expertise/knowledge about music, such as an awareness of new music, or lack thereof.

B.6 Impression Management Considerations When others' perceived reception of music choices, suggestions, or tastes affect an individual's actions in a social music practice.

B.7 Openness Willingness to explore new music or others' recommendations.

B.8 Privacy and Security Considerations Considerations relating to privacy and/or security that influence an individual's actions in a social music practice.

B.9 Social Driver Social need or purpose for interaction (e.g., a bonding experience, a desire to share the same space with another person).

B.10 Technology Knowledge/Considerations Knowledge and consideration, or lack thereof, of features of technology, preferences for technology, personal attachment to technology.

B.11 Tolerance The degree an individual endures music or music-related behavior/situation they do not like.

B.12 Trust/Reliability When group members have varying degree of confidence in another member's ability to undertake social music practices (e.g., music selection/sharing) or when a member has varying degree of confidence from other group members.

B.13 Willingness The degree of willingness an individual exhibits to take part in a practice.

C External Influence Any activity where a social music practice is influenced by something outside of individual, group, or social traits.

C.1 Event/Activity Attributes of an event or activity including the goals and the situational context.

C.2 Norm/Expectation Societal norms including for places, events, and gatherings.

C.3 Ownership and/or Control of Service or Technology Possession of technology (e.g., speakers, Chromecast) or access (e.g., subscription) to a commercial music service.

C.4 Popularity/Reception of Music The wider societal and cultural reputation of a song, artist, or genre as well as the prevalence of this knowledge.

C.5 Technology/Music Collection Technology, or the attributes/features thereof, being used (e.g., commercial music service or physical collections likes vinyl or CDs).

C.6 Temporal/Spatial Physical space, physical proximity, or temporality.

D Group/Social Influence Any activity where a social music practice is influenced by the social aspect of a situation or setting to a varying degree.

D.1 First Mover When someone else being in a setting first affects the social situation.

D.2 Group Dynamic When a group's shared preferences or norms affect how they generally engage with music (e.g., a group's preferences for songs, genres, technologies, or a group member to play music).

D.3 Group Size When the number of people in the social situation affects how the group engages with music.

D.4 Level of Group Intimacy When the level of familiarity between group members affects how they engage with music (e.g., perceived knowledge of another's taste or opinion in music).

Table 1. Codebook of Social Practices and Influences.

more intimate the relationship, the less these social norms stood in the way.

“If someone’s playing music, it’s usually the driver’s call.” (P1)

“I’ve never even thought about asking an Uber driver to play music, like I don’t even know like, well I guess like because a driver’s a stranger I’d feel kind of weird.” (P12)

“It depends on the people you are with, if you’re with friends, it’s fine, if you’re with siblings it’s possible you can compete, but if you’re with people who you don’t know much, you would rather listen to what’s going on rather than insist on playing something or maybe just plug in own earphones and not notice it.” (P9)

Participants discussed situations where they would or would not ask music to be changed or request a song to be played. The ownership of the space seemed to matter significantly as they talked about respecting the host of the party or the driver being in control of the music. Participants indicated that they would be uncomfortable requesting a song or a song change if they were not the driver unless with a group of friends. Most participants reported that they would be unlikely to do either of these behaviors in a rideshare vehicle.

5.2 Insight into Invisible Influences

Leong and Wright observed recent technologies supporting social practices, but also contributing to social tensions [18]. They observed nuanced situations that involved

control (*Assertiveness*), rituals (*Group Dynamic*), cultural/linguistic elements (*Social Norms, Group Dynamic*), relationship (*Level of Group Intimacy*), *Considerateness*, and setting (*Temporal/Spatial, Event/Activity*). While independently developing our codebook we captured similarly nuanced situations. In addition, we identified an additional influence not explained in the previous research, *“Social Driver”*, to describe situations where participants simply wanted to be collocated with others.

“Sometimes it’s nice with my roommate, we’ll go to our rooms... and just listen to our own individual music and do our own thing which can be nice, but you know when we want to be social... then it’s kind of nice to listen to music together ...” (P17)

“[Headphones allow] me to immerse myself, like, in myself while still being in public.” (P23)

This need to be social has implications for social music practices and what technologies should consider. Social needs may drive people with disparate music tastes to use a commercial music service together to select music or for people to wear headphones in a shared space. *Event/Activity, Temporal/Spatial, and Level of Group Intimacy* played a role in what participants did in these situations. For instance, when studying, participants would often use headphones, but when taking a break from studying, participants would more likely select music with their roommates. This finding — that an interaction between *Social Driver* and *Event/Activity* affects *Music Selection* —

has implications for playlist development and how commercial music services can support individual and social listening (described in Section 5.3).

5.3 Supporting Selection and Listening Practices through Playlist Generation

Music Selection practices varied depending on a number of influences including *Group Size*, *Group Dynamic*, *Event/Activity*, and *Effort/Engagement*. The broadness of a music collection and playlist content (*Technology/Music Collection*) played a role in what technology was used and what music was selected during different experiences.

“Depending on the activity, most of the time when I’m alone, I’ll just put on a playlist that’s already curated. Like running, or at the gym, that way I don’t have to skip anything. It’s usually pretty tailored to that specific activity. Or like studying, I usually don’t really listen stuff with a lot of lyrics, because that can be distracting. But when I’m with friends, there’s more skipping, we’ll have a pretty broad variety of songs.” (P16)

For many social situations, participants described either developing or selecting playlists that included a larger variety of music enabling more skipping of songs. This behavior can be supported by anticipating this skipping behavior with playlists - both pre-made and auto-generated - by including a larger selection of songs knowing that some will be skipped.

“You might choose to play some common songs which generally people would like and not very exotic choices so that most of them enjoy - not all - but maybe most of them would like to have it there.” (P9)

“If I really want to listen to something, I’ll usually just listen to it by myself, because I can just focus on the music or focus on the task that I’m doing rather than having to socialize with other people, which is kind of, where you get lost in the conversation and miss out on the music.” (P15)

For social situations, participants described choosing playlists and songs “commonly” popular amongst their social groups. Many participants described selecting music to set the mood, but recognized the music would not be the sole focus of the social situation. They would choose to listen to music on their own if they really wanted to focus on it. The described playlists for social situations included go-to songs for the group, current hits, classics, and other music already likely to be known by group members.

“If we’re pre-gaming, we can use a playlist and just use that and that way no one has to touch the phone. Everyone can be talking while the music is just in the background.” (P16)

“It is annoying to like constantly be adding songs and also to listen to three people’s songs that you may not like their music as much.” (P7)

“I do the queue thing a lot, like taking requests, if not just queuing up stuff yourself.” (P6)

Effort and engagement also played a role in music selection in social situations. While most participants preferred playlists in social situations, some participants described behaviors that required more effort – selecting and queu-

ing songs was one of these behaviors.

6. CONCLUSION AND FUTURE WORK

In this work, we created a model of these practices and influences that provides a lens through which social experiences surrounding commercial music services can be understood as technology continues to evolve and affect them. Our model, building on previous work, provides insight into the social practices and influences that should be taken into consideration when designing commercial music services. Applying our codebook on qualitative data pertaining to specific technologies and user groups enables researchers to gather design considerations for social practices specific to their own technology and context.

Design implications for music services based on the user data include:

1. **Invitations to break social norms:** If a music service wanted to support music sharing in social situations, a push notification sent from a host or driver inviting the guest or passenger to make a request through a selected music service could help overcome inhibitive social norms.
2. **Customization of playlists and stations for social influences:** Playlists and stations are currently organized by genre, activity, and mood. Designing to support social listening would involve allowing participants to select, customize, or generate playlists and stations based on group size. Recognition of group consumption should increase the amount of songs and their level of popularity/broad appeal.

The addition of individual interviews in future studies would likely lead to further insight into privacy considerations and impression management behaviors, although participants seemed to speak freely about both. Additional studies with different methodologies and different segments of the population will allow the model and codebook to be revised, enriched, updated, and validated. Also, further research is currently underway exploring the Q-method as a way to understand the personal significance of different influences for individual participants.

While this model was based on the social practices surrounding commercial music services, it can apply to other technologies. A good example might be the streaming video services that were often described analogously by participants. It is likely that many of the influences will be similar, although the technologies differ.

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