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A uses and gratifications approach to considering the music formats that people use most often

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Abstract

With many ways for consumers to access and consume music, little is known about why people choose to listen to music via one format over another. Using a uses and gratifications approach, the present research used an online questionnaire (N =440) to examine people's format use, concerning six particular formats. The results suggest that eight dimensions, namely usability and intention to use, discovery, functional utility, flexibility, connection, social norms, value for money, and playback diversity, define the uses and gratifications that particular formats serve. When considering whether format use was related to broader music engagement behaviours, results indicated different associations between music engagement variables and format use suggesting that different formats allow listeners to engage with music in unique ways. Findings have implications for future research that examines how and why people engage with music listening in everyday life, elaborating further our understanding of how selection of particular formats can lead to different listening experiences.

Keywords: format, device, music preferences, music engagement, everyday listening, uses & gratifications
Running head: U&G format use

A uses and gratifications approach to considering the music formats that people use most often

When choosing to listen to recorded music, consumers have many options. Traditionally, recorded music has been purchased legally from retailers on a variety of physical formats – namely vinyl, cassette, and CD. However, in the last decade, digital mediums have grown in popularity: digital formats now include not only downloaded, purchased, and shared files, but also, most recently, online streaming services. Music streaming, built on access rather than ownership, includes both free or paid-for versions. The International Federation of the Phonographic Industry (IFPI; 2017) reported that streaming now accounts for 59% of digital industry revenues. Additionally, people are not limited to a single format; instead, individuals can mix and match to suit—known as *multi-channelling* in industry terms. IFPI (2016, p.13) consider the recorded music industry as a "mixed-format business". Indeed, most people who actively listen to digital collections still possess a physical music collection (Liikkanen & Åman, 2016).

While consumers have a variety of ways to access and listen to music, little is known of why people select one format over another. Do different formats satisfy different needs beyond mere functionality or habit? While research has outlined the varied reasons why people listen to music (e.g., Lonsdale & North, 2011; Schäfer, Sedlmeier, Städtler, & Huron, 2013), little attention has been paid to the reasons people use different formats. How individuals access music and how it influences the listening experience has only recently been considered in research on everyday listening (Krause, North, & Hewitt, 2014, 2015). Moreover, previous research indicates that people's interactions with music in everyday life are not merely based on their demographic characteristics but that the consideration of psychological constructs helps

explain the motivations of music consumption behaviours (e.g., Krause & North, 2016). The present research aimed to empirically explore music engagement from a Uses and Gratifications perspective concerning the use of six different music formats—namely, physical, digital file, free streaming, paid-for streaming, radio, and live music formats.

1.1 Uses and Gratifications

Uses and Gratifications theory (e.g., Katz, Blumler, & Gurevitch, 1974) is used to study people's interactions with media (Rayburn & Palmgreen, 1984; Ruggiero, 2000; Stafford, Stafford, & Schkade, 2004). Research using this approach considers a wide range of media, including media involving music such as radio (e.g., Albarran et al., 2007; Bentley, 2012; McClung, Pompper, & Kinnally, 2007), mp3 players (e.g., Ferguson, Greer, & Reardon, 2007); and internet and social media use—both broadly (e.g., Cheung, Chiu, & Lee, 2011; Park & Lee, 2014; Wang, Tchernev, & Solloway, 2012) and with regard to specific features (e.g., Malik, Dhir, & Nieminen, 2016; Smock, Ellison, Lampe, & Wohn, 2011). Moreover, previous research has adopted a Uses and Gratifications approach to examine everyday music behaviours. This includes, for example, the reasons for listening to music (Lonsdale & North, 2011), downloading music from the internet (Kinnally, Lacayo, McClung, & Sapolsky, 2008), using streaming services, like Spotify (Mäntymäki & Islam, 2015), and using Facebook music listening applications (Krause, North, & Heritage, 2014).

According to the theory, media use is goal-directed, such that media use is based on the *needs* they aim to satisfy (Katz, Gurevitch, & Haas, 1973). Gratifications, in turn, are the perceived fulfilment of needs resulting from media use (Rayburn & Palmgreen, 1984). It assumes that people actively select the media they believe will gratify their needs. The primary

purpose of this approach is to consider the reasons people elect a particular medium in light of alternative choices (Cheung et al., 2011). In this way, the theory helps understand the functions of the particular media choice for the individuals (Anderson & Meyer, 1975); and is flexible and is able to consider new technologies as they continue to develop (Lin, 1996). As Lin (1996) stated, this theory's strength is its ability to allow researchers to study the psychological motives of media usage in particular cultural contexts. Thus, because Uses and Gratifications theory has been successfully employed with a variety of music engagement behaviours, it is relevant for use in the current study, which contributes by investigating music format choices.

Previous research has suggested that different formats are associated with different advantages. For instance, there are apparent 'advantages' of digital music, both from the perspective of consumers such as storage utility – Kinnally et al., 2008; see also Krause & North, 2016) and from industry (such as mass access to music at low cost – Curien & Moreau, 2009). Krause and North (2016) examined the self-reported advantages to different ways of accessing music—including physical media (i.e., CDs, tapes, and records), digitally via a computer, a mobile device, an Internet source, and a cloud source. Their results distinguished between familiarized (e.g., familiarity and user control) and progressive (e.g., portability and newest technology) advantages. Specifically, the progressive advantage category was associated with using mobile listening devices, but not physical media (such as CDs and cassettes). Their finding suggested that people's preferences for listening devices aligned "with the intuitive advantages of those devices" (Krause & North, 2016, p. 139). However, the consideration of the devices was limited in that a device can support multiple formats (e.g., a stereo might support physical and digital media). Thus, a focus on format can better interrogate music access in today's technological climate.

When examining uses and gratifications as the predictors of using online music streaming services, Mäntymäki and Islam (2015) focused on ubiquity (whether the streaming service assisted in accessing music regardless of time and place), social connectivity (whether the service assists in gathering and sharing information about people's preferences), discovering new music (whether the service assists in discovering and expanding musical taste), and enjoyment (how enjoyable is the service in its own right). Using the Theory of Planned Behaviour, Sang, Lee, Kom, and Woo (2015) considered illegal downloading in terms of constructs including cost and availability, subjective and group norms (the perception of others' opinions regarding the behaviour), and the intention to pirate (i.e., the intention to continue the particular behaviour). These uses and gratification dimensions offer possible categories for the present work to consider. When focusing on streaming services, in particular, both discovery and social connectivity are relevant: streaming services offer access to vast and ever-expanding databases of music, with new features added to not only improve discovery of music but to connect with others socially.

Streaming services, such as Spotify, have endeavoured to integrate sharing functions into the platform. Though customer perception of the value of sharing functions is questioned (Mäntymäki & Islam, 2015), research indicates that users share music selectively (Hagen & Lüders, 2016), which suggests that the social functionality of streaming platforms may be an appealing component. Streaming provides the ability to listen to more music, more often (Hagen, 2016), as well as the opportunity to listen to a wide variety of music (Waldfogel, 2014), suggesting that there may be motives related to discovery.

Additionally, format usage may be, in part, based on individual differences with regard to musical engagement (e.g., one's degree of interest in, identity, and style of engagement with

music) and demographics (e.g., age and gender). Given that musical engagement is technologically dependent (Avdeeff, 2012), it is possible that musical identity and engagement is related to the device by which one consumes music (Krause & North, 2016). For example, Heye and Lamont (2010) distinguished two types of mp3-player engagement: technology users demonstrating sophisticated use and knowledge and technology consumers demonstrating less skill and knowledge. Krause and North (2016) found that music technology identity varied according to preferred device—individuals with stronger music technology identities tended to access music via the internet in contrast to individuals with weaker identities preferring physical devices. With regard to engagement styles, Greenberg and Rentfrow (2015) asserted that some people respond physically to listening to music, while others focus on the lyrics and musical narrative, while others cognitively process the music. Thus, different music formats might be better suited to the associated goals aligned with different engagement styles. That is, opting to listen to music via a particular format may, consciously or otherwise, provide better conditions than alternative formats to accomplish specific goals. Though this remains to be investigated, it is intuitive to expect that listening to an album alone at home, on vinyl, will result in a different experience than listening to the same album on CD in the car, with children in the backseat. Concerning age, younger people are more likely to favour digital technologies (e.g., mp3-players, mobile phones streaming) as compared to older people (Avdeeff, 2014). Older populations generally seek out the same music from when they were young (Bonneville-Roussy, Rentfrow, Xu, & Potter, 2013), and so may be less inclined to listen to music via new technologies to discover new music, instead drawing from their existing collections. Moreover, as younger individuals behave innovatively (Lambert-Pandraud & Laurent, 2010), and are frequent early-adopters (Tepper & Hargittai, 2009), it is possible that streaming services, as the

newest format may be appealing. Additionally, concerning gender, females tend to be more skilled than males in selecting music for mood management (North, Hargreaves, & O'Neill, 2000; Sloboda, 1999) and so may favour particular formats to aid this function of music listening. Importantly, it has been shown that self-selected music is an effective means of mood regulation, and so music formats, which afford control, may be more popular amongst groups who are interested in using music in this way (Cohrdes, Wrzus, & Riediger, 2017).

1.2 Aim and Research Questions

This present study aimed to explore contemporary music engagement practices by examining people's use of particular music formats. Specifically, six formats, or mediums of playback, were considered: physical (i.e., CD, vinyl, cassette), digital file (e.g., mp3 files), free streaming, paid-for streaming, radio, and live music formats. The research was guided by the following three research questions:

RQ1: What music formats do people use most often; and are age and gender associated with any particular formats? Technological trends suggest that digital formats would be used more often than physical formats. Additionally, based on previous findings (Avdeeff, 2014), it was predicted that older individuals would be more likely to use physical formats, while younger individuals would be more likely to endorse the newer, digital formats such as streaming).

RQ2: Why do people use particular music formats? In particular, (a) what are the uses and gratifications that people experience with regard to the format they use most often, and (b) are the uses and gratifications different based on format? It was predicted that portability and familiarity could be possible uses and gratifications categories, based on

previous findings (Krause & North, 2016; Mäntymäki & Islam, 2015; Sang et al., 2015). Given that Krause and North (2016) found that advantages aligned to different device usage, it was predicted that different uses and gratifications might be more strongly related to some formats more than others.

RQ3: Controlling for age and gender, is format use related to how one engages with music listening? In line with previous research discussed above that has considered how music engagement is related to listening behaviours (e.g., Greasley & Lamont, 2006; Greenberg & Rentfrow, 2015; Krause et al., 2015), it was predicted that music identity and/or listening engagement style may be associated with different format use preferences. For example, it is possible that the social style of music engagement is related to live music attendance and/or that the narrative style is related to using physical media formats (Brown & Knox, 2017).

2. Method

2.1 Participants

Participants were invited to take part in the study in the first quarter of 2016 as a part of a larger investigation concerning music listening behaviour (see also Brown & Krause, 2017; 2019). To consider the uses and gratifications of different formats, the present research employed the data concerning the formats that people *use most often* in particular. In this way, data on attitudes towards music piracy (Brown & Krause, 2017) and people's nominated favorite format (Brown & Krause, 2019) is excluded from the present study's analyses.

Participants were recruited from University participant pools (in Scotland and Australia), online research websites (e.g., socialpsychology.org), and social media appeals. Participation

was voluntary, and other than students who received course credit for taking part via the participant pools, individuals received no compensation for their participation.

A total of 440 participants completed the online questionnaire, with analyses performed using the data from the 396 people who resided in Australia (N = 138), the United States (N = 153), and the United Kingdom (N = 105) after excluding responses from individuals who did not process materials carefully or who had high volumes of missing data. Of the 396, 281 females (71.00%), 111 males (28.00%), and 4 participants who identified themselves as 'custom' (1.00%) took part. Participants' ages ranged from 16-71; the mean age was 34.53 (Mdn = 20.00, SD = 8.98). About one fifth (20.70%) of the sample had a bachelor's degree or higher qualification.

As a sample, the participants considered music to be very important in their lives (M = 6.45, SD = .95, on a seven-point scale where 1 = *strongly disagree* and 7 = *strongly agree*) and listened to music for an average of 3.66 hours daily (SD = 2.87). Additionally, 33.10% of the sample considered themselves to be active musicians.

2.2 Materials and procedure

The online survey tool Qualtrics was used to develop and host the questionnaire, which included a mixture of existing instrumentation and original materials, designed for the purposes of this study. After indicating their consent, individuals completed the questionnaire as a series of separate pages. Ethical approval was granted by the University of Edinburgh.

2.2.1 Music background and engagement items. Participants were asked to report the mean number of hours they listen to music daily as well as rate the importance of music in their lives. They then completed Krause and North's (2016) identity measure, responding to four items (e.g. "music is central to my identity") on a seven-point scale. A music-technology identity score for

each participant was created: this score resulted from a principal components analysis, which indicated that one factor accounted for 64.76% of the total variance. This is consistent with previous uses of the measure (e.g., Krause & North, 2016; Krause & North, 2017b). For the present data, the Cronbach's alpha for the music-technology identity was .813, consistent with prior reliability figures (Krause & North, 2016, 2017b).

Participants completed Greenberg and Rentfrow's (2015) 23-item Music Engagement Test (MET), which focuses on listening engagement specifically. It defines one's listening engagement style in terms of five dimensions: *cognitive*, *affective*, *physical*, *narrative*, and *social*. Participants respond to items on a seven-point scale, and mean scores were calculated for each dimension (Greenberg & Rentfrow, 2015). Cronbach's alpha values for the five dimensions in the present study were .873, .870, .835, .866, and .812 respectively.

2.2.2 Preference and use of six formats. Respondents were asked to rate how often they listened to music using each of the following six formats on a seven-point scale (1 = *Never*, 7 = *All the time*): physical (i.e., CD, vinyl, cassette), digital files (e.g., mp3), free digital streaming, paid-for digital streaming, radio, and live music. Additionally, they were asked to isolate which format they use *most frequently* to listen to music in everyday life.

2.2.3 Uses and gratifications. Individuals were asked to consider the format they used most often to listen to music and respond to 49 items (using a seven-point scale, where 1 = *Strongly disagree* and 7 = *Strongly agree*). These uses and gratifications items were adapted from previous research pertaining to music listening, streaming, and illegal downloading (Krause & North, 2016; Mäntymäki & Islam, 2015; Sang et al., 2015– items are included in Table 3 and discussed further in the results) by changing the phrasing to meet the needs of the present study (i.e., to address listening format use in particular). For example, Sang et al.'s (2015) item, "I plan

to use unauthorized peer-to-peer file sharing sites to download digital content in the near future" was amended to read "I intend to use this format to listen to music in the near future" and Krause and North's (2016) "familiarity" and "latest technology" were amended to read "it is familiar" and "it is the latest technology available". In some cases, the items did not need to be reworded (e.g., Mäntymäki and Islam's [2015] "It allows me to listen to music wherever I am" and "it is enjoyable").

2.2.4 Demographic information. On a final page, participants reported their age, gender, whether they held a university qualification, and their country of residence.

3. Results and Discussion

3.1 Format Used Most Often

Participants were asked to indicate the format they use the most often to listen to music in everyday life (RQ1). As seen in Table 1, the format most used by the sample was by far digital file, followed by streaming, physical, and radio. The current use of digital technology is very apparent, although both the radio and physical media are still in use in today's technological climate.

-Table 1-

Two chi-square analyses considered the use of the format in terms of the participants' age and gender (RQ1). Note that participants were classified as 'younger' or 'older' with regard to age via a median split (see De Coster, Gallucci, & Iselin, 2011) and the analysis concerning gender compared only males and females (given that only four participants identified otherwise).

Additionally, because only two participants indicated that live music was the format they used most often, this format category was excluded from the chi-square analyses.

While the chi-square concerning format use by gender was non-significant (X^2 (4, N = 388) = 5.576, p = .120, ϕ = .233; see Table 2); the chi-square concerning format use by age (young/old by median split) was statistically significant (X^2 (4, N = 392) = 18.341, p < .001, ϕ = .216; see Table 2). As expected, the pattern of results indicates that older individuals were more likely to use physical formats and the radio, while the younger individuals were more likely to use free streaming services. However, use of paid streaming services was nearly equivalent for both younger and older individuals. Therefore, while the findings indicate differences based on age, format use is more nuanced than a simple distinction between older, physical formats and the newer, digital streaming services. It is likely that the usage is not based on simple demographic characteristics, but perhaps the uses and gratifications, which are considered below.

-Table 2-

3.2 Uses and Gratifications of Music Formats

In order to consider the uses and gratifications of the participants' most often used format (RQ2a), an exploratory principal axis factor analysis with promax rotation was performed on the responses to the 49 uses and gratifications items. The KMO value was .917, Bartlett's Test was significant (p < .001), all MSA values were above .750, and all items demonstrated reasonable communality values. Based on eigenvalues greater than 1, visual inspection of the scree plot, and item loadings, eight factors were retained. These eight factors accounted for 54.92% of the total

variance (detailed in Table 3). The eight factors were labelled: usability and intention to use, discovery, functional utility, flexibility, connection, social norms, value for money, and playback diversity.

The first factor, usability and intention to use, was characterized by items reflecting the continued use of a format based on convenience. Discovery, the second factor, was defined in terms of aiding the discovery of music and broadening musical taste. Functional utility, factor three, including items pertaining to storage and the ability to control selection. Factor four, flexibility, reflected both portability as well as how playback of music matched moment-to-moment demands. Allowing users to connect emotionally with music defined the fifth factor, connection. Social norms, the sixth factor, was characterized such that users perceived that others tended to listen to music in that particular way as well. Value for money, factor seven, implicated that format use was a financially viable method of listening to music. Lastly, playback diversity, factor eight, consisted of items regarding specific features that allow users to shuffle music and create playlists.

As functional utility captures ideas of familiarity and user control, it mirrors Krause and North's (2016) familiarized advantage; just as the flexibility dimension reflects the progressive. Similarly, two of Mantymaki and Islam's (2015) uses and gratifications are also present: the present study's discovery factor matches discovery of new music, and connection arguably has an aspect of social connectivity. Further, value for money, social norms, and usability and intention to use map onto Sang et al.'s (2015) dimensions of cost and availability, group norms, and intention to pirate. The desire for value for money (see Brown & Knox, 2016) suggests that participants are methodical in choosing between formats, not mere passive consumers; this highlights that participants choose not only which formats to use for music listening, but which

music formats not to use. Different formats will be considered value for money by different people and for different reasons. In this way, the present results suggest that there are a number of uses and gratifications categories that broadly work for multiple media use and that these can overlap.

-Table 3-

A MANOVA considered whether the perceived uses and gratifications, defined in terms of the eight dimensions, differed depending on the format used most often (RQ2b; again, live music was excluded from the analysis). Results indicated a significant difference of the format on the combined dependent variables, F (32, 1532) = 23.31, $p < .001$, $\eta_p^2 = .327$, and significant differences for seven of the eight of the uses and gratifications dimensions (excluding the usability and intention to use dimension – see Table 4). In general, the directions of the differences indicate that the digital formats were more positively associated with these uses and gratifications, while the uses and gratifications were associated more negatively for the radio and physical formats. This indicates a divide in how the formats can be classified—separating access via the newer, digital formats from that by the more traditional formats of radio and physical media. However, we must acknowledge that these findings may also be partly due to the uses and gratifications items having been based on previous research concerning digital formats (Krause & North, 2016; Mäntymäki & Islam, 2015; Sang et al., 2015).

-Table 4-

3.3 Music Engagement and Format Use

RQ3 considered whether a person's use of the six different formats was associated with music engagement variables (controlling for demographic variables). Recognising that individuals may use more than one format to access music (multi-channelling is common), a series of six Generalized Linear Mixed Model (GLMM) analyses ($\alpha < .001$) were conducted. Each format served as the dependent variable in a separate analysis; and age, gender, possession of a university degree, average daily music listening amount, music importance score, music-technology identity, and the five MET dimension scores were entered as predictor variables (see Table 5).

-Table 5-

As indicated in Table 5, all six of the GLMM analyses were statistically significant. Regarding the physical format model, age, as well as the MET cognitive and narrative dimensions were positively related to preferring physical formats. Age was negatively associated with preferring the digital format. Three variables were significantly associated with a preference for using free streaming: age and the MET cognitive score were negatively associated, while the music-technology identity score was positively associated with using free streaming to listen to music. Concerning paid-for streaming use, age was again negatively associated, while average daily listening and the MET social score were positively associated. The radio analysis indicated that age was positively associated and the MET narrative score negatively associated with radio use. Finally, with regard to live music, average daily listening and the MET social score were positively associated and the MET narrative score was negatively associated.

Looking at the results across the six formats, differences with regard to age arose: being older was associated with preferring physical formats and the radio, whereas being younger was associated with digital files, as well as free and paid-for streaming services. This is consistent with the chi-square results as well as previous findings, suggesting that younger people are more likely to favour digital modes of music delivery (e.g., Avdeeff, 2014).

Importantly, however, beyond age, the pattern of findings regarding music engagement variables indicates that how listeners engage with music broadly was also related to format use. In particular, a stronger music-technology identity score was associated with using free streaming services, in line with Krause and North's (2016) finding that using newer technologies to access music was associated with stronger music-technology identities. Listening to more hours of music on average daily was positively associated with paid-for streaming and live music formats. Previous research (e.g., Krause et al., 2015) has shown that people who are more engaged with music experience more music. It is possible that streaming services assist in accessing music in everyday life.

Examining music engagement style, the results indicated differences with regard to the MET dimensions. Specifically, the live and paid-for streaming formats were associated positively with the social engagement style. This is a logical association for live music, given the social aspect of attending concerts is specifically noted as a reason for attending live music (Brown & Knox, 2017; Packer & Ballantyne, 2011). While streaming services promote social sharing functions, research suggests that most subscribers to market leader Spotify use sharing features selectively (Hagen & Lüders, 2016). Thus, a further understanding of the association between social engagement and paid-for streaming relies on future research attention.

The narrative and cognitive MET styles were associated in different ways with some of the formats. While the cognitive style is associated positively with the physical format, it demonstrated a negative association with free streaming. It would be expected that listening to music via a physical format and via free streaming are quite different, with the former requiring more effort and a financial investment. These additional resources may inspire a more attentive listening style when compared with free streaming, where the music is interrupted by advertisements. A similar argument could apply to the positive association between the narrative engagement style and physical format, with physical formats containing images and words, which may aid an immersive listening experience as compared with other formats. Physical formats are often listened to it in the home and this familiar environment, in addition to the resources deployed (as mentioned above), may be conducive to connecting with music in ways that can result in a heightened listener experience. It is possible that listening to music with others (i.e. live music) or as an accompaniment to other activities (i.e. radio when driving) might not provide the optimal format for connecting with the narrative of a piece of music.

4. General Discussion

The ubiquity of music in everyday life suggests that it is important to consider *how* and *why* people listen to music. The present research found that younger participants preferred digital formats. The two most commonly used formats – digital file and streaming – are digital, indicative of the broad digital landscape which now dominates how music is accessed and consumed. By utilising Uses and Gratifications theory, the present research explored the relative reasons or advantages of using different music formats. It distinguished eight dimensions: usability and intention to use, discovery, functional utility, flexibility, connection, social norms,

value for money, and playback diversity. Interestingly, there was a clear divide such that the newer, digital formats were more positively associated with these uses and gratifications in comparison to the radio and physical formats. The positive associations between seven of the eight dimensions and the digital formats highlight some of the features often used to promote these newer formats. In particular, streaming services focus on their features related to discovery and playback diversity. Both free and paid-for versions offer access to vast databases of music, affording the user the capacity to create personal compilations and listen to music across multiple devices.

Further, the present findings indicate how listeners' music engagement styles are related to format use. The amount of time spent listening to music was associated with a preference for paid-for-streaming and live music. Both of these formats are costly when compared with others; thus, the findings highlight that those individuals committing much of their time to listening to music tend to do so in ways that demand financial investments. Additionally, a stronger music-technology identity was associated with the use of free streaming services. Music-technology identity is under-represented in the literature, and given musical engagement is technologically dependent (Avdeef, 2012), an enhanced understanding of how it relates to various aspects of music listening would help develop insight into what motivates creating and sharing playlists, remixing, and other such activities which arguably now constitute forms of musical creativity. Elsewhere, it has been proposed that those technologies which provide opportunities for control are likely to experience enhanced feelings of psychological ownership (Kirk, Swain, & Gaskin, 2015) as well as more positive listening experiences (e.g., Krause & North, 2017a; Krause & North, 2017b). The present study suggests that elements related to user control feature in the functional utility, flexibility, and playback diversity uses and gratifications dimensions. Thus,

while control is an essential consideration for listeners with regard to format choices, it appears to be quite nuanced. Similarly, listeners' format choices are not a matter of simple economics. While value for money was depicted, it is not simply accessing music for free versus paying for it. Rather, there are inter-related considerations concerning existing format collections, efficacy concerning use (usability and intention to use), and discovering and sampling new music (discovery).

The present study is not without its limitations. The six formats examined represent a variety of ways music can now be accessed; however, the list did not meaningfully isolate YouTube, a dominant music listening platform (Liikkanen & Salovaara, 2015). Additionally, users can access music in multiple ways making use of any number of formats, and so future research is needed to unpack when and why one format is selected rather than another, and if such choices relate to a conscious desire to achieve particular goals as per the eight uses and gratifications put forward in the present study. Of particular interest when considering the decision-making behind listening to music is to include investigation of the contextual characteristics of the listening situation. For instance, variables such as the time of day, location, and accompanying activity influence everyday listening (Greb, Schlotz, & Steffens, 2017; Krause & North, 2017b) and may play a role in format choices beyond simply what is available to a listener at a specified time. Given the multitude of ways in which music now is accessed, future research must acknowledge that there is no 'one-size-fits-all' approach to understanding music consumption behaviour. Future research must consider broader influences on music listening practices, including music engagement concepts such as music-technology identity (found to be associated with favouring free streaming services in the present study). Another suggestion for future research concerns open-earedness—the preference for a wide or narrow

range of music – and how it might be fostered by listening to music via particular formats. For instance, subscription services (both free and paid-for) provide vast databases which can promote discovery and an interest in listening to a variety of musical styles.

The Uses and Gratifications approach is well established; however, critical interpretation is of course necessary. While we assume, as Uses and Gratifications theory does, that people are sufficiently self-aware to at least recognise their motivations (Lin, 1996; Lonsdale & North, 2011), it is possible that limiting the responses to the *most-often used* format may not capture listening access intentions in full, given people's 'mixed format' collections. Moreover, we recognize that the items employed in the present study were adapted from previous research on conceptually-related music behaviours rather than specifically format use. While the theory is flexible (Lin, 1996) in that it does not provide a pre-defined set of items but rather a framework for domain specificity (Mäntymäki & Islam, 2015), additional future work could refine the list of uses and gratifications employed. Given the exploratory nature of the current research, findings must be interpreted with due caution until replication adds weight to the conceptual and methodological aspects of the study which render it unique. Indeed, further research can apply the theory to consider music listening as a goal-oriented activity. Qualitative methodologies, including diaries, would be especially useful in establishing the extent to which music listening is in fact goal-oriented.

Nonetheless, the present study adds to the literature concerning how and why people listen to music in the current, ever-evolving landscape. Due to everyday music listening practices varying with technological advancements, it is important to establish what might govern whether someone either reaches for or resists a new format. The present study identified eight uses and gratifications dimensions that govern the selection of particular formats and relate to broader

music engagement styles. Future research will build on these findings, making use of the dimensions and broader Uses and Gratifications theory to refine our understanding of how and why people engage with music listening in everyday life.

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Table 1.
Sample Descriptives Concerning Format Use

Format	Use rating (1-7 scale)		Selected as the format used most often
	M	*SD*	
Physical (i.e., CD, vinyl, cassette)	3.230	1.695	25
Digital file (i.e., mp3, iTunes)	5.430	1.714	163
Free digital streaming	4.580	2.184	83
Paid-for digital streaming	3.490	2.457	88
Radio	4.550	1.664	33
Live music	3.780	1.491	2

Note. Concerning the Means and Standard Deviations, N = 391 for physical and live music; 392 for free streaming and radio; and 393 for digital file and paid-for streaming.

Table 2.

Chi-square Results Concerning the Format Most Often Used by Age and Gender

Variable	Format

		Physical (i.e. CD, vinyl, cassette)	Digital file (i.e. mp3, iTunes)	Free digital streaming (i.e. Spotify, Pandora)	Paid-for digital streaming (i.e. Spotify, Pandora)	Radio	Total
				Gender[a]			
Male	Count	6	47	20	31	5	109
	% within Gender	5.50	43.10	18.30	28.40	4.60	100.00
	% within Format	24.00	29.00	24.10	35.60	16.10	28.10
	% of Total	1.50	12.10	5.20	8.00	1.30	28.10
Female	Count	19	115	63	56	26	279
	% within Gender	6.80	41.20	22.60	20.10	9.30	100.00
	% within Format	76.00	71.00	75.90	64.40	83.90	71.90
	% of Total	4.90	29.60	16.20	14.40	6.70	71.90
Total	Count	25	162	83	87	31	388
	% within Gender	6.40	41.80	21.40	22.40	8.00	100.00
	% within Format	100.00	100.00	100.00	100.00	100.00	100.00
	% of Total	6.40	41.80	21.40	22.40	8.00	100.00
				Age[b]			
Young	Count	7	94	58	50	13	222
	% within Age split	3.20	42.30	26.10	22.50	5.90	100.00
	% within Format	28.00	57.70	69.90	56.80	39.40	56.60
	% of Total	1.80	24.00	14.80	12.80	3.30	56.60
Old	Count	18	69	25	38	20	170
	% within Age split	10.60	40.60	14.70	22.40	11.80	100.00
	% within Format	72.00	42.30	30.10	43.20	60.60	43.40
	% of Total	4.60	17.60	6.40	9.70	5.10	43.40
Total	Count	25	163	83	88	33	392
	% within Age split	6.40	41.60	21.20	22.40	8.40	100.00
	% within Format	100.00	100.00	100.00	100.00	100.00	100.00
	% of Total	6.40	41.60	21.20	22.40	8.40	100.00

[a] Analysis performed with the sample participants who identified as male or female, excluding the four participants who identified as 'custom'.

[b] The 'young' and 'old' categories were determined by a median split.

Table 3.
Principal Axis Factor Analysis with Promax Rotation Results Concerning the Uses & Gratifications Items

	Factor [a]							
Item	1	2	3	4	5	6	7	8
I intend to use this format to listen to music in the near future	0.965							
I plan to use this format to listen to music in the near future	0.893							
I expect to use this format to listen to music in the near future	0.819							
It is enjoyable	0.655				0.318			
It is pleasant	0.628							
This format is easy to use	0.572							
If I want, I can listen to music easily using this this format	0.531							
It is familiar	0.409							
I often listen to music in the background or whilst doing other things	0.341							0.338
It allows me to discover artists/bands that I have not been aware of before		0.922						
It helps me to discover music I would not normally listen to		0.91						
It broadens my musical taste		0.826						
It allows me to see what kind of music other people listen to		0.755						
It helps me to find music to fit my music taste		0.694						
It allows me to connect with other people with similar music preferences		0.573			0.324			
This format allows me to sample a wide variety of styles		0.533						
It is the latest technology available		0.499						
It allows me to share my favorite music with other people		0.389						
This format allows me to experience a broad range of musical genres		0.325						
To sample music before I buy it		0.307						
I can store my music easily			0.833					
It enables me to hear the songs I want when I want			0.819					
It enables me to access the songs I want			0.789					
I can manage the music easily			0.789					
It gives me control over the music			0.707					
I listen to music uninterrupted			0.516					

It centralizes my music collection			0.458					
It is portable				0.816				
It allows me to listen to music wherever I am				0.767				
It allows me to listen to music with the device I prefer at that moment				0.756				
It allows me to listen to music when it best suits				0.431				
I often listen to music with headphones				0.339				
To connect with the music					0.736			
To connect with myself					0.672			
The aesthetics of the format, such as the associated artwork, are important to me					0.534			
I am able to use music to elicit particular moods or states					0.458			
It is fun	0.308				0.397			
Most people who are important to me would approve of me listening to music in this way						0.893		
Most people who are important to me would support me listening to music in this way						0.792		
Most people whose opinion I value would think it is OK if I listen to music in this way						0.698		
Using this format helps me save money							0.771	
It is a financially viable way of listening to music							0.758	
I use shuffle features								0.532
I enjoy creating compilations or playlists								0.457
Eigenvalue	13.618	4.946	3.005	1.681	1.143	1.006	0.824	0.687
% of variance explained	27.792	10.095	6.132	3.431	2.332	2.053	1.682	1.403
Cronbach's alpha	0.885	0.905	0.891	0.819	0.723	0.875	0.734	0.596

[a] 1= Usability and intention to use; 2 = discovery; 3 = functional utility; 4= flexibility; 5 = connection; 6 = social norms; 7 = value for money; 8 = playback diversity.

Note. Loadings < .3 are suppressed; the five items that did not load onto any of the eight factors are excluded.

Table 4.
Means, Standard Errors, and Confidence Intervals for the MANOVA Results Concerning Formats and Uses and Gratifications

Format	Mean	S.E.	95% CI	
Factor 1: Usability and intention to use [a]				
Physical (i.e., CD, vinyl, cassette)	0.015	0.194	-0.366	0.396
Digital file (i.e., mp3, iTunes)	0.078	0.076	-0.072	0.227
Free digital streaming	-0.013	0.106	-0.222	0.196
Paid-for digital streaming	0.027	0.103	-0.176	0.230
Radio	-0.436	0.169	-0.768	-0.105
Factor 2: Discovery [b]				
Physical (i.e., CD, vinyl, cassette)	-0.820	0.159	-1.133	-0.507
Digital file (i.e., mp3, iTunes)	-0.523	0.062	-0.646	-0.400
Free digital streaming	0.599	0.087	0.427	0.771
Paid-for digital streaming	0.621	0.085	0.454	0.788
Radio	-0.039	0.139	-0.311	0.234
Factor 3: Functional utility [c]				
Physical (i.e., CD, vinyl, cassette)	-0.210	0.145	-0.494	0.074
Digital file (i.e., mp3, iTunes)	0.357	0.057	0.246	0.468
Free digital streaming	-0.163	0.079	-0.319	-0.007
Paid-for digital streaming	0.308	0.077	0.157	0.460
Radio	-1.988	0.126	-2.236	-1.741
Factor 4: Flexibility [d]				
Physical (i.e., CD, vinyl, cassette)	-1.218	0.161	-1.534	-0.903
Digital file (i.e., mp3, iTunes)	0.286	0.063	0.162	0.410
Free digital streaming	0.011	0.088	-0.163	0.184
Paid-for digital streaming	0.240	0.086	0.072	0.408
Radio	-1.148	0.140	-1.423	-0.874
Factor 5: Connection [e]				
Physical (i.e., CD, vinyl, cassette)	0.177	0.179	-0.175	0.530
Digital file (i.e., mp3, iTunes)	0.029	0.070	-0.109	0.167
Free digital streaming	0.002	0.098	-0.192	0.195
Paid-for digital streaming	0.150	0.096	-0.038	0.338
Radio	-0.743	0.156	-1.050	-0.436
Factor 6: Social norms [f]				
Physical (i.e., CD, vinyl, cassette)	0.322	0.184	-0.041	0.685
Digital file (i.e., mp3, iTunes)	-0.024	0.072	-0.166	0.118
Free digital streaming	0.178	0.101	-0.021	0.377
Paid-for digital streaming	0.023	0.098	-0.171	0.216
Radio	-0.689	0.161	-1.005	-0.374
Factor 7: Value for money [g]				
Physical (i.e., CD, vinyl, cassette)	-1.005	0.167	-1.333	-0.676
Digital file (i.e., mp3, iTunes)	-0.094	0.065	-0.222	0.035

Free digital streaming	0.463	0.092	0.283	0.643
Paid-for digital streaming	0.005	0.089	-0.170	0.180
Radio	0.017	0.145	-0.269	0.303
Factor 8: Playback diversity [h]				
Physical (i.e., CD, vinyl, cassette)	-1.065	0.147	-1.354	-0.776
Digital file (i.e., mp3, iTunes)	0.144	0.058	0.030	0.257
Free digital streaming	0.174	0.081	0.015	0.332
Paid-for digital streaming	0.206	0.078	0.052	0.360
Radio	-0.923	0.128	-1.175	-0.672

[a] F (4, 387) = 1.959, p = .100, η_p^2 =.020.
[b] F (4, 387) = 49.283, p < .001, η_p^2 =.337.
[c] F (4, 387) = 77.922, p < .001, η_p^2 =.446.
[d] F (4, 387) = 38.434, p < .001, η_p^2 =.284.
[e] F (4, 387) = 6.554, p < .001, η_p^2 =.063.
[f] F (4, 387) = 6.180, p < .001, η_p^2 =.060.
[g] F (4, 387) = 15.927, p < .001, η_p^2 =.141.
[h] F (4, 387) = 30.667, p < .001, η_p^2 =.241.
Note. S.E. = Standard error; CI = Confidence interval.

Table 5.
GLMM Analyses Concerning Format Use

Analysis variables	*F*	*p*	β	*t*	95% CI		η^2
	Physical (*N* = 381) [a]						
Gender	0.220	.639	-0.091	-0.469	-0.474	0.292	0.001
Age	4.813	.029	0.022	2.194	0.002	0.042	0.013
University degree	0.879	.349	0.217	0.938	-0.238	0.672	0.002
Average daily music listening (hours)	1.502	.221	0.038	1.226	-0.023	0.099	0.004
Music importance rating	0.518	.472	0.079	0.72	-0.138	0.296	0.001
Music technology identity score	2.941	.087	-0.166	-1.715	-0.356	0.024	0.008
MET cognitive score	7.083	.008	0.208	2.661	0.054	0.362	0.019
MET affective score	1.390	.239	0.126	1.179	-0.084	0.337	0.004
MET physical score	3.787	.052	-0.171	-1.946	-0.343	0.002	0.010
MET narrative score	3.914	.049	0.196	1.978	0.001	0.391	0.010
MET social score	0.880	.349	0.090	0.938	-0.099	0.278	0.002
	Digital file (*N* = 383) [b]						
Gender	1.316	.252	0.218	1.147	-0.155	0.590	0.004
Age	18.101	< .001	-0.051	-4.255	-0.075	-0.027	0.047
University degree	0.163	.686	0.100	0.404	-0.387	0.588	0.000
Average daily music listening (hours)	2.057	.152	0.042	1.434	-0.016	0.099	0.006
Music importance rating	0.817	.367	-0.069	-0.904	-0.219	0.081	0.002
Music technology identity score	1.500	.221	-0.127	-1.225	-0.330	0.077	0.004
MET cognitive score	0.709	.400	0.064	0.842	-0.085	0.213	0.002
MET affective score	0.987	.321	0.113	0.993	-0.111	0.336	0.003
MET physical score	0.739	.391	0.077	0.860	-0.099	0.254	0.002
MET narrative score	0.442	.506	0.071	0.665	-0.139	0.280	0.001
MET social score	0.048	.828	0.023	0.218	-0.182	0.228	0.000
	Free streaming (*N* = 382) [c]						
Gender	0.471	.493	-0.166	-0.686	-0.640	0.309	0.001
Age	32.934	< .001	-0.067	-5.739	-0.090	-0.044	0.082
University degree	0.600	.439	-0.244	-0.775	-0.864	0.376	0.002
Average daily music listening (hours)	0.005	.945	0.003	0.069	-0.077	0.083	0.000
Music importance rating	1.019	.313	-0.125	-1.01	-0.370	0.119	0.003
Music technology identity score	11.486	.001	0.436	3.389	0.183	0.690	0.030
MET cognitive score	4.206	.041	-0.202	-2.051	-0.395	-0.008	0.011
MET affective score	0.507	.477	0.108	0.712	-0.190	0.407	0.001
MET physical score	1.502	.221	0.151	1.266	-0.092	0.394	0.004
MET narrative score	0.152	.696	0.054	0.390	-0.219	0.328	0.000
MET social score	0.001	.970	-0.005	-0.038	-0.253	0.244	0.000
	Paid-for streaming (*N* = 383) [d]						

Gender	3.786	.052	0.554	1.946	-0.006	1.114	0.010
Age	6.389	.012	-0.031	-2.528	-0.055	-0.007	0.017
University degree	0.749	.387	-0.290	-0.865	-0.949	0.369	0.002
Average daily music listening (hours)	3.980	.047	0.084	1.995	0.001	0.167	0.011
Music importance rating	2.024	.156	0.177	1.423	-0.068	0.421	0.005
Music technology identity score	1.985	.160	0.206	1.409	-0.081	0.493	0.005
MET cognitive score	2.557	.111	-0.197	-1.599	-0.439	0.045	0.007
MET affective score	0.433	.511	-0.120	-0.658	-0.479	0.239	0.001
MET physical score	0.003	.954	0.008	0.057	-0.273	0.289	0.000
MET narrative score	1.684	.195	-0.208	-1.298	-0.523	0.107	0.005
MET social score	8.196	.004	0.417	2.863	0.130	0.703	0.022
	Radio (N = 382) [e]						
Gender	2.176	.141	-0.292	-1.475	-0.682	0.097	0.006
Age	4.069	.044	0.025	2.017	0.001	0.049	0.011
University degree	3.233	.073	0.468	1.798	-0.044	0.979	0.009
Average daily music listening (hours)	0.017	.896	0.006	0.131	-0.078	0.090	0.000
Music importance rating	0.035	.852	-0.022	-0.187	-0.250	0.206	0.000
Music technology identity score	3.317	.069	0.191	1.821	-0.015	0.396	0.009
MET cognitive score	3.633	.057	-0.148	-1.906	-0.301	0.005	0.010
MET affective score	1.634	.202	0.141	1.278	-0.076	0.357	0.004
MET physical score	0.425	.515	0.059	0.652	-0.118	0.236	0.001
MET narrative score	9.664	.002	-0.315	-3.109	-0.515	-0.116	0.025
MET social score	0.000	.992	0.001	0.01	-0.208	0.210	0.000
	Live (N = 381) [f]						
Gender	1.057	.305	0.174	1.028	-0.159	0.507	0.003
Age	0.066	.798	-0.002	-0.256	-0.021	0.016	0.000
University degree	0.583	.446	-0.155	-0.763	-0.553	0.244	0.002
Average daily music listening (hours)	5.159	.024	0.057	2.271	0.008	0.106	0.014
Music importance rating	3.801	.052	0.155	1.950	-0.001	0.311	0.010
Music technology identity score	3.018	.083	-0.150	-1.737	-0.319	0.020	0.008
MET cognitive score	0.004	.951	0.004	0.062	-0.120	0.128	0.000
MET affective score	0.753	.386	0.081	0.868	-0.103	0.265	0.002
MET physical score	2.758	.098	0.122	1.661	-0.022	0.267	0.007
MET narrative score	6.942	.009	-0.225	-2.635	-0.393	-0.057	0.018
MET social score	47.033	< .001	0.526	6.858	0.375	0.677	0.113

[a] Overall corrected model: F (11, 369) = 4.820, p < .001, η_p^2 =.126. Predictor degrees of freedom = 1, 369.

[b] Overall corrected model: F (11, 371) = 5.017, p < .001, η_p^2 =.129. Predictor degrees of freedom = 1, 371.

[c] Overall corrected model: F (11, 370) = 8.565, p < .001, η_p^2 =.203. Predictor degrees of freedom = 1, 370.

[d] Overall corrected model: F (11, 371) = 3.848, $p < .001$, η_p^2 =.102. Predictor degrees of freedom = 1, 371.
[e] Overall corrected model: F (11, 370) = 3.439, $p < .001$, η_p^2 =.093. Predictor degrees of freedom = 1, 370.
[f] Overall corrected model: F (11, 369) = 11.803, $p < .001$, η_p^2 =.040. Predictor degrees of freedom = 1, 369.
Note. MET = Music Engagement Test.