sempre: Society for Education, Music and Psychology Research
MUSIC & SCIENCE

Research Article

Music & Science
Volume 8: 1–20

DOI: 10.1177/20592043241301997
journals.sagepub.com/home/mns
Sage

"With a Little Help from my Friends": Exploring Pseudo-Social Music Listening Experiences

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Abstract

Contemporary research highlights intimate connections between music and social bonding, such that even modern music listening behaviors, including listening when alone, may be social experiences; in some cases, music may behave as a social "agent" with which interpersonal or social experiences can occur for listeners. However, these types of experiences, labeled here as *pseudo-social music listening* (*P-SML*) experiences, have rarely been investigated directly. This paper outlines a preliminary study of *P-SML* experiences, exploring six conceptual types of experience identified in existing literature (*Company*, *Consolation*, *Empathy*, *Personas and Narratives*, *Identification*, and *Feeling One* with music). Through a questionnaire containing rating scale and open-ended questions, participants ($N = 117$) highlighted how relatable these six proposed *P-SML* types were to their own listening experiences, by ranking vignette statements describing the experiences of other listeners. Participants then recalled a *P-SML* experience of their own, describing their subjective feelings, qualities of the music involved, and whether this experience is consistent or situation-dependent. Results suggest that participants often described *P-SML* experiences as emotional experiences that involve a felt sense of connection or resonance between listener and music. Factors considered important for *P-SML* experiences include the emotional expression of the music, melodies and harmonies, and rhythm. Extra-musical knowledge, such as knowledge of the composer, songwriter, or performer, was considered less important. Findings are discussed in terms of links between music, emotion and social bonding, conceptualizing connection and resonance when listening to music in relation to parasocial interactions, and refining a conceptual foundation of *P-SML* experiences for future work.

Keywords

Consolation, emotion, empathy, music listening, parasocial, social bonding, social cognition

Submission date: 20 October 2023; Acceptance date: 25 October 2024

Introduction

In contemporary music research, one of the prevailing accounts of the evolutionary origins of music relates to social bonding functions, with music emerging as a facilitator of social bonding and collective action (Huron, 2001; Savage et al., 2021). Many socio-cultural functions of music continue to be apparent across cultures: music is often intertwined with social events, such as birthdays, weddings, funerals, rituals, in sports, and moments that promote national identities (Becker, 2004; Blacking, 1973). Furthermore, music plays a key role in the development of social identities, particularly in adolescence and adulthood (DeNora, 2000; North & Hargreaves, 1999). Recent empirical work has also highlighted associations between music and social bonding, affiliation (Vuoskoski et al., 2017), prosocial attitudes (Kirschner & Tomasello, 2009), altruism (Cirelli et al., 2014), empathy (Clarke et al., 2015; Rabinowitch et al., 2013), and feelings of community (Lamont et al., 2018). Many of these studies focus on the effects of synchrony or rhythmic entrainment between people or virtual partners (Launay et al., 2014), as facilitated by music (Solberg & Jensensius, 2019).

Interestingly, although music appears to serve interpersonal social functions, perhaps the most common engagement with music in Western societies is that of listening to music

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Data Availability Statement included at the end of the article.

whilst alone. Accentuated through mediating technologies, headphones, and streaming services (Krause & North, 2016; Leman, 2007), music is now listened to in many environments and during various activities (Lamont et al., 2016). Yet in most cases these listening experiences are isolated to some degree, involving the listener and the music. Listening to music can appear as an asocial experience, seemingly at odds with the social functions and values of music.

Despite this, a close evaluation of existing music psychology research suggests that listening to music when alone can be a strongly social experience. Across literature on the functions of music listening, a common use of music is to regulate mood and experience emotions (Baltazar & Saarikallio, 2016; Lonsdale & North, 2011; Schafer et al., 2013). Several mood regulation strategies reflect social characteristics, such as using music to feel understood or accepted (Saarikallio, 2011). Additionally, people often choose to listen to sad music when feeling sad (Hunter et al., 2011), especially when sadness is linked to interpersonal as opposed to non-interpersonal causes (Lee et al., 2013). Sad music may then help to regulate emotions by reducing loneliness, offering understanding, and consoling listeners (Taruffi & Koelsch, 2014). More broadly, listeners report feeling consoled or comforted by music (Hanser et al., 2016), and can identify with music in relation to their own lives or feelings (Greasley et al., 2013).

Some listeners, in reporting everyday and strong experiences with music, have described feeling a sense of sameness or oneness with music, sometimes leading to a phenomenological merging between listener and music (Gabrielsson, 2011; Herbert, 2011). Recent work on strong emotional experiences, such as musical chills, has linked the phenomenon to feelings of being moved and *kama muta* (Bannister, 2019; Bannister & Eerola, 2023; Vuoskoski et al., 2022), two emotion concepts associated with social belonging, connection, and bonding (Fiske et al., 2019; Menninghaus et al., 2015). Finally, music may be able to simulate social interaction or contact, temporarily replacing real social engagement, as a form of social surrogacy (Groarke et al., 2022; Schafer & Eerola, 2020); this has been especially apparent recently, documented across several studies on music listening behavior during the COVID-19 pandemic (Cabedo-Mas et al., 2021; Fink et al., 2021; Harney et al., 2022; Krause et al., 2021).

Such experiences may be underpinned by social cognitive foundations. Humans can attribute agency and goal-directed action to abstract stimuli, such as animated shapes (Heider & Simmel, 1944), and sounds that move through a space (Nielsen et al., 2015). Perceiving music as a product of human agency may be a natural mode of listening. According to Launay (2015), music and its features afford the perception of agency through several pathways: learned associations between music and the motor actions involved in its production to infer agency; associating rhythm with movement (Chen, Penhume & Zatorre, 2008), and linking hierarchical organizations and patterns of sound with agency (Ma & Xu, 2013); or through explicit beliefs that music was produced by human beings (Kim & Schachner, 2021; Steinbeis & Koelsch, 2009). Similarly, recent evidence suggests that perceiving narratives when listening to music may be a common cross-cultural mode of engagement (Margulis et al., 2022a; McAuley et al., 2021). It may be this perceived agency in music that results in the perception of personas, social relationships, or narratives. Watt and Ash (1998) outlined how music can be described by listeners in terms of human personality and personas; indeed, Robinson and Hatten (2012) propose that music can be heard as containing fictional social agents or personas that can express complex emotions (see also Elvers, 2016; Leman, 2007). More recently, Aucouturier and Canonne (2017) asked improvising dyads to communicate social attitudes through their performance, such as domineering or caring, with one performer communicating a relationship to another performing receiver. The receiving performer was often able to accurately determine the social attitude being conveyed, and this was also the case for an external panel of listeners. Finally, while listeners may engage with virtual personas perceived in a piece of music, they may also engage more explicitly with the composer, songwriter or artists of the music, or performers of the music (Scherer & Zentner, 2001).

The evidence above suggests that some music listening experiences can be conceptualized in terms of the music behaving as a social "agent," in which some form of "pseudo-social" interaction and experience can occur between listener and music. However, direct investigations of these kinds of experiences appear rare in existing literature, limiting current understanding and conceptualization. By developing knowledge and conceptual framing around how music can act as a social agent in music listening experiences, new insights may be produced in relation to adjacent and prominent foci in research, such as the mechanisms through which music can induce emotion (Juslin, 2013), music and empathy (Clarke et al., 2015), the situational applicability of music as a form of self-administered therapy or wellbeing resource (Hennessy et al., 2021; Krause et al., 2021), and approaches of embodied and enactive cognition in relation to musical experience (Schiavio et al., 2017).

Pseudo-Social Music Listening, *Parasocial Interaction, and Social Surrogacy*

This work aims to explore what are presently being labeled *pseudo-social music listening* (*P-SML*) experiences. This conceptualization has been proposed to situate the current work in relation to the well-established concept of parasocial interactions, and the recent music psychology research on social surrogacy that the present study extends.

Parasocial interactions can be understood as a media phenomenon (Giles, 2002), and encompass a person's perception of people or fictional characters in the media as intimate conversational partners (Dibble et al., 2016). Originally posited as one-way symbolic interactions between media users and media personas (Horton & Wohl, 1956), parasocial interactions have received

extensive attention in communication studies, especially in relation to television media. Although relevant, such interactions are presently distinguished from *P-SML* experiences for three key reasons. Firstly, whilst parasocial interactions often emphasize a one-way interaction from audience to media (Horton & Wohl, 1956), *P-SML* experiences, as will be suggested below, may further be conceptually understood as participatory shared experiences between music and listener through time. Secondly, whilst parasocial interactions, for instance with television, often encapsulate relationships with specific characters or people, music listening may involve relationships with music at numerous levels of abstraction (i.e., structural elements), capturing the "floating intentionality" of music and how patterns of sound are imbued with variable meaning across individuals, societies, and contexts (Cross, 2014). Thirdly, it is important to note that research on parasocial interactions involving music is extremely rare (Liebers & Schramm, 2019), and how the concept translates or manifests in music listening contexts is currently unknown.

Relatedly, the social surrogacy hypothesis, originally outlined by Derrick et al. (2009), proposes that parasocial relationships established with favored television programs can provide a sense of social belonging for media users. This hypothesis was recently adapted to music listening contexts by Schafer and Eerola (2020), who outlined that social surrogacy can be achieved when media can elicit feelings of symbolic group affiliation, can facilitate the development of parasocial relationships, and remind people of real social bonds. In this work, Schafer and Eerola (2020) explored the social motivations and reasons for listening to music, comparing these with television viewing and reading fiction literature. Through a questionnaire developed from findings in existing literature, the study highlighted that music is used to experience a sense of company or comfort, to reminisce and be reminded of people or experiences, and to feel understood or identify with the music. These findings were a crucial first step towards better understanding the social benefits and impacts of music listening. Importantly, the present research aims to build on this social surrogacy work, to progress beyond social motivations and reasons for listening to music, and to explore the ways in which listeners talk about and characterize such experiences. However, *P-SML* experiences are proposed here to reinforce a focus specifically on listening experiences in which the music adopts the role of social "agent" or "partner," with which listeners socially connect and interact with. This is in contrast to the use of music for social surrogacy more broadly, which may also involve experiences where the music facilitates a sense of group belonging and affiliation, and serves as a retrieval cue for memories which in themselves reinforce or maintain real social bonds.

Preliminary Types of P-SML *Experiences*

One possible reason why *P-SML* experiences have rarely been studied directly (though see Hanser et al., 2016; Schafer & Eerola, 2020) might be due to the difficulties listeners may have in describing their experiences in social interactional terms. As music is often consumed as a "product" by listeners, it may be unintuitive to summarize their experiences in terms of music as a social agent. This issue is highlighted by Huron and Vuoskoski (2020), with what they call *confabulation*. Discussed in the context of listeners feeling compassion for sad music, the authors suggest that listeners may feel compassion for sadness expressed in music (as might be the case in an ethologically appropriate response to a sad person) but confabulate these feelings with more intuitive descriptors or language, such as feeling moved or touched in response to music. In other words, it may be challenging for listeners to describe music listening in interpersonal or social terms, where there is no obvious or explicit social agent that is engaged with when listening.

As such, to explore *P-SML* experiences, appropriate methodologies need to be developed (see Methods). However, a preliminary conceptual platform of possible "types" of *P-SML* experiences is important, to provide a context for listeners to describe their experiences within. Through a review of existing literature, this work proposes six preliminary types of *P-SML* experience as a starting point for empirical investigation, namely *Company*, *Consolation*, *Empathy*, *Personas and Narratives*, *Identification*, and *Feeling One*.

Company. Research has described how music can often be used to provide a sense of company, presence, or background for listeners (Boer et al., 2012; Juslin & Laukka, 2004; Laukka, 2007). Relatedly, there are several studies suggesting that music can be used by listeners to reduce loneliness (Lippmann & Greenwood, 2012; Schafer et al., 2020; Taruffi & Koelsch, 2014). Although music can be used in the background to make tasks more enjoyable or to pass the time, the link between music and alleviating loneliness suggests that music, as a foreground focus or background, imparts a "social" presence for listeners.

Consolation. Other work exploring the affective and regulatory functions of music has highlighted how listeners can experience consolation and support from music. Saarikallio and Erkkila (2007) describe solace as a key mood regulation strategy, where music supports listeners in a negative state as a comforting friend (Saarikallio, 2011), possibly through facilitating the recall of nostalgic memories of positive social relationships, or through attention to specific lyrics. Feeling support or consolation from music also appears in Gabrielsson's (2011) collation of accounts of strong experiences with music. Consolation through music has specifically been studied in some work (Hanser et al., 2016; ter Bogt et al., 2017; Van den Tol et al., 2016), with findings suggesting that: music is used for consolation when people have experienced loss or sadness; that consolation can be linked to the sound and textures of music, lyrics, and possibly a listener's felt closeness to the artist(s); and that listeners may choose to listen to sad music when seeking consolation.

Personas and Narratives. There is evidence that music can be understood or perceived in terms of human qualities or personas, agency, and social characteristics (Aucouturier & Canonne, 2017; Launay, 2015; Watt & Ash, 1998), and that this may be a mode of listening that facilitates emotional experiences with music (Levinson, 2006; Robinson & Hatten, 2012). Furthermore, popular music often communicates explicit narratives, characters, and associated emotions through lyrics (Ali & Peynircioglu, 2006; Barradas & Sakka, 2022; Mori, 2022; Nicholls, 2007). Importantly however, recent work has demonstrated that listeners can perceive narratives in instrumental music (Margulis, 2017), and that this may be a natural mode of meaning generation and engagement with music cross-culturally (Maus, 1997). These narrative experiences may occur during changes of musical tension within a piece (Margulis et al., 2022a), and could be mediated by enculturation, with commonalities across perceived narratives being linked to cultural intersubjectivity and shared experience (Margulis et al., 2019, 2022b; McAuley et al., 2021).

Empathy. Contemporary literature in music psychology has established substantial links between experiences of music and empathy (Clarke et al., 2015). Trait empathy may for instance mediate feelings of being moved in response to sad music (Vuoskoski & Eerola, 2017), and brain activity in response to music (Wallmark et al., 2018). In turn, music may result in increased empathic behavior (e.g., Rabinowitch et al., 2013). Given this work, and the ways in which listeners may perceive social or narrative qualities in music, it has been suggested that music listening can engage empathic or theory of mind processes (Livingstone & Thompson, 2009), in which the listeners may feel something for the music as a social agent. Scherer and Zentner (2001) discussed empathy in the context of music and emotion, outlining how listeners may feel empathy for composers and performers (see also Egermann & McAdams, 2013); indeed, as described earlier, this may be applied further to virtual agents or narratives perceived in the music, or to the music more holistically. Huron and Vuoskoski (2020) also suggested, from a theoretical perspective, that experiences of being moved *by* sad music might be understood as a listener feeling compassion *for* the music.

Identification. In the current context, feeling a sense of identification with music whilst listening reflects instances of music describing experiences or ideas that a listener has experienced or can relate to, where listeners identify with moods or emotions expressed in music, and where listeners feel some commonality with the music. In work on musical chills, Bannister (2020) highlighted how chills were sometimes elicited by music that listeners related to, or that mirrored their lives and experiences. Similarly, across accounts of strong emotional experiences with music (Gabrielsson, 2011), music was sometimes described as reflecting a listener's thoughts or feelings. In linking experiences of identification with music to social processes, Lee et al. (2013) explored preference for mood-congruent music, suggesting that preference increases when participants had experienced interpersonal distress (e.g., losing someone close to you) compared to non-interpersonal distress (e.g., failed an exam or lost a competition). This concept of identification can invoke links between music and autobiographical or episodic memories of listeners, but also listener identities; in other words, experiences of identification with music may occur due to how music describes relatable experiences or themes, how the music is positioned within a genre or subcultural space and reflects a listener's identity, or how listeners might relate to the human agents who compose or perform the music (Greenberg et al., 2021). Furthermore, feelings of identification with music may overlap with other conceptual *P-SML* experiences outlined above, including consolation and empathy, with the present study exploring possible similarities.

Feeling One. The final *P-SML* experience conceptualized for this study is labeled *Feeling One* with music. This concept encapsulates experiences in which listeners feel a loss of self-and-other separation or a phenomenological merging with the music, and experiences in which listeners feel a part of the music, possibly through some sensorimotor participation with it. Feelings of the self as merging or being one with the music are implicated across research on self-transcendental emotions (Yaden et al., 2017), including awe, peak experience, and absorption. Absorption, characterized as a state of highly focused and narrowed attention on a stimulus resulting in lessened internal and external awareness (Jamieson, 2005), may capture experiences of feeling one with the music, or feeling immersed within music (Sandstrom & Russo, 2013). Herbert (2011) explored experiences of absorption in everyday music listening, finding that whilst absorption may be especially common at live music events, it can be experienced in many circumstances through portable music listening technologies. Similarly, Gabrielsson (2011) suggests that across some strong emotional experiences with music, there can be a form of bonding between listener and music, reflected in feelings of living inside or being embedded within the music, or merging with the music. Laeng et al. (2016) also reported how participants sometimes felt "one" with the music during experiences of musical chills. In addition to these experiences, feeling one with music may also involve experiences where listeners perform sensorimotor actions to participate "with" the music. Much research has documented how moving, synchronizing, or singing with others results in social bonding, connection, affiliation and belonging (Savage et al., 2021; Stupacher et al., 2022; Tarr et al., 2014); but in the current context there is an interesting exploratory question as to whether singing or moving to music when alone can facilitate similar feelings. Witek (2017) suggested that music which induces feelings of groove may express the rhythmic actions of a social

group, offering an "invitation" for the listener to affiliate with and join the group through movement. Although rhythmic qualities of music are important in these cases, relevant empirical work has described how groove may depend on extra-musical factors, such as how likable the musicians or performers are (Kowalewski et al., 2020), and possibly how empathic a listener is (Zelechowska et al., 2020). Alongside movement and groove, Gabrielsson (2011) reports how some strong emotional experiences with music involve a person singing along when listening, sometimes creating feelings of singing together and being in harmony with another person (p. 59), and it is possible that imagining along without vocalizing produces a similar effect.

Importantly, it is not immediately obvious as to how music is positioned as a "social" agent in experiences of feeling one with music. However, there are several reasons to explore this from a psychosocial perspective: Firstly, absorption appears closely aligned with a conceptual family of self-transcendental emotions (Yaden et al., 2017), many of which are associated with social feelings, processes, and action tendencies (Algoe & Haidt, 2009; Fiske et al., 2019; Perlin & Li, 2020). Secondly, contemporary research on musical chills has proposed that the phenomenon may be linked to instances of both intensified social bonding and feeling one with music (Bannister, 2020; Laeng et al., 2016), further suggesting that feeling one with music may be a pseudo-social experience as considered in the present work. Finally, given the substantial literature on how moving and singing with others creates social bonding experiences, it seems pertinent to explore how sensorimotor participation with music whilst listening can possibly result in feeling one with music.

Aims

The main aims of this study were to provide a first, direct exploration into a range of music listening scenarios and responses characterized as *pseudo-social music listening* experiences, attempting to understand the similarities and differences across *P-SML* experiences, the emotional and subjective qualities of the experiences, and musical elements associated with the experiences. In addition, this study aimed to evaluate the abilities of music listeners in being able to discuss their experiences in possibly non-intuitive, social, and interactional terms; relatedly, this study was designed to support and enable listeners to describe their listening experiences in this way.

Methods

Design

A questionnaire study was conducted, in which music listeners were asked a series of quantitative and qualitative questions regarding possible *P-SML* experiences.

In total, the six types of *P-SML* experience proposed in the Introduction were investigated (*Company*, *Consolation*, *Personas and Narratives*, *Empathy*, *Identification*, and *Feeling One*).

In the questionnaire, participants answered questions in relation to three of the six *P-SML* experience types: *Company* or *Consolation*, *Personas and Narratives* or *Empathy*, and *Identification* or *Feeling One*. This designation aimed to control the duration of the questionnaire and achieve a balanced representation of *P-SML* experiences and their qualities for each participant. For example, *Company* and *Consolation* may reflect a sense that the music gives something to the listener; *Personas and Narratives* and *Empathy* may involve listeners feeling for, or perceiving something in, the music; finally, *Identification* and *Feeling One* both touch on a "co-experience" between music and listener. Thus this study reflected an unbalanced repeated measures design, with each participant responding to three of the six *P-SML* experience types.

Participants

A total of 117 participants took part in the study. Participants were recruited via institutional mailing lists, social media (e.g., Twitter/X, Facebook), and survey exchange platforms (e.g., SurveyCircle). The mean age of the participant sample was 34.39 (SD = 13.36; Range = 16–79). Of the sample, 45 participants identified as male, 66 as female, five as non-binary, and one participant chose not to disclose their gender identity. In terms of musical training, nine participants reported being a professional musician, 51 reported having between one and more than 5 years of training or instrumental lessons, and 57 reported having less than one year of training or lessons, or no training.

Materials and Procedure

A questionnaire was developed in Qualtrics, comprised of quantitative rating scale and ranking questions, and qualitative open-ended questions. The questionnaire was organized into four main sections (demographics, then the three *P-SML* experience types); the last three sections were presented in a pseudo-randomized order to participants. This questionnaire is available in the S1 supplementary materials file.

In the demographics section, participants responded to questions regarding their age and gender. A single question, with seven possible responses, asked about the degree of musical training and instrumental tuition received. This was preferred over more extensive musical expertise, training, or sophistication measures, as a broad description of the musical background of the sample.

The remaining three sections of the questionnaire focusing on types of *P-SML* experiences each contained the same questions, differing only in terms of the experience being investigated. Careful consideration was given to the opening questions and contextualization provided to

participants in these sections. This was to facilitate discussions of music as a social agent or listening as a social experience, and to address possible issues of confabulation proposed by Huron and Vuoskoski (2020). To do this, the opening question in these sections presented three text vignettes, each adopting a listener's first-person perspective and description of the associated *P-SML* experience (e.g., *Company*, *Consolation*, *Personas and Narratives*, *Empathy*, *Identification*, or *Feeling One*). Six of these vignettes were adapted from existing and everyday experiences with music (Gabrielsson, 2011; Herbert, 2011). The remaining original vignettes were developed by the authors and tested via pilot studies, followed by discussions with a team of researchers at the University. For this opening vignette question, participants were asked to rank the three vignettes in terms of how relatable they were to their own experience; all subsequent questions in the section were then answered in relation to the top-ranked vignette statement. This approach was taken to provide participants with a foundation and common language for discussing and answering questions about music listening from a *P-SML* perspective. The method was implemented following positive feedback from pilot work and research discussions.

After the opening vignette question, participants were asked to rate how common they thought the *P-SML* experience was for listeners generally (Likert-type, 1–7), and how clearly their top-ranked statement reflected a type of relationship between music and listener (Likert-type, 1–7). They were then asked whether they had experienced something like their top-ranked vignette when listening to music. If the answer was no, then participants would move to the next section of the questionnaire. Otherwise, participants were asked to rate how common this experience was for them (Likert-type, 1–7), recall a piece of music or musical style that has caused this experience (open-ended response), describe their experience with this music (open-ended response), describe the consistency of their experience with this music (e.g., dependent on mood, context or situation), and explain what it is about this music that makes the experience possible (open-ended response). Finally, participants were asked to rate (Likert-type, 1–7) how much a selection of factors or actions influenced the *P-SML* experience; this selection included *emotions expressed in the music, melodies or harmonies, story or characters in the music, rhythm, knowledge of composer or songwriter, knowledge of artist or performer, lyrics, singing along to music, moving or dancing along to music*, and *visual images experienced when listening*. This selection was motivated by studies and findings across various fields of music psychology research reviewed in the introductory sections.

Upon accessing the online questionnaire via a URL link, participants were presented with an information screen outlining the purpose of the study, describing the focus as being on listening experiences that involve a "sense of relationship with the music"; this wording was preferred for participant-facing information as a more tangible and accessible operationalization, compared to "pseudo-social music listening." Participants were also given a short list of ideas pertaining to what a "sense of relationship" might be (see full questionnaire in the S1 supplementary materials file), whilst making clear that it may also mean many other things to them. Once participants read through the information and were happy to take part, they provided informed consent by proceeding to start the questionnaire. Upon completion, participants were provided an opportunity to provide feedback regarding the study and were encouraged to provide comments about how accessible these *P-SML* experiences were for them, and how easy they found it to describe and discuss them as conceptualized in this work. Only anonymous data were collected at all stages of the study.

Data Analysis

The data collected in this study included quantitative and qualitative data. All quantitative data analysis was performed in R (R Core Team, 2022). These data were mostly ordinal in nature (e.g., Likert-type scales and ranking questions). Where analysis was performed within each *P-SML* experience type, Friedman's ANOVA was used for analysis. In contrast, where data were analyzed across *P-SML* experience types and reflected an unbalanced design (e.g., as each participant provided data for three out of six *P-SML* experiences in total), cumulative link mixed models were utilized, through the R package "*ordinal*" (Christensen, 2022). These models resemble ordinal regression models and are flexible in accounting for random effects and unbalanced response designs. The statistical significance of these models was assessed by comparing them to a null model with no fixed effects via likelihood-ratio tests. Post-hoc comparisons were performed with Bonferroni correction in all analyses, and the R package "*emmeans*" (Lenth, 2023) was used for calculating these comparisons for cumulative link mixed models.

Open-ended qualitative responses were subject to inductive content analysis (Hsieh & Shannon, 2005), mainly focusing on the subjective experience of *P-SML*. Data were also collected regarding music qualities linked to *P-SML* experiences, though analyses indicated that little further insight was present beyond the factor rating scales described above; as such, these data were not included in the current report. For the content analysis, all raw data were coded by a researcher, with codes iteratively grouped together in terms of meaning and similarity to produce overarching themes for each *P-SML* experience; these themes contained information regarding how often associated codes were present in the data. Secondly, the original coder and a second researcher then coded approximately 66% of the data (taken from all six *P-SML* experience types) using the coding schemes provided, to assess inter-rater reliability; this was a reflexive exercise, to ensure that interpretation of data was shared, negotiated,

and understood. Informed by contemporary literature (O'Connor & Joffe, 2020), Krippendorff's Alpha was calculated. After the first process, agreement between the two independent coders resulted in moderate levels of agreement; as such, the process was repeated following discussions of coding scheme interpretation and variations in understanding, in line with existing recommendations (O'Connor & Joffe, 2020). This iterative process resulted in a Kripendorff's Alpha value of .85, indicating substantial agreement.

Results

Vignette Rankings and Ratings

Across the six *P-SML* experience types, participants were asked to rank three vignettes (labeled here as Vignette 1 through to Vignette 3) in terms of how relatable they were to their own experience. Table 1 presents the vignettes with a mode ranking of 1st across *P-SML* experiences (all vignettes are available in the S2 supplementary materials file).

Ranking data were analyzed using Friedman's ANOVA, to explore whether the three vignettes differed statistically in terms of their relatability for participants. For *Company*, a significant difference in vignette rankings was found ($\chi^2 = 9.15$, $df = 2$, $p = .01$); through corrected post-hoc pairwise-Wilcox tests, Vignette 1 was found to be rated significantly more relatable than both Vignette 2 ($p = .006$) and Vignette 3 ($p = .005$). For *Consolation*, no significant differences in vignette rankings were found ($\chi^2 = 4.84$, $df = 2$, $p = .08$). For *Empathy*, a significant difference in rankings was found ($\chi^2 = 13.93$, $df = 2$, $p = .0009$); corrected post-hoc tests suggested that Vignette 2 was ranked higher than both Vignette 1 ($p = .0013$) and Vignette 3 ($p = .0001$). For *Personas and Narratives*, a significant difference in rankings was found ($\chi^2 = 16.21$, $df = 2$, $p = .0003$); corrected post-hoc tests showed that Vignette 1 received lower rankings than both Vignette 2 ($p < .0001$) and Vignette 3 ($p < .0015$). A significant difference in rankings was found across vignettes for *Identification* ($\chi^2 = 6.63$, $df = 2$, $p = .03$), mainly encapsulated by lower rankings for Vignette 3, compared to Vignette 1 ($p = .014$) and Vignette 2 ($p = .032$). Finally, no significant differences were found across vignette rankings for *Feeling One* ($\chi^2 = 4.47$, $df = 2$, $p = .10$).

For their top-ranked vignettes, participants were asked to provide ratings (Likert-type, 1–7) in terms of how relatable these were, how common they judged the experience to be for others, and the extent to which the vignette reflected a relationship between listener and music. Descriptive data are presented in Table 2.

In exploring differences in ratings across *P-SML* experiences, cumulative link mixed models were fitted, with *P-SML* experiences fitted as fixed effects and individual participants fitted as random effects. For ratings of relatability, a borderline non-significant effect of *P-SML* experience was found ($\chi^2 = 10.86$, $df = 5$, $p = .054$); exploring corrected post-hoc comparisons suggested one significant difference, with experiences of *Consolation* rated as more relatable compared to *Personas and Narratives* ($z = -3.02$, $p = .037$). For ratings of commonness for others, a significant effect of *P-SML* experience was found ($\chi^2 = 14.64$, $df = 5$, $p = .011$); post-hoc comparisons highlight that *Personas and Narratives* was thought to be less common for others compared to *Empathy* ($z = 3.22$, $p = .019$) and *Identification* ($z = -3.18$, $p = .021$). For ratings of how much the top-ranked vignette described a relationship between music and listener, a significant effect of *P-SML* experience was found ($\chi^2 = 13.82$, $df = 5$,

Table 1. Most frequent (modal) top-ranked vignettes for each *P-SML* experience type.

P-SML experience type (N = total participant responses)	Top-ranked vignette (n = total; percentage of total responses)	Top-ranked vignettes
Company ($N = 41$)	Vignette 1 (n = 20, 48.78%)	"Music can offer a sense of presence, something that is there with you; it's a feeling I often have when listening to music."
Consolation ($N = 43$)	Vignette 3 (n = 20, 46.51%)	"When life is tough, and you are sad, music can help. It is like the music is saying: 'Now it is difficult, but it can get better'."
Empathy ($N = 42$)	Vignette 2 (n = 22, 52.38%)	"Music can express many different things, and I can often identify and respond to what the music is trying to say."
Personas and Narratives ($N = 40$)	Vignette 2 (n = 19, 47.50%)	"Music commonly seems to express or communicate some kind of story or narrative to me when I am listening and I can often hear and engage with this quite clearly."
Identification ($N = 34$)	Vignette 1 (n = 15, 44.11%)	"There is some music that I listen to, that somehow seems to describe experiences or situations that I can relate to or have experienced, as if the music and myself are going through similar things!"
Feeling One ($N = 43$)	Vignette 3 (n = 23, 53.48%)	"There are times when I listen to music where something in the music forces me to engage with it in some way, whether through movement, feeling or something else. To me, I feel almost like an active participant in the music itself, in a kind of interactive way."

$p = .016$); post-hoc comparisons suggested that *Personas and Narratives* received lower ratings compared to *Identification* ($z = -3.12$, $p = .026$).

As a final question pertaining to top-ranked vignettes, participants were asked whether they themselves had experienced something similar. Across all six *P-SML* experiences, most participants responded with yes, highlighted in Table 2. The remaining survey questions focused on a specific recollection of such an experience.

Factors Influencing P-SML *Experiences*

For each *P-SML* experience, participants were asked to rate (Likert-type, 1–7) the extent to which 10 factors influence the experience for them. Descriptive data for these factors, by *P-SML* experience, are presented in Table 3. Across *P-SML* experiences, emotional expression of the music, melodies and harmonies, and rhythm appear to be important factors; in contrast, knowledge of composers, songwriters, artist, or performers was generally considered less important. This overall pattern is reflected further when analyzed within each *P-SML* experience type, as for each experience type there are significant differences between factor ratings (*Company*: $\chi^2 = 85.03$, $df = 9$, $p < .001$; *Consolation*: $\chi^2 = 141.61$, $df = 9$, $p < .001$; *Empathy*: $\chi^2 = 106.28$, $df = 9$, $p < .001$; *Personas and Narratives*: $\chi^2 = 97.70$, $df = 9$, $p < .001$; *Identification*: $\chi^2 = 99.53$, $df = 9$, $p < .001$; *Feeling One*: $\chi^2 = 124.94$, $df = 9$, $p < .001$). Post-hoc comparisons reveal a consistent pattern in these rating differences within each P-SML experience type: knowledge of composers or songwriters, knowledge of performers, and visual imagery are consistently less influential, with slightly more variation for stories or characters, and singing or dancing along. To keep results concise, detailed statistical output and significant post-hoc comparisons are provided in the S3 supplementary materials file for reference.

The ratings of each factor were also explored across different *P-SML* experiences. *P-SML* experience type had a significant effect on ratings of stories or characters ($\chi^2 = 12.46$, $df = 5$, $p = .028$); however, corrected post-hoc comparisons revealed no significant differences between specific experiences. Similarly, there was a significant effect of *P-SML* experience on rhythm ratings ($\chi^2 = 12.29$, $df = 5$, $p = .03$), and a marginally significant effect on lyrics ratings ($\chi^2 = 11.56$, $p = .041$); post-hoc comparisons only revealed a significant difference between lower ratings for rhythm in *Personas and Narratives* compared to higher rhythm ratings in *Company* ($z = -3.11$, $p = .027$). A further significant effect of *P-SML* experience was found for ratings of dancing along ($\chi^2 = 13.98$, $df = 5$, $p = .015$);

Table 2. Mean ratings (and SD) for participants' top-ranked vignettes (in terms of how relatable they were, how common they were seen to be for others, and how strongly vignettes described a relationship between listener and music), and number of participants who had experienced the *P-SML* experience reflected by their top-ranked vignette.

	Relatable	Common for others	Describes relationship with music	Participant has had the experience
Company	5.10 (1.69)	4.86 (1.47)	5.53 (1.58)	72.54% (n = 37)
Consolation	6.02 (1.29)	5.19 (1.44)	5.71 (1.55)	92.30% (n = 48)
Empathy	5.72 (1.37)	5.20 (1.42)	5.61 (1.43)	81.48% (n = 44)
Personas and Narratives	5.00 (1.51)	4.42 (1.41)	4.78 (1.72)	80.00% (n = 36)
Identification	5.62 (1.45)	5.13 (1.36)	5.69 (1.38)	80.00% (n = 36)
Feeling One	5.68 (1.50)	4.93 (1.49)	5.76 (1.37)	85.18% (n = 46)

Note: Although data are treated as ordinal in analyses, mean, and SD representations are presented in the table for ease of interpretation.

Table 3. Means (and SDs) for the 10 factors or actions and the level of influence they have on each of the six *P-SML* experiences.

	Company	Consolation	Empathy	Personas and narratives	Identification	Feeling one
Expression	5.91 (1.35)	6.23 (1.14)	6.18 (1.20)	5.91 (1.48)	**6.27 (0.97)**	6.09 (1.24)
Melody and Harmony	5.91 (1.22)	6.23 (1.07)	5.86 (1.53)	5.88 (1.40)	5.66 (1.33)	**6.36 (0.88)**
Stories or Characters	4.91 (1.80)	5.42 (1.56)	5.23 (1.86)	**5.79 (1.12)**	5.72 (1.35)	4.73 (1.87)
Rhythm	**5.97 (1.38)**	5.59 (1.44)	5.51 (1.60)	5.11 (1.61)	5.45 (1.25)	5.92 (1.21)
Knowledge of Composer or Songwriter	3.45 (1.94)	3.26 (1.88)	**3.67 (2.00)**	3.26 (1.89)	3.63 (2.08)	3.46 (2.09)
Knowledge of Artist or Performer	3.82 (2.05)	3.07 (1.89)	3.48 (2.00)	3.35 (1.92)	**4.15 (2.06)**	3.46 (2.03)
Lyrics	4.97 (2.24)	5.09 (2.10)	5.38 (1.99)	5.14 (1.90)	**6.09 (1.50)**	4.92 (1.99)
Singing Along	**5.28 (1.88)**	4.81 (2.06)	4.30 (2.26)	4.35 (2.14)	5.06 (1.54)	4.75 (2.17)
Dancing Along	**5.02 (1.70)**	4.19 (2.05)	3.71 (2.26)	3.82 (1.91)	3.97 (2.18)	4.58 (2.26)
Visual Imagery	4.02 (2.18)	4.23 (2.32)	**4.69 (2.26)**	4.58 (2.17)	4.24 (1.80)	4.41 (2.15)

Note: Although data are treated as ordinal in analyses, mean, and SD representations are presented in the table for ease of interpretation. The highest value for each factor is highlighted in bold text.

post-hoc comparisons suggest that ratings were significantly higher in experiences of *Company* compared to *Personas and Narratives* ($z = -3.19$, $p = .02$). There were no significant effects or differences across *P-SML* experiences identified for the remaining factors.

Characteristics of P-SML *Experiences*

In discussing recalled *P-SML* experiences, participants reported the piece or style of music involved in the experience, provided open responses regarding the subjective listening experience, and described whether this experience is consistent or dependent on situation, context, or mood. The following text reports the results from the content analysis of open-ended responses across the six *P-SML* experiences.

Overall Themes. Across *P-SML* experiences there were common thematic patterns in participant responses, reflecting broad themes of *emotions and feelings*, and *connection and resonance*; beyond these, there were numerous patterns in responses specific to each *P-SML* type; a holistic thematic map is presented in Figure 1.

Emotions and Feelings. The first overall theme of *emotions and feelings* encapsulates participant descriptions of emotion concepts, changes in mood, or felt physical reactions. Within each *P-SML* type there were varied emotions reported, such as joy, happiness, euphoria, energized, elation, sorrow, nostalgia, sadness, grief, being moved, longing, and yearning.

In *Company* reports, one participant described how the music made their emotions swell up and rise, lifting them out of a bad mood (Participant 22); another participant noted how the music reminded them of feelings such as passion and solidarity (Participant 20), and described the music as heart-warming and nostalgic; other participants described their experiences as sad (Participant 27) or soothing (Participant 3).

In describing *Consolation*, several participants touched on changes in emotional perspective or outlook; one participant suggested that the music gave them optimism (Participant 98), and a sense that life can get better. Similar feelings of improved mood are described in terms of feeling uplifted (Participant 38), cheered up or powerfully motivated (Participant 100), releasing an emotion (Participant 23), or in choosing to listen to the music when feeling down (Participant 63). Some accounts of *Consolation* described intense emotional experiences:

> It conveys desperate sadness, being completely alone. The first time I heard this I was in the car and burst into tears. The piece ends and you feel uplifted with the rich harmonies.
>
> Participant 93.

Similarly, other intense emotions are broadly described by some participants, with one respondent describing how their experience was so intense that they continued to play the music on repeat for the next 45 min (Participant 43).

Descriptions of *emotions and feelings* were most prevalent in *Empathy* reports, and captured feelings such as wonder, happiness, sadness, being moved, nostalgia, bittersweet pain, and yearning. Multiple participants described strong emotional experiences, sometimes accompanied by goosebumps or crying; one participant noted how the music in question elicited the strongest emotional experience of their life (Participant 44).

For the *Personas and Narratives P-SML* type, emotional experience was not described as often by participants; however, music was described by various participants as relaxing, elevating, being able to lift mood, and as having a nostalgic effect. One participant noted how they had developed a narrative inspired by the music they linked to this *P-SML* experience (Participant 115), and that this narrative reciprocally enhanced the emotional experience of listening to the music, leading to tears or crying. Another participant noted how a piece of film music evoked feelings of sadness and hopefulness in relation to their memories of the film (Participant 56).

The theme of *emotions and feelings* was least prevalent in *Identification*, and mostly communicated through one participant's description of a strong emotional response:

> I feel sadness and grief, like something very heavy dwelling inside my lungs. It can sometimes make me cry, especially when the lyrics hits hard with the climax resolution.
>
> Participant 14.

Finally, in reports of *Feeling One*, emotions reported were largely positive, and included euphoria, joy, feeling uplifted, excitement, smiling, and general good feeling. One participant noted that in their engagement with music they can experience uncontrollable emotions or bodily reactions (Participant 9). Another participant responded from the perspective of performing the piece of music, such that they experienced goosebumps every time they played the piece (Participant 96).

Connection and Resonance. The second broad theme of *connection and resonance* encompasses participant 2responses across *P-SML* experiences that describe general feelings of connection with the music, performers, songwriters, characters, or narratives. This connection is often manifested at the level of emotion, reflecting the previous broad theme. However, participants also talk about relating to the music, where music is said to describe the listener's situation or life experiences, or where the listener adapts their current situation or feelings to resonate more closely with the music. Additionally, *connection and resonance* can refer to a more phenomenological sense of attunement or oneness between listener and music.

In *Company* reports, feeling a sense of connection was described in terms of similarity between listener feelings and those expressed in the music. One participant felt as

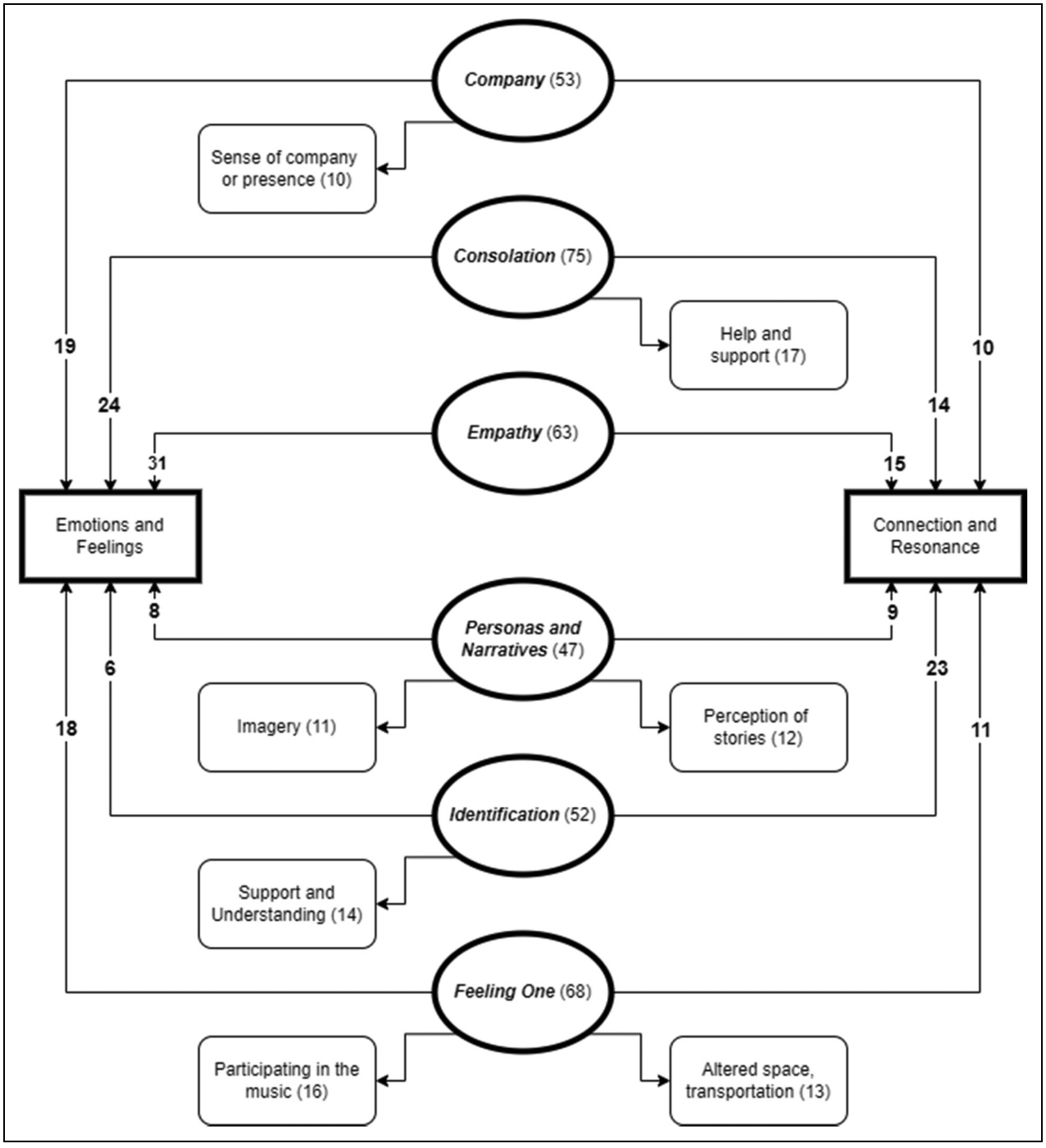

Figure 1. Thematic map of content analysis. The six circles indicate the six *P-SML* experience types, and rectangles reflect the themes (bolded sharp rectangles indicate overall themes represented across *P-SML* experience types; rounded rectangles indicate themes specific to each *P-SML* experience type). Numbers in parentheses represent total number of codes for each *P-SML* type or theme. Arrows indicate themes derived from each *P-SML* experience type, and numbers embedded in the arrows reflect total codes from each *P-SML* type that contribute to the theme.

though the singer of a song was feeling the same emotions that they were (Participant 44). A further account encapsulated a similar connection with some "persona" in the music:

> It feels like there is another person who feels the way I do, and that *person* feels like someone who gets it, not the music itself. […]
>
> Participant 109.

In other responses, one participant noted how the lyrics in their selected piece were highly relatable (Participant 69), and another participant highlighted that they felt connected to the "author" of the music (Participant 55). Finally, one response described music as a soundtrack that can fit

however you feel in the moment, or as something that you can align your feelings with (Participant 9).

In the context of *Consolation*, several respondents described a general feeling of connection or resonance with the music. Some participants again noted the relatability of lyrics, sometimes due to their describing experiences a listener has been through. A few references to how music connects people were also present, either at a broad level of humanity, or more specifically enabling a listener to feel connected to loved ones whilst listening. One participant noted how, after reading translated lyrics for a piece of music, it afforded a relatable experience, such that the participant felt as though they were an extension of the music (Participant 80).

For *Empathy*, participant responses reflected the experience of feeling, relating to, or identifying with, what the music or lyrics express, comparable to *Company* and *Consolation*; these experiences seem to occur at different levels of abstraction or broader emotional character of the music. One participant noted how music assures them that others experience the same feelings that they do (Participant 23). Another participant described a feeling of "understanding" in their experience of the music (Participant 38).

Considering *connection and resonance* in relation to *Personas and Narratives*, some participants highlighted how music can describe themselves. Similarly, one participant noted how the music was relatable and told their story (Participant 25), and another specified that the narrative of the music was similar to their situation, helping them feel as though there are other people like them (Participant 14). A few other responses focused on imagining how characters perceived or portrayed in the music were feeling, and empathizing with characters when they relate to the listener's experiences.

With *Identification* experiences, numerous responses related to a connection or resonance between music and listener. Several participants note how they identify with emotions expressed in the music; one participant specifically prioritized music over lyrics to feel in sync with what they listen to (Participant 49). One participant noted that connecting to emotions in the music is aided by understanding the circumstances of its composition (Participant 38). Again, some participants noted how music can provide a sense that other people have similar experiences to them. A few responses highlight the artist rather than the music itself, with participants describing a sense of shared emotion between themselves and the artist(s) or relating to the vocalist of the music. Intriguingly, two participants suggested that they mold their own situation to fit the music, or that they mirror the music rather than the other way around. As an example:

> It's more that I moulded an experience I was having in order to relate to the lyrics—the song is about a personal relationship but I sort of applied a major work difficulty that I was experiencing around the time I was heavily listening to it.
>
> Participant 107.

Finally, regarding *Feeling One* with music, participant responses touch on feeling emotionally attuned or connected to the music, feeling understood by music, and choosing to listen to feel less alone in their emotional experience. One participant described how they can feel one with various levels of music (e.g., melody, harmony, rhythm, form, and emotion), depending on the piece (Participant 19); another participant noted how experiences of *Feeling One* can happen with both unknown music and music they know and love (Participant 25).

Specific Themes in P-SML *Experiences.* Beyond the two overarching themes explored above, each type of *P-SML* experience reflected further nuances and specificities in participant responses and descriptions.

In the case of *Company*, the main pattern in responses referred to the way in which music can provide a sense of presence or company. In some cases, music was described by participants as replacing other people, or expressing the company of other people. Another participant noted how they like to hear voices in music when they are feeling lonely, or when they are alone (Participant 4); similarly, a further response outlined how voice in music can accompany a listener (Participant 29). A different participant suggested that sad music can accentuate the feeling of loneliness, and that they preferred happy music in these contexts (Participant 25). Finally, a participant reported feeling company when there are shared feelings between themselves and the music (Participant 78).

For *Consolation*, several participants emphasized the role that music can play in providing support and help for listeners during negative moments. For example, music can be described as providing a sense of perspective to listeners, either so they can "laugh at life" (Participant 60), or "feel there was a potential for a better time in my life" (Participant 37). One participant characterized music as a lifesaver or lifeline during negative experiences (Participant 41); indeed, there is a sense in numerous responses that music can enhance mood, with healing experiences and catharsis further mentioned. These responses often outline emotions and feelings, further reflecting the overarching theme of *emotions and feelings*.

Regarding *Empathy*, most responses were encapsulated by the overarching themes of *emotions and feelings*, and *connection and resonance*. However, in terms of *Personas and Narratives*, there were further patterns in responses that capture experiences of imagery, and perception of stories in music. Firstly, imagery refers to experiences in which music induces mental imagery in listeners, or where listeners might use imagery to describe the music. In this context, some responses seem to refer to film music, where listening to the music conjures images of the associated movie or film; however, even without obvious reference to a film or movie, one participant describes how the music "almost plays a movie in my

head when I hear it" (Participant 113). Imagery can also refer to perceived stories in the music, or as a way of describing music; for instance, one participant noted how the music felt like a "sweeping camera-shot over a misty lake" (Participant 20). Secondly, perceiving stories in music is outlined by several participants. One participant reported thinking about who songs are about and what the writer tries to communicate (Participant 37); another noted their awareness of the narrative in the music, and their feeling towards perceived or depicted characters (Participant 108). A further participant described their experience as follows:

> It's an experience wherein you're listening along to the music and feeling and seeing the scenes of the story play out, and the music gives you the emotions of the characters.
>
> Participant 22.

In responses for *Identification*, there were patterns comparable to *Consolation*, namely reflecting the ways in which music acts as support and understanding for listeners. For instance, music can be described as empathetic toward the listener, helping listeners to understand their feelings, giving advice and perspective, and providing listeners with what they need to hear. Furthermore, some participant responses highlight how music can help them to move from negative to positive moods or states.

Finally, for *Feeling One*, two further threads were apparent in the data, referring to where listeners "participate" with the music, and ideas of altered "space." Firstly, several participants reported that they sing or move along to music when listening, or in some cases feel an urge to do so. In some cases, this physical participation with the music whilst listening may impact the experience:

> The song features harmonies between the two singers. When I listen to the song, I feel like I have to join in and sing the harmonies. I feel a closer relationship with the music when I participate in this song.
>
> Participant 98.

Similarly, another participant highlights how singing along to the music allows them to experience emotion together with the music (Participant 97). A few responses further touch on the physicality of music listening, where participants report that they "go along with the pace and rhythm of the music" (Participant 29), "observe and feel a multitude of online adjustments as my body dances to the music" (Participant 36), and where "the music is pulling me into a more physical experience of the song" (Participant 37). In terms of altered "space," some participants talk about how they can feel immersed in the music, feel that they are inside of the music, or feel engulfed by the music. Perhaps similarly, responses occasionally outline how music can mentally transport listeners to different spaces, whether this is in terms of landscapes, stories, or feeling (e.g., a place of peace). A specific example is provided by one participant:

> When I listen to it, or even just hear it in my head, it brings me to place of great peace, almost elation not with excitement but great joy. It's one of these pieces that once it started, I cannot stop because I'm in a space where the outside world doesn't exist anymore. It's less a feeling of communion than the feeling to be in an exclusive space with the music and the musicians, as if the barriers of time and physicality have fallen. I know that this was recorded decades ago, but it is as if we are in the same space, time has stopped and nothing else matters.
>
> Participant 105.

Consistency of P-SML *Experiences.* Participants were also asked to consider whether their *P-SML* experiences were consistently induced by their selected music, or dependent on various factors such as their mood or listening situation. Responses to this question were categorized as "consistent," "dependent," or "other." These results are summarized in Table 4.

The "other" category often included ambiguous or non-descriptive responses, but some participants raised interesting aspects. Occasionally, a participant would describe a *P-SML* experience as consistent, but only when they are in a certain mood, are alone, or are listening attentively to the music; this suggests an interrelation between consistency and context or mood dependence. Furthermore, a few respondents explicitly described the experience as inconsistent (i.e., the experience has only occurred once before). Finally, a small number of responses described how the effects elicited by the specific piece of music in question had waned over time and exposure. In summary, P-SML experiences appear to be consistent for some listeners with certain pieces of music, but they can also be dependent on various complex factors, such as listening context,

Table 4. Frequency of responses indicating whether a *P-SML* experience described by participants is consistent with their specific piece of music, or dependent on mood and listening situation.

P-SML experience	Consistent	Dependent on mood or situation	Other	Total responses
Company	12	17	2	31
Consolation	14	14	9	37
Empathy	18	8	10	36
Personas and Narratives	12	9	9	30
Identification	12	12	4	28
Feeling One	14	9	12	35

Note: "Other" encapsulates ambiguous or non-descriptive responses.

listener moods and motivations, and effects of engaging with the music over time.

Discussion

The current study encompasses an exploration of *pseudo-social music listening* (*P-SML*) experiences, in which the music may act as a social "agent," or in which some form of interaction and engagement occurs between listener and music. Such experiences are often reported and described across music psychology research but have rarely been subject to direct investigation. In synthesizing existing literature, we conceptualized six preliminary *P-SML* types as a foundation for focused research and accessible context for participants, labeled *Company*, *Consolation*, *Empathy*, *Personas and Narratives*, *Identification*, and *Feeling One*. Using a survey approach, and vignettes derived from and influenced by previous research (Gabrielsson, 2011; Herbert, 2011), participants reported their *P-SML* experiences. Findings demonstrated that the vignettes were relatable, described a relationship between listener and music, and that they reflected experiences participants have had as listeners. The subjective elements of *P-SML* experiences were varied, as was the influence or importance of factors involved in music listening. Furthermore, results highlight that experiences were more consistent for some participants and *P-SML* types than others, reflecting the known complexities of music listening experiences, including the interactions between the music, listener, and listening context (Greasley & Lamont, 2016; Sloboda et al., 2001). What follows is a discussion of key insights from the study, limitations of the work, and the broader implications or applications of better understanding *P-SML* experiences.

Characteristics of P-SML *Experiences*

One consistent finding across *P-SML* experiences is the prevalence of emotionality across participant responses. The emotional expression of the music was considered an important factor across all *P-SML* experiences considered. Furthermore, emotions and feelings were especially prominent concepts across experiences of *Company*, *Consolation*, *Empathy*, and *Feeling One*. For *Company* and *Feeling One*, experiences involved largely positive emotions, and high arousal emotions in the latter *P-SML* category. For *Consolation*, emotionality was largely characterized in terms of mood regulation and enhancement. *Empathy* encapsulated emotionality perhaps more thoroughly than other P-SML categories, involving more reports of strong emotional responses, physical reactions, and varied experiences encompassing wonder, pain, euphoria, sadness, and feeling moved. These findings are not overly surprising. A central function of, and motivation for music listening is to regulate and improve mood states (Baltazar & Saarikallio, 2016; Lonsdale & North, 2011; Schafer et al., 2013); indeed, people engage with music for emotion regulation functions that are associated with experiences of consolation (Taruffi & Koelsch, 2014) and solace (Saarikallio, 2011). In addition, emotions appear closely linked to social needs and interpersonal processes and communication (Keltner & Haidt, 1999; van Kleef & Côté, 2022). In music contexts, emotional experiences with music have been linked to empathy and social processes (Miu & Baltes, 2012; Wöllner, 2012), particularly in relation to sad music engagement (Vuoskoski & Eerola, 2017). Similarly, Scherer and Coutinho (2013) outline empathy as a route for emotion induction by music; elsewhere, Juslin (2019) describes emotional contagion as a mechanism of musical emotion, linked to social intimacy, bonding, and empathy. Emotional experiences of musical chills have been associated with feelings of being moved or touched (Vuoskoski et al., 2022), to engagement with lyrics and perceived moments of "unity" or togetherness in music (Bannister, 2020), and may be understood in relation to social bonding processes (Bannister, 2019; Fiske et al., 2019). Finally, Huron and Vuoskoski (2020) have outlined how emotional experiences of being moved may refer to social feelings of compassion involved in music listening and engagement. Interestingly, then, although *P-SML* experiences may often reflect a degree of emotionality, this may vary in character and intensity depending on the mechanisms and processes involved (e.g., empathy), and possibly the motivations for listening and functions of music in different listening episodes (e.g., listening to provide a sense of background presence or company, or listening to be consoled or supported during a negative experience).

Another overarching theme across *P-SML* experiences refers to some connection or resonance between listener and music. Related responses broadly reflected a feeling of connection with elements of the music, lyrics, performers, artists, or songwriters, and in some cases a feeling of music facilitating connection between a listener and other people. Music was described as relatable, and as reflecting or expressing experiences that listeners have had or were having. Participants described a resonance, attunement, synchronicity, or equivalence with the music, often in terms of emotion. Also, some participants felt understood by the music being listened to. This connection or resonance appears to be an important foundation for previously explored experiences of consolation (Hanser et al., 2016; ter Bogt et al., 2017) and other mood regulation strategies utilized by listeners (Saarikallio, 2011; Saarikallio & Erkkila, 2007), and further reflects a variability in what listeners connect to in the music, ranging from musical features to the performers or songwriters. It is worth noting, however, that whilst melodies, harmonies, and rhythm in music were often rated as important factors for *P-SML* experiences, less importance was attributed to the extra-musical knowledge of composers, songwriters, or performers. This will be revisited when discussing the implications of this study, as these are interesting aspects that warrant further investigation.

Importantly, whilst emotionality and feeling a connection or resonance with music were overarching themes for *P-SML* experiences, most experience types were also characterized by specific themes or concepts. For *Company*, participants spoke about how music provides a sense of company or presence, sometimes when they feel lonely, or are alone. Research on everyday uses of music has illustrated the stimulating and entertaining uses of music to accompany tasks (e.g., studying or housework) or pass the time (Lamont et al., 2016); in addition to this, then, it is possible that music can serve social functions, possibly as background sound that can evoke a sense of social presence. This use of music has been particularly evident during the COVID-19 pandemic (Cabedo-Mas et al., 2021; Fink et al., 2021; Harney et al., 2022; Krause et al., 2021), and reflects ideas of social surrogacy, in which music or other media may temporarily replace real social contact to satisfy social needs (Derrick et al., 2009; Schafer & Eerola, 2020). For *Consolation*, as highlighted above, a focus on mood regulation was evident in participant responses, such that music acts as a support for listeners when they are in negative or undesirable mood states; notably, this pattern of results is reflected in *Identification* reports as well, such that music is empathetic, understanding, and supportive toward listeners.

In other experiences such as *Personas and Narratives*, mental imagery relating to movies or films, and stories or narratives, is apparent in some participant responses; some listeners for example "see" scenes of a story play out when listening, are reminded of film scenes that the music is associated with, or imagine the performers themselves. These results reflect the close association between music and visual mental imagery (for a review see Taruffi & Kussner, 2019), and align with recent empirical research focusing on the perceptions of narrative in music (Margulis et al., 2022a; McAuley et al., 2021). Indeed, in the context of emotionality as an overarching characteristic of *P-SML* experiences as reported here, visual imagery has been conceptualized as a mechanism of musically induced emotion (Juslin & Vastfjall, 2008), although many questions remain as to the associations between imagery and emotion, including the causal directionality of this relationship (Day & Thompson, 2019).

Finally, the *P-SML* category *Feeling One* highlighted how some participants describe a feeling of being transported, either to within the music, to other landscapes, or more specific spaces. Experiences of transportation may reflect experiences of absorption when listening to music (Sandstrom & Russo, 2013), which have been linked to experiences of pleasure, reward, and emotion (Cardona et al., 2022). A further pattern in *Feeling One* reports was that listeners may sing or move along to the music they listen to, potentially affecting the experience and connection between listener and music. Music and social processes are especially evident in performative or participatory contexts, including those that involve synchrony and entrainment between individuals and other joint actions including singing (Camlin et al., 2020; Lamont et al., 2018; Stupacher et al., 2022; Tarr et al., 2014). Similarly, covertly simulating or imagining the music while listening might have a bearing on the listener's experience. However, current evidence of this appears limited, and further exploration may elucidate how action-based participation with music whilst listening, including imagined physical involvement or increased levels of motor resonance (Launay et al., 2016), can affect engagement and experience. This action-driven engagement with music has received less attention in music listening contexts (see Launay et al., 2016), although evidence suggests that moving or singing along to music may be involved in some emotional listening experiences (Gabrielsson, 2011), or that phenomenologically, listeners at least feel a desire or urge to move when listening (Witek, 2017). Developing from these ideas, alongside those of embodied cognition (Schiavio et al., 2017) and theoretical links between music, emotion, and motor activity or representation (Overy & Molnar-Szakacs, 2009), the current results suggest a need to explore connections between music, movement, action, and social interaction, in listening contexts.

In summarizing the results, *P-SML* experiences appear to relate to felt emotions, and a sense or feeling of connection or resonance between the listener and music. Importantly, this is not to say that any emotional experience of music listening is pseudo-social. In fact, given the variability across *P-SML* types beyond these two overarching themes of emotion and connection, results would suggest that *P-SML* experiences may capture music listening episodes, emotional or not, that encapsulate a level of engagement or interaction perceived or experienced by the listener, that might be considered as social in quality. Such experiences may be underpinned by certain psychological processes and mechanisms operating at various levels in relation to the music (i.e., performers, music, lyrics, personas), and influenced by the qualities of the music in question, individual characteristics of the listener, and motivations for engaging with the music. Crucially, however, what may distinguish *P-SML* experiences from other listening episodes is the perceived position of music as a social "agent" by the listener. Recently, Schafer et al. (2020) discussed music serving as a virtual friend, and through reviewing literature noted how a sense of connection during music listening may be linked to empathizing with imagined experiences of virtual personas in the music (Clarke et al., 2015; Robinson & Hatten, 2012), the composer or performer (Scherer & Zentner, 2001), or to experiences of nostalgia and memory (Barrett et al., 2010). Presently, this study demonstrated that participants can be facilitated to talk about their engagements with music in such a way that music is positioned as a social "agent." However, more work is required to better understand how music listeners conceive of their listening experiences, especially given the conceptual crossovers stipulated above between music listening experiences that may involve some socio-interactional characteristics, and

broader emotional listening experiences. Similarly, it will be important to investigate how P-SML experiences contrast with other modes of listening engagement, to refine and demarcate the conceptualization of how listeners may engage with music socially.

Implications

As argued in the introduction, the topics, concepts, and experiences investigated in this exploratory study resonate with the concept of parasocial interactions (Giles, 2002; Dibble et al., 2016; Horton & Wohl, 1956), and social surrogacy.

Parasocial interaction has been thoroughly studied in the field of communication studies over the last 60 years, largely in the context of television media, and almost never in relation to music listening (Liebers & Schramm, 2019). The current study adopted the term *pseudo-social music listening*, as opposed to parasocial interaction, for three reasons: 1) parasocial interaction often emphasizes one-way interactions or relationships, which may not align with all music listening experiences in which the music acts as a social "agent"; 2) parasocial interactions mostly depict perceived relationships with people, fictional human characters, or fictional non-human characters that are anthropomorphized to varying extents (Klimmt et al., 2006), which may not reflect the many levels of abstraction in which music may be engaged with socially, its variable meaning across listeners (Cross, 2014), and the absence of overt depictions of human or anthropomorphized personas; and 3) given the scarcity of parasocial research focusing on music, it remains unknown as to exactly how the concept, with its numerous antecedents and outcomes (Tukachinsky et al., 2020), might apply in music listening contexts. It is important to acknowledge similarities in the current *P-SML* results and ideas of parasocial interactions, such that music can be empathized with, can express emotions or qualities that listeners can relate to, and can serve as a vehicle for narrative, stories, and characters that listeners may engage with. However, these listening experiences may also go beyond the remit of parasocial interactions, whilst continuing to exemplify socio-interactional aspects. For instance, music communicates rhythms and melodies that listeners may physically engage with, affecting relationships or connections with the music and resulting in perceived "co-experience"; similarly, music may express emotion that is not attributable to anything specific beyond the structure, form and composition of the music itself, and yet this emotion can be related to, empathized with, and be received as communication and support from the music. It is worth reiterating that some of the least important factors for *P-SML* experiences, according to participants, included knowledge of composers, songwriters, and performers, suggesting that the music itself is central to such experiences. Crucially, however, these demarcations are blurred and unfocused, and this is perhaps a principal implication and consideration for future research. It is surprising that communication studies have rarely considered music as a form of media conducive to parasocial interactions, given the pervasiveness of music as consumable media across Western societies, the contemporary perspectives of social bonding underpinning the evolutionary functions of music (Huron, 2001; Savage et al., 2021), and the associations between musical engagement, health and wellbeing (Macdonald et al., 2013). Music psychology research might benefit from exploring these concepts further in relation to music listening engagements. It is hoped that the current preliminary concepts of *pseudo-social music listening*, and longstanding influential concepts of parasocial relationships and interactions, might serve as a foundation for future work on the social characteristics of music listening which are so widely indicated in music psychology literature.

This current work also has implications for research on social surrogacy and social motivations for music listening. In investigating the social reasons for music listening, Schafer and Eerola (2020) highlighted that listeners seek company and comfort from music, use music to reminisce, and look to identify with the music they engage with. Although the *P-SML* concept aimed to encapsulate more specific experiences of social connection and interaction between listener and music (beyond the role of music in facilitating memories and social bonds between people or within groups), current findings reflect and extend previous social surrogacy results by exploring the experiences themselves. The present research builds on contemporary music psychology literature by outlining an approach to support listeners in describing experiences in which music may act as a social surrogate. Future investigations could focus on underlying psychological mechanisms of social experiences of music listening, individual differences, and the key roles of meaning in music and the listening context, acknowledging that these musical engagements may be historically and culturally specific (Clarke et al., 2015).

Limitations

There are several limitations to the current study. Firstly, it is important to acknowledge that the conceptual structure of *P-SML* experiences outlined as a foundation for this study is only one proposed lens for understanding music listening experiences. As such, the questionnaire and data collected are derived from a specific research-driven perspective. Indeed, as highlighted above, there is ultimately a question of how best to conceptualize and frame *P-SML* experiences; some possibly reflect parasocial interactions with performers or songwriters in line with long-studied conceptualizations (Horton & Wohl, 1956), others seem to involve connection with narratives, emotional expression, or other more abstract qualities of music, and others may build on motor action or participation with the music whilst listening. However, given that the six conceptual types of *P-SML* in this study appear to share numerous similarities, including experiencing emotions and feeling a sense of

connection, it may be that *P-SML* experiences can be merged or conceived of more holistically. Directly investigating the social characteristics of connection and resonance felt during music listening may be a fruitful line of future inquiry, building from the present exploratory work.

Secondly and relatedly, whilst the current study utilized vignettes effectively to afford participants an intuitive foundation to discuss music listening experiences in potentially unintuitive ways (i.e., interpersonal), and to avoid issues of confabulation (Huron & Vuoskoski, 2020), the vignette content is likely to have influenced participant responses, such that data may reflect specificities of the vignettes chosen to be most relatable. Additionally, the data suggest that some vignettes were more relatable than others in experiences of *Company*, *Empathy*, and *Personas and Narratives*. The reasons for this remain unclear but given that participants recall *P-SML* experiences that reflect their most relatable vignette, this may have influenced results for some types of experience, such that only a subset of possible *P-SML* experiences are discussed. These are inherent limitations of the vignette approach, but for current purposes these were judged to be balanced with the exploratory nature of this work, the pronounced relatability of vignettes to participants, and success in eliciting comparable reflections from participants.

A final open question worth highlighting is the degree to which various music listening encounters encapsulated by this work might be experienced as "social." For example, perceiving narrative or personas in music may be based on processing of the explicit information communicated through lyrics, but this alone may not involve a felt connection or subjective "social" experience. In addition, whilst it is intuitive to understand music providing a sense of background "presence" or company as social, it is unclear as to whether this is always the case; such experiences may involve music as a distraction (cf. Lamont et al., 2016). These will be important considerations moving forward, and these nuances in what constitutes a listening experience as involving some social connection between listener and music may be a key challenge for future research.

Conclusion

To conclude, the present study aimed to establish a preliminary conceptualization of *pseudo-social music listening* experiences, and to explore how participants may reflect on and discuss their own similar experiences. Overall, results suggest that *P-SML* experiences often encapsulate emotional responses that involve a sense of connection and resonance with music but can vary in some further social characteristics and qualities. Crucially, understanding how music listening can result in social experiences can contribute to how we understand the contemporary and enduring value of music to listeners, the mechanisms through which music may induce emotion, and the important effects of music engagement on wellbeing, especially in contexts of social isolation, separation, or loneliness. A promising approach to developing this understanding may be to utilize current ideas of *P-SML* and existing concepts of parasocial interactions.

Acknowledgments

We would like to thank two student researchers for their help and input in the preliminary study design, data collection and data analysis.

Action Editor

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Jonna Vuoskoski, University of Oslo, RITMO Centre, Safiyyah Nawaz, Goldsmiths University of London, Department of Psychology, Amanda Krause, University of Melbourne, Faculty of VCA and MCM, One anonymous reviewer

Author Contributions

Study conceptualization—SB; Participant recruitment—SB, FB, AEG; Data curation—SB; Formal analysis—SB, FB, AEG; Methodology—SB, FB, AEG; Project administration—SB; Ethical approval—FB, AEG; Writing: Original draft—SB; Writing: Review & editing—SB, FB, AEG.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

The study received ethical approval from the University of Leeds Faculty of Arts and Humanities research ethics committee (ethics reference: LTMUSC-120).

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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Data Availability Statement

The datasets generated during and/or analyzed during the current study are not publicly available due to the ethical approvals and informed consent procedures in place and followed for this research. However, anonymized datasets are available from the corresponding author upon reasonable request.

Supplemental Material

Supplemental material for this article is available online.

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