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Information from sound: exploring sounds and listening in information practices research

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Abstract

Introduction. This conceptual paper discusses the possibilities for expanding research around sounds/listening and sound-related practices in information research to further understandings of embodied/sensory information practices and attend to a greater diversity of information experiences and ways of knowing.

Method/Analysis. The growth of research related to broad conceptualisations of sound and listening and the use of information from sound in knowledge production across many fields is discussed. Some challenges faced by that research and gaps in existing sound-related information practices research are noted.

Results. Sound research in other fields faces issues around the management, interpretation, and contextualisation of sound-related data, and little is understood about the practices of sound recordists. Some information practices-related research has highlighted the complexity of interactions with sounds and related technologies and explored interactions with oral and music information sources. However, experiences and perceptions around seeking, creating, and using information from sounds lack in-depth study.

Conclusion. The value of further information practices research related to sound is suggested: to expand embodied/sensory information research, to engage with the broad range of sonic skills and experiences, to further holistic examinations of information interactions, and to address information-related problems and research gaps in sound-focused research from other fields.

Introduction

Both sounds and listening, as concepts and as objects of research, have been discussed widely across many disciplines. However, information practices-related literatures rarely focus explicitly on experiences and practices around sounds, listening, and sound technologies. When addressed directly, discussions of listening in information practices research often only occur in relation to oral information sources and verbal communication. While perhaps resulting from a historical focus on textual documents and a perceived ocularcentrism (Cox, 2019) in information studies, this suggests an important gap in such research, if the diversity of situations, experiences, and practices around information interactions and ways of knowing are to be acknowledged (Lloyd and Olsson, 2019). Despite this lack of attention, information practices perspectives challenging binaries such as between bodies/technologies and physical/immaterial (e.g., Costello and Floegel, 2021) and the increasing literature focused on sensory and embodied information experiences (Savolainen, 2020) may provide grounding for expanding understandings of sound and listening in information practices research.

This conceptual paper thus suggests the value of exploring information practices around sound/listening in a broader sense: beyond the explicitly oral/verbal or musical, with attention to the range of actors implicated in the creation and use of various types of *sonic things* (Tkaczyk and van der Miesen, 2020), and building from the growth of sound-related research in other disciplines. Given the variety and the range of applications of knowledge produced through the various academic, professional, and creative practices engaging such broader conceptualisations of sound, information practices research may play an important role in widening understandings around how information is sought, created, used, and shared in and across these domains. These approaches may in turn help further conceptualisations of sounds/listening from other disciplines, offer new directions for addressing research gaps and information-related issues in sound-focused domains, provide new understandings of how various techniques of listening and sonic skills (Supper and Bijsterveld, 2015) develop and are enacted, and support the broader translation and interpretation of sound-related knowledge. The following sections discuss the growth of research around sound, some challenges that research faces, gaps and opportunities in existing information practices research involving sounds/listening, and directions for future research in this area.

Context

Viewed broadly, sound can be considered '*both an acoustic event, and a mode of knowledge production*' (Amsellem, 2020, p. 434). Among numerous understandings of the concept, listening may be understood as involving a variety of possible techniques and technologies: techniques of listening may be understood as denoting '*a concrete set of limited and related practices of listening and practical orientations toward listening*' (Sterne, 2003, p. 57) that are socially, culturally, historically, and bodily situated, while technologies of listening (and sound reproduction) are interconnected but separately identifiable aspects of sound and listening experiences.

Studies in disciplines from the humanities to biology have examined an increasingly wide range of human and nonhuman sounds, sound environments, and sound technologies, including and beyond those related to musical listening and human speech. Sonic environments and experiences have been described as increasingly complex (Radicchi et al., 2021) and subject to standardisation and measurement (Droumeva, 2021); everyday interactions with sound now extend from the billions of voice messages sent daily on WhatsApp (Singh, 2022) to the over 130 communities (ShotSpotter, 2022) contracting the deployment of acoustic gunshot detection systems and the growing ubiquity of always listening smart home devices (Amsellem, 2022).

Such experiences may be seen as blurring supposed lines between active and passive sound interactions, between sensory/embodied and technological practices, and between public and private

space. Interactions with sound may also be understood as involving numerous information activities, including information experiences (e.g., through sound events themselves), seeking, sharing, and use of information, and various processes of information creation (e.g., through sound recording and surrounding documents). Indeed, sound recordings and associated data convey a wealth of information about spaces, places, activities, and epistemologies (Demers, 2010; Kanngieser, 2023).

As recording technologies become more accessible and digital storage capabilities increase, the management of these recordings has become an ever-greater concern. For instance, many bioacoustics recordings are not placed in archives or collections and are potentially lost (Dena et al., 2020), there are few guidelines for how sounds might be recorded and documented to support future information retrieval (Ranft, 2004; Roux, 2019), and limitations related to the establishment, accessibility, and interoperability of environmental sound libraries/datasets have been suggested as constraining research in these areas (Gibb et al., 2019). While publication of sound-related research has boomed, interpretations and theoretical understandings may also be inhibited by deficiencies in descriptions of sounds, their sources, and the situations of their recording (Gasc et al., 2017), and some sound-related research has been suggested as 'hampered by bottlenecks in analysis and data management' (Vella et al., 2022, p. 1). However, despite these information-related problems and the often complex and information intensive activities involved in sonic skills (Bijsterveld, 2019) and engagements with sound technologies, information practices research has yet to directly explore these areas.

Information context

Recent literature has suggested the need for more holistic accounts of information practices (Polkinghorne and Given, 2021), incorporating sensory/embodied information experiences (Ocepek, 2018; Olsson and Lloyd, 2017), moving beyond individual practices of seeking and using information to address how people experience and create information (Lee and Ocepek, 2022), and exploring how interactions with information and the production of knowledge are shaped by and shaping of power relations, positionalities, and sociotechnical factors (Costello and Floegel, 2021; Gibson and Martin, 2019). Moreover, recognition of the construction of information practices through social and technical entanglements (Talja, 2018) or human-nonhuman arrangements (Pilerot and Limberg, 2011) has further emphasised the need to ecologically (Star, 1999) examine practices and surrounding infrastructures, including the many ways of knowing and experiencing information. Understandings from other disciplines similarly indicate the intermingling of sociocultural, technological, economic, and political forces in the construction of listening and sound-related practices (e.g., Ritts and Bakker, 2021), suggesting practices of listening and sound-related technologies as always already interlinked (e.g., Sterne, 2022).

While information from sound recordings is now relied upon in studies ranging from bird songs (Bruyninckx, 2011) and the impacts of wind farms on fisheries (Mooney et al., 2020) to urban sound management policies (Hsieh, 2021) and intangible cultural heritage preservation (Yelmi, 2016), there also exists a lack of attention to the practices and experiences of those involved in the production of such research (e.g., sound recordists) (Wright, 2017). The following section outlines some gaps and potential starting points for information practices research to build understanding in these areas.

Sound and listening in information practices

Direct discussions of interactions with a broader spectrum of sounds or the range of sound-related practices across many disciplines and professions are limited in information practices research. However, some literature discussing oral and music information does point toward the complex and information-intensive character of many listening skills and sound recording/reproduction pratices. Although often not specifically addressing sound, the

expanding research emphasising the multisensorial and situated character of information experiences (e.g., Polkinghorne, 2021) may also suggest ways of furthering sound-related information research and of connecting with approaches to sonic experiences in other disciplines. From the examples below, opportunities for building understandings of the information-related challenges faced in various sound-focused domains may be found.

Orality

While engagements with voice and speech have been understood elsewhere as taking many forms, involving various sound characteristics, modes of listening, and affective, social, and political associations (Eidsheim and Meizel, 2019), few information-related studies involving orality discuss sonic characteristics or ways of listening. Recent research exploring the listening practices of audiobook users has highlighted various listening modes, the complexity of related interactions with information (e.g., Tattersall Wallin, 2020), and the involvement of sound-related information, such as the sonic characteristics of narrator voices, in shaping meaning-making (Lundh, 2022; Tattersall Wallin, 2022). However, emphasis in these studies remains primarily on interactions with textual-linguistic content; reading by listening to audiobooks is understood primarily as a process of '*making sense of spoken language*' (Tattersall Wallin, 2020, p. 471). Approaching such topics from a broader conception of sound and attending to practices around the creation of such documents could further highlight the sensory/embodied and complex sociotechnical aspects of audiobook interactions.

In other studies discussing the centrality of oral information sources and information from media that can be listened to (e.g., Ikoja-Odongo and Ocholla, 2004; Kari, 2007; Thomson, 2018a), discussion of perceptions of or interactions with sources themselves are not usually present, and when discussed directly, orality is often conceptualised as secondary or supplementary to textual information (e.g., Hertzum, 2010). Where greater emphasis is placed on interactions with oral information, the listening process is still often understood as a passive activity (e.g., Clarke et al., 2007), and emphasis is often placed on the speaker's perspective (e.g., Turner, 2010). However, explorations of oral storytelling-related information practices have pointed toward a more complex understanding of listening: as a technologically mediated process involving textual, verbal, and visual, along with aural, information (Ripley, 2015), emphasising the responses of listener-viewers over speakers/storytellers (Morris, 2011), and identifying of a perceived '*bias toward disembodied information*' (Nelson, 2019, p. 13) in information practices research.

Music listening

Even in studies related to assumedly listening-focused areas such as music, experiences and activities around sounds are often largely ignored. While the hedonic and instructional value of listening materials have been noted (e.g., Kostagiolas et al., 2015), individualised behaviours (detached from sociotechnical situations) often remain the focus; little discussion of listening-related information practices is presented, textual/visual resources are seemingly given greater weight than audio/aural information (e.g., Griffin, 2020), and listening is again considered as a largely passive activity (e.g., Lopatovska et al., 2011). Music listening has been understood as a component of the creative process but not as directly involved in processes of information seeking or use (e.g., Lavranos et al., 2015), and the information behaviours of musicians often seem to center more on needs for non-aural sources than listening (or musical) experiences (e.g., Lavranos et al., 2016).

While more directly connecting listening activities to implicated technologies, very few music information seeking/retrieval studies '*have focused on user behavior in real-life settings*,' and '*knowledge of music information behavior in context*' (Laplante and Downie, 2011, p. 202) may be lacking. Over a decade later, uncritical evaluations, '*quantitative methods, implicit evaluations and off-line experiments*' (Freeman et al., 2022, para. 14) were still seen as the norm in music information retrieval. However, suggestions in this latter study

around the complexity of relationships between listeners and interactive music listening systems - blurring lines between passive and active listening, between the agency of the listener and that of the system, and between human-human and human-machine listening – do intersect with relational understandings of listening and sonic knowledge production presented elsewhere (e.g., Amsellem, 2022; Goh, 2020).

Embodied and sensory information experiences

The importance of embodied information and the role of multiple senses in processes of becoming informed have been long recognised (e.g., Bates, 2006). However, embodiment has still been noted as understudied (Floegel et al., 2021) or largely ignored (Huttunen et al., 2020) in information practices-related research. While the production of knowledge through sound has been described as both embodied and situated (e.g., Goh, 2017) and the physical/material, and embodied aspects of listening and experiences with sound have been widely noted elsewhere (e.g., Eidsheim, 2011; Droumeva, 2015; Supper, 2016), few information practices studies discussing embodiment have offered in-depth explorations of sound/listening experiences.

Even in studies which draw attention to multisensory information experiences (e.g., Lloyd et al., 2013; Ocepek, 2018), discussions of sounds are largely absent. Indeed, aside from Griffin (2020) and Nelson (2019) mentioned above, most references to sound in studies of embodied information practices are passing (e.g., Lloyd, 2007; McKenzie, 2021; Olsson, 2010; Veinot, 2007). As one of the few more prominent examples, Cox (2019) examined sound as a key component of library experiences, senses were considered as operating '*intersensorially*' (p. 60), calls were made for research around the sociopolitical forces shaping embodied/sensory experiences, and the privileging of sight in Western culture and of text-based sources in information research was noted.

Despite this lack of direct discussion, several perspectives on embodied information practices may be seen as connecting to understandings of sound-related experiences from other disciplines. For example, the multisensorial aspects of information interactions (e.g., Ocepek, 2018), the co-construction of information practices with social, material, situated, and sensory experiences (e.g., Polkinghorne, 2021), the intersections between orally-, bodily-, and text-based information (Gorichanaz, 2018), and the dialectical relationships between 'information spaces, objects, and the body' (Thomson, 2018b, p. 514) have been discussed. However, like much of the sound-related information research mentioned above, many sensory/embodied information practices studies have been suggested as focused more on the reception and acquisition, rather than the interpretation, of sensory information (Savolainen, 2020).

Implications and conclusions

Some information practices-related research has highlighted the complexity of interactions with sounds and associated technologies (e.g., Freeman et al., 2022; Tattersall Wallin, 2020) and the active, embodied, and multisensorial aspects of listening practices (e.g., Nelson, 2019; Ripley, 2011). However, little embodied/sensory information practices research has engaged directly with sounds/listening, and research related to music or oral information practices has not fully explored information interactions with sounds themselves. Greater attention to a broader spectrum of sounds and sound-related practices may extend sensory/embodied information practices, especially toward less overtly physical settings and activities, and increase attention to non-textual/verbal information activities.

Although the informativeness of sounds and listening experiences has been acknowledged, situations around the creation and use of various sound objects have not been addressed. Given subjective decision-making around who and what is made audible through sound recording (Samuels et al., 2010; Stoever-Ackerman, 2011), the ways many recordings are treated as decontextualised and neutral documents (Akiyama, 2015; Galloway, 2022; Robinson, 2020), and a lack of reflexivity around

the presence and role of sound recordists (Wright, 2017), increased attention to related information creation processes may be especially valuable. As applications of automated sound recording and analysis technologies expand, possibly making practices of listening and recording less perceptible, furthering ideals of neutrality, and leading to massive quantities of generated data (e.g., Phillips et al., 2018; Shaw et al., 2021), holistic examinations of related information practices would seem increasingly important. As a next step in expanding understanding in this area, a situational analysis (Clarke, 2021) study exploring the information practices around environmental sound recording will be undertaken.

About the author

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