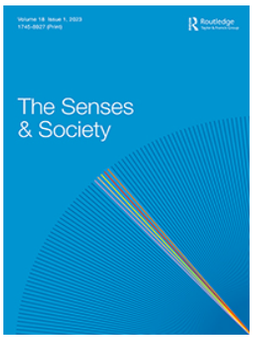

The Senses and Society

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rfss20

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To cite this article: Brian Glenney, Max Boutin & Paul O'Connor (2023): The sonic spectrums of skateboarding: from polarity to plurality, The Senses and Society, DOI: 10.1080/17458927.2023.2245232

To link to this article: https://doi.org/10.1080/17458927.2023.2245232

Published online: 16 Aug 2023.

THE SENSES AND SOCIETY
https://doi.org/10.1080/17458927.2023.2245232

Routledge
Taylor & Francis Group

The sonic spectrums of skateboarding: from polarity to plurality

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ABSTRACT

The sounds produced by skateboards, or skatesounds, are a common basis of complaint among the urban public and yet a source of inspiration and joy for skateboarding participants. These opposing responses to skatesound have escaped scholarly attention due to skateboarding's visuocentric culture, yet this disagreement is significant in planning for city-built skateparks, registering public complaints of skateboarders in city spaces, and adding hostile architecture like skate stoppers, which often pivot on this polarity of reactions to skatesounds. We present a spectrum of theoretical responses of skatesound to dispel these reactions, including subjectivism, semiotics, soundscapes, and texturology. We argue that for some people skatesounds may be merely subjective with either a positive or negative valence. For others, skatesound is associated with pro-social or anti-social behaviors. For some, skatesound is both associative and provides wayfinding information about a city. Lastly, we introduce a novel theory of texturology: that skateboarders possess a unique sensory knowledge of the surface materials and textures of the city through skatesound, a knowledge specific to skateboarding.

KEYWORDS

Skateboarding; sound; skateparks; epistemology; texturology; sensory substitution device

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Introduction

Skateboarding is a sensuous endeavor. Visio-centric medias have captured many facets of skateboarding and skate literature.[1] Skate scholarship has made robust claims regarding how skaters *see* the city differently. While extant research has pursued an understanding of skatesound, it is rarely the focus of its popular or scholarly media, despite skatesound being a common source of complaint by the public. Skatesound may be a neglected area of comment and study due to its polarizing effect: skateboarding participants appear to like the sound whereas the public dislike it, opposites on a spectrum of responses that our paper seeks to broaden.

The first work on skatesound by Touché (1998) sought to elucidate this skatesound polarity by distinguishing between two ways auditory stimuli is understood: the public hear "noise" and skate participants hear "sound." For participants, the skateboard that provides a kind of urban sensory ability that works as an ear or amplifier allowing the skateboarder to both hear and feel the city. To participants, a skater produces a kind of music, and an ensemble of skateboarders behaves like an orchestra, but one that appears abrasive to the public. While we interpret Touché's insights as metaphor as skateboarding sounds are not naturally musical, i.e. they do not channel complex acoustics into an ordered form (Truax 1984), it is possible to make musical compositions out of them, for the "Musique Concrete" by Simon Morris (2007) to BONAMAZE[2] to Sam Perkin.[3] And, as has been well established, skatesounds are accentuated by background music, both video recordings (D'Orazio 2020) and live performances (Noe 2022). To the public, skateboarding is loud and unstructured, a kind of noise pollution, making it more distinctive than its visibility: it is possible to skate out of sight but difficult to do it quietly. In this regard, Touché presents the skateboarder as vulnerable to a persistently aggravated public who chase the noisy skateboarders off and onwards.

In a second work, Iain Borden (2001) develops Touché's insights into skatesounds by adding how they reverberate with a kind of felt musicality of a city's textures. Borden writes:

> The city rumbles beneath my skate, like the wheels of so many subway trains with vibrations that carry up through my legs [allowing] an understanding of its surface conditions, such as speed, grip and predictability, and remain like magic long after I have gotten off my board. (Borden 2001, 198)

Knowledge of a surface's "speed, grip and predictability" presents a potential explanation for why skatesound is beloved by participants. The distinctive smashing and crashing skatesound produced by smooth brick is a clarion call to other participants in search of spaces to skate. Further support for this celebration of skatesound by participants is that skatesound can be virtually eliminated with the use of soft wheels readily available in local shops and online.

A decade and a half later, Maier (2016) further develops Touché and Borden's anthropological enquiry into the tacit knowledge of skateboarders gathering and communicated through skatesound. She sees skateboarders as "aural architects" engaged in an act that "sonically activates the city's surfaces" (2016, 29). Her work is also notable for closely

observing female skateboarders in London's Brick Lane and suggesting that through sound a new knowledge and relation to urban space is manifest. Yet, neither Maier's nor Borden's compelling work addresses the social context of skateboarding sound as being perceived by the public as noise pollution.

Max Boutin's "Texturologies" art exhibition (2022) pivots on the unique epistemic component of skatesound by these prior authors, but makes it aesthetically available to the non-skating public by recording skatesounds and related vibrations from a camera attached to the nose of a board. Boutin exhibits this multi-modal skate experience including the vibration platform, presenting a completely novel viewpoint of the city in hopes of sharing this unique epistemic perspective with the non-participant public to resolve the tendency to react with a negative valence. His work is experienced by many non-participants to fulfill the aural description from *The Washington Post*. "The cool drone of skateboard wheels spinning on pavement is one of the most excellent sounds" (Richards 2022).

Noisemakers

The groundbreaking epistemic theory of skatesound called "texturologies" initiated by Borden and Maier, and made explicit by Boutin will be developed more below, but is often overshadowed by a general public conception that skateboards do not produce a pleasing sound but rather contribute to a city's noise pollution. "The noise from skateboarding is the number one complaint I receive," stated Gustav Eden, a "skate" advisor to the city of Malmö council.[4] This is further documented by Woolley and Johns, who describe this as the most common complaint by nonparticipants of skateboarding, "people in the town hall complaining to the police about the noise … " (Woolley and Johns 2010, 226).

Descriptions that ground these complaints include, "banging as they are grinding along and hitting the ground" (Woolley, Hazelwood, and Simkins 2011, 477). This recorded cause of concern from Woolley et al. could be explained by the skateboarders' location, a "sacred" part of the city called the Cathedral Gardens, reserved as a quiet and respectful space: the site of an IRA bombing in 1996. But even skatesounds in *their* place, such as skateparks, spaces built for skateboarding, are a significant source of complaint.

In an online skatepark planning forum for Brattleboro, Vermont, USA, a local skateboarder, Scotty Dixon, posted a thread on 18, August 2014 specifically about skatesound. It received over 15,000 views and incited over 1000 comments.[5] Well-meaning comments included neighborhood stakeholders producing an array of complaints, even comparing low-volume skatepark noise to an idling chainsaw:

> I believe the duration and repetition of consistent noise, accompanying vocals, skate park hours in respect to surrounding neighborhoods, echo effect off residences in close proximity have not been considered as much, just as if you were to leave a chainsaw idling in the park all day it would be annoying after a while and you would feel compelled to go turn it off. ("RootRunner" 19, August 2014)

Another forum participant who is a skateboarder, named "Spinoza," posts an objection to the chainsaw sound parallel, posting, "noise is in the ears of the beholder, and not just measured in dB [decibel levels]" (August 21 2014). Contrasting skatesound from the noise

from automobiles, garden tools, and sports was also a common tactic, a virtual bricolage of divergent sound phenomena.

These subjective ruminations on noise in contemporary life are given nuance by Keizer (2012) who identifies that noise is an essential component of our modern world: if we want fresh coffee, to live a nice distance from the office, and to be able to travel abroad, then we must accept that the convenience of our modern lifestyles is tied to noise. Keizer also considers the spatial justice of sound: noise disproportionately affects marginalized populations, those with the least wealth, agency, and power. It is unclear how to apply concepts of spatial justice to skatesound, a topic to itself. Perhaps, the polarizing sound of skateboarders is due to an unequal power nexus: "noisemakers" are the marginalized, "soundmakers" are the powerful. But which are skateboarders?[6] On one view, skateboarders are the powerful, disturbing everyone from families at the public park to rough sleepers in the plaza, departing for home when tired as their victims roll back to unsheltered sleep. From another perspective, skateboarders are the weak youth pursuing free leisure, disturbing the heartlands of commerce, office plazas, and commercial centers whose sound is interpreted as "noise" as it does not directly or identifiably connect to profit. The criminalization of sound in urban spaces is a common tactic to control expressive behavior of citizenry (Ruiz and South 2019), an applicable theory deserving further analysis.

Skateboarding is play – noisy play – in the material heart of capitalism. To pick up on the idling chainsaw comparison, skateboarders are more as "idle" than chainsaw. Thus, finding a home for both the activity and its noise is a challenge, as a recent study in London's Olympic Park demonstrates (Dixon forthcoming). City centers are noisy, but the noise is accepted in part if it contributes to what we want, as Keizer suggests. Relocating noisy skateboarders out of city centers by building skateparks in residential zones just brings the noise to suburbia where a fragile peace exists among neighbors as they negotiate a soundscape that is temporal, convivial, and apposite to the characteristics of the local community. It is no surprise that this negative connotation to skatesound creates a strong NIMBY ("Not In My Back Yard") resistance to the implementation of this related architecture (Taylor and Marais 2011).

To support this NIMBY resistance to skateparks, skatesound complaints are often grounded on research that determines skatesound peak decibel levels (dBc). For instance, the results of one study of four skateparks (made of wood, concrete, and metal; both outdoor and indoor) appear to confirm this concern:

> The results of this report indicate that a certain percentage of personal subject/athlete impulse noise exposure levels measured in C-weighted decibels, generated by the skater, may be at or above the OSHA and ACGIH peak noise exposure of 140 dBc in all the skateparks utilized for this study. (England, 2005, 47)

England's study summarizes a prior study by S. M. Spino (2003) that warns:

> Peak noise levels recorded in that study suggested that skaters and by-standers within skateparks might have been exposed to levels that created concerns for hearing damage, psychiatric disorders, or unhealthful circulatory response (47).

Other studies that measure these sounds from a "bystander" distance of approximately 50 feet halve the total dBc at 70 (Fiore et al., 2005). But even such a seemingly reasonable level of noise incites significant debate. Recall the idling chainsaw comparison.

Given that there exist multiple stakeholders in both city streets and skatepark planning, use, and maintenance, the significance of skatesound is crucial if skateboarding is to become an accepted activity and lifestyle in communities globally (Säfvenbom, Strittmatter, and Bernhardsen 2023). What new insights might shift this skatesound polarity to a broader spectrum? Where is the common ground between these opposing polarities and how might it be expanded? Which points of interrogation provide the most eloquent areas of deliberation to reach potential agreement?

Four theories of skatesound

To begin to answer these questions of reconciliation, we present a few explanations for why there are such strong opposing viewpoints to skatesound – why the public perceives skateboarding as noise with a negative valence that pollutes their plazas and parks vs. skateboard participants who perceive skatesound as structured, having a positive valence that some even describe as musical. We present each of these four theories as inclusive "live" explanations: each one of them has explanatory power and together present a pluralistic account of skatesound (Kellert, Longino, and Waters 2006) offering distinct perspectives. This allows for distinct and even conflicting views on skatesound to all be factually correct, each from its own perspective and level of explanation (Massimi 2022). Thus, while these theories account for facets of skatesound polarity, we suggest that a practical resolution will require a kind of perspective shifting by both the public and skateboarding participants.

To begin, the differing emotional responses to skatesound can be distinguished by two questions:

(1) Is skatesound directly related to emotional states or is it mediated by association?
(2) Is skatesound informative to its hearers, i.e. sound, or random noise?

Using these two questions we can produce four possible answers:

(a) **Subjectivism** holds that the valence of skatesound is direct and uninformative,
(b) **Semiotics** holds that the valence of skatesound is associative, mediated by personal/cultural associations, but it is itself uninformative.
(c) **Soundscapes** hold that the valence of skatesound is associative *and* informative: sounds are structured data that can be learned for purposes of navigating the city.
(d) **Texturology** holds that the valence of skatesound is direct and informative, providing the hearer with immediate representational structure of the surfaces being skated.

These answers can be located on a Cartesian coordinate map, as visualized in Figure 1. The views of both the participants and the public can be located in this theoretical space, broadening the spectrum of possible perspectives to understand not just skatesound, but how it is heard. We now turn to consider each of these skatesound perspectives in greater detail below.

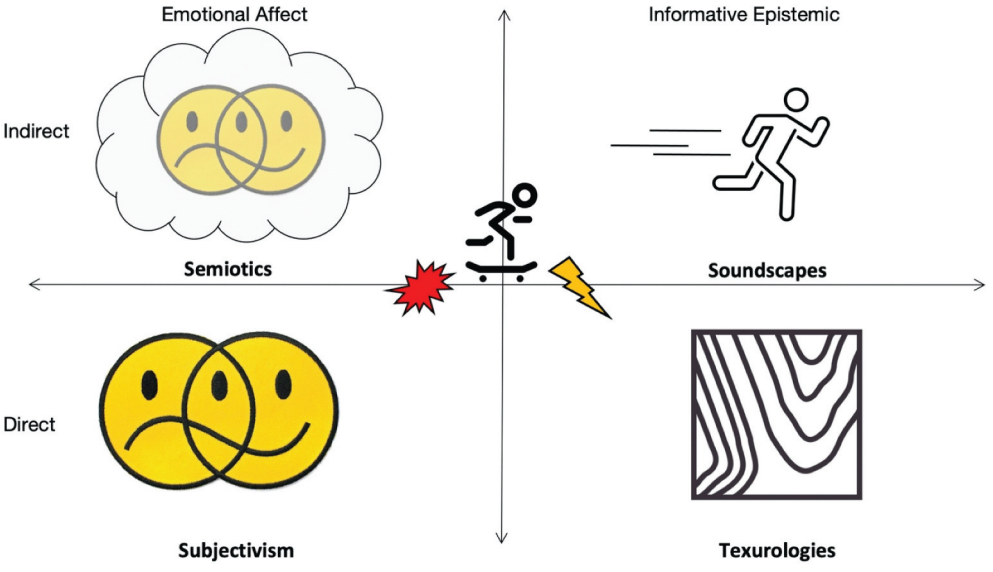

Figure 1. We assume that skatesound produces both emotional affect and information that is pertinent to knowledge of urban spaces and their use. This figure charts four accounts of skatesound in a Cartesian map by distinguishing the cause of this affect and information as direct or indirect (mediated by association). The bang is a symbol for random "noise" that is either subjectively reacted to or associated with a social or physical object or act. The lightning bolt signals "sound" that can be either indirectly informative of street surfaces or objects or provides direct access to street knowledge.

Subjectivism

Public noise complaints as well as participant praises about skatesound may simply be in the "ear" of the beholder, a kind of *subjectivism*. As such judgments are based on the direct reactions of skatesound, rather than the information therein, subjectivism is a noise-based affect. Pertinent questions remain including the basis for extreme variation in emotional valence from skatesound, from psychologically harmful S. M. Spino (2003) to "most excellent" (Richards 2022).

Our initial interviews of participant skateboarders on skatesound suggest a vibrant complexity worth more analysis. Subjects present a paradoxical like *and* dislike of skatesound. This skatesound paradox is signaled by a contentious debate over the use of earbuds during skateboarding: blocking out skatesound with a chosen musical soundtrack appears inauthentic to some participants, whereas to others, it provides a private soundtrack for added inspiration. When asked for a phrase to describe skatesound, participants gave particularly severe adjectives including "beer bottle on beer bottle," "irritant," "really harsh," and "bones on concrete." Participants know that skatesound is unpleasant to the public. Sometimes they delight in their power to auditorily disturb and other times they are conscious-stricken, picking up their boards and walking over particularly coarse noise-making surfaces. Further qualitative work should follow up this paradoxical recognition of the beauteous beast of skatesound

Our paper views the subjectivist viewpoint as in many ways a beginner reply that only scratches a surface of skatesound. Whether issuing a positive or negative emotion,

subjectivism remains reactive rather than reflective. For, subjectively judged skatesound instigates rather than informs, as is the task at hand. Our next few sections explore more complex associations, representations, and epistemologies of skatesound.

Semiotics

Skatesound complaints by the public are padded with concerns of physical risk that skateboarders pose to local pedestrians, "because they suddenly have a skateboard coming at them at speed" (Woolley, Hazelwood, and Simkins 2011, 477). By contrast, to skateboarders, skatesound is associated with the physical reward of skateboarding activity and community. This more complex response is reflected in the analysis of Carr, Brown, and Herbert (2009), who suggest that skatesound is a *semiotic* indicator of a greater range of perceived social ills and/or social benefits that relate to the presence of skateboarders. From this perspective, skatesound is structured in a way that is associated with adjacent physical behavior, taking on a social meaning that transcends mere affect.

That skatesound is a semiotic indicator of potential physical harm may not square easily with the fact that there are frequent complaints about skatesound in skateparks where the public are "protected" from skateboarders (Howell 2008). In nearly all discussions of skatepark planning, noise appears to be the most common complaint and a central concern in the planning process. For example, as Carr, Brown, and Herbert (2009) notes, in the Seattle area, citizens regularly raise concern about increased noise pollution when planning their numerous neighborhood skateparks. Carr et al.'s response is that noise complaints are indirect references to negative social concerns such as the malicious mischief commonly associated with skateboarders, rather than the concerns of physical harm found in urban contexts. This mischievous trope is promoted by skateboarding's anti-social subcultural elements of risk and dangerous behavior and thus may not be the fault of these citizens (Dumas and Laforest 2009). On this view, the aesthetic appreciation or denunciation of skatesound is more than just in the ear of the beholder. Skatesound is in the social and experience-based interpretations of one's auditory processing.

The sole piece of empirical work on learned associations with skatesounds supports this semiotic interpretation, though it was not conducted on skateboarding participants, nor their detractors. Rather, the subjects of this study were urban dwelling Juncos: ground-feeding birds whose feeding regime appears unperturbed by even the loudest of skatesounds. By contrast, when the quieter sound of a bicycle is heard, Juncos immediately take flight (Lukas et al. 2023). Lukas et al. reason that due to the fast speed of bicycles that outpace flight takeoff, the sound of a bicycle represents potential bodily harm, whereas the relative slow speed of a skateboard does not, making its sounds trivial to the Junco feeding regime. One imagines a similar experiment on a human fearful of skatesound feasting on a taco: might they jump and run at the sound of a skateboard, imagining physical harm? Would they sit, munching unperturbed at the sound of a bicycle, or the now prevalent and similarly silent electric scooters and EV automobiles, as its fast-paced danger looms? (See Figure 2) Perhaps adding skatesound to these electric vehicles would produce a more effective warning of danger and an overall safer city (Roan et al. 2021).

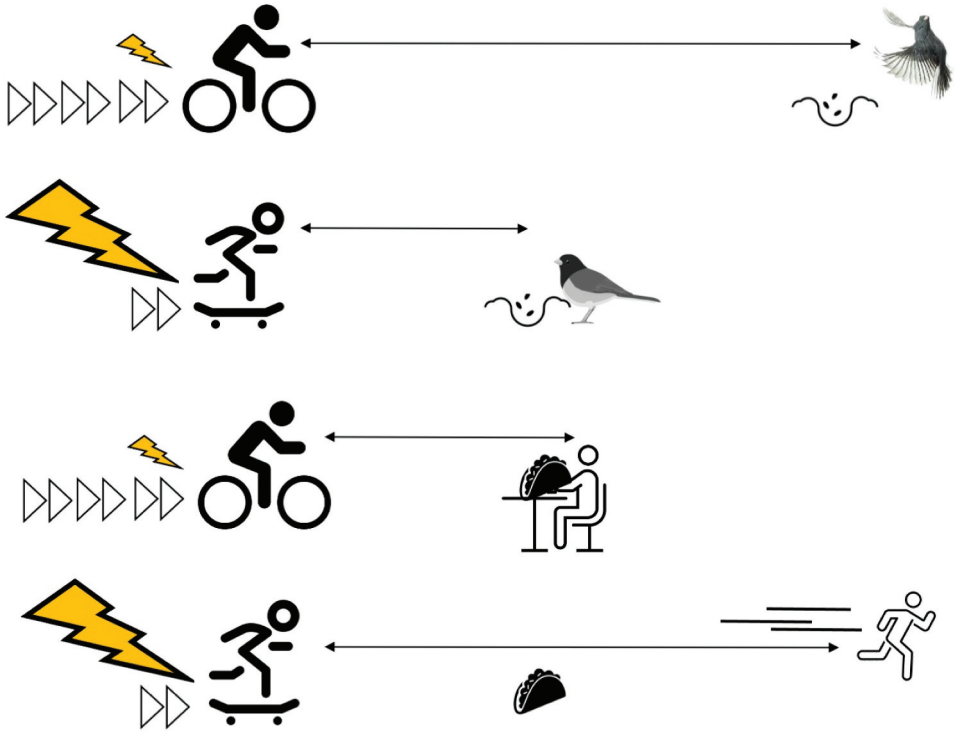

Figure 2. The top two figures illustrate Lukas et al.'s 2023 evidence that the feeding regime of urban dwelling Juncos is unperturbed by even the loudest skatesound, symbolized by a large lightning bolt. However, when the quieter sound of a bicycle is heard, Juncos immediately take flight. As the fast speed of bicycles, symbolized by many arrows, can outpace flight takeoff, the sound of a bicycle, symbolized by a small lightning bolt, represents potential bodily harm to Juncos. By contrast, the relatively slow speed of a skateboard, represented by few arrows, does not outpace Junco flight takeoff, making skatesounds trivial to their otherwise important feeding regime. We may similarly ask whether public complaints of skatesound are based on a paralleling avoidance of bodily harm. For instance, skateboard speeds are perceived to outpace avoidance of harm, as a semiotic view might suggest, or is it merely the loudness or annoyance of skatesound that is the basis of public alarm? A semiotics theory would hypothesize that a human feasting on a taco would flee when they hear the loud clanging of a skateboard in their path and flee from the quiet sound of a fast-moving bicycle fast approaching in their path. By contrast, as the bottom two figures illustrate, the subjectivist would hypothesize fleeing only from the loud skatesound, remaining oblivious to the fast moving and more dangerous bicycle fast approaching in their path.

In sum, for Carr et al.'s (2009) semiotic theory, skatesound disturbance is socially acquired. This associative component may supplement a subjective emotional response, mentioned above. However, Carr et al.'s analysis cannot capture any direct aesthetically genuine response to skatesound: skatesound cannot be simply "most excellent," as it possesses no structure, grounded only on indirect associations. In addition, these associations are rather simple, requiring some cognitive complexity, but not able to account for how the learned associations are the effect of larger cultural dynamics, social proprieties, and local mores.

Soundscapes

Participants who praise skatesound may be hearing a structured acoustic environment, a "soundscape" (Schafer 1977). Soundscape studies argue that sounds communicate specific actions and uses of spaces as evidenced by their ability to elicit specific emotional states in their hearers. These thick and complex emotional states are not the thin positive and negative valences of subjectivism as they inform a more reflective inquiry on acoustic environments (Kuppens, Champagne, and Tuerlinckx 2012).[7] Given the positive appraisal of skatesound in relation to uses of space, and vice versa for "misuses" of space, spaces do seem connected to their acoustic uses.

Skatesound studies use coded verbal reports by subjects on a two-dimensional hedonic scale of 1) pleasure and 2) arousal (Fiebig, Jordan, and Moshona 2020), defined as follows:

(1) Pleasure: how the sound makes you feel – the *elicited* emotions within the individual.
(2) Arousal: how the sound environment is perceived – the *assigned* intrinsic property of the stimulus.

This distinction between the pleasantness and activation in soundscape measures both a passive element: the emotions felt by subjects, and an active element: the judgments made by subjects as elicited by these emotions. For instance, a subject may judge a sound to be arousing, but if the emotion elicited by the sounds is unpleasant, the arousal is "distressing." However, if the emotions are positive, then an eventful arousing sound will be perceived as "exciting." Uneventful sounds may elicit similar negative and positive perceptions: gloomy vs. relaxing, respectively. It seems unlikely that skatesounds could elicit anything but "arousal," suggesting an intrinsic "arousal" property to skatesound caused by a related "active" use space.

Like the semiotic perspective, soundscapes remain indirectly associated with skatesound. While soundscape methodology is distinctly more complex, the conclusions remain largely subjective, grounded on association and personal experience. This leaves a gap in the epistemic potential of skatesound, one that skate scholars have been stalking since Touché (1998) as discussed above. These scholars claim that skatesound produces direct knowledge of urban material and surface conditions. From this perspective, skatesound is a vibration of an instrument, in this case, a skateboard, that provides direct knowledge of surfaces and structures in the city, a knowledge that is unique and otherwise unattainable by pedestrian interfaces.

Texturology

How are we to understand the built environment of a city and its spaces? The concrete, brick, and plastic mishmash is crosscut coarse and smooth, a unique texture for spaces of leisure, work, and life often unnoticed and forgotten by those who tread them daily. The method of texturology uses a tool that creates vibrations and sounds to understand the city's surfaces and materials, a knowledge intrinsic to urban existence. But what is the ideal sonifying instrument? Which tool best plays the city-scaped surfaces in a way that

produces knowledge of the city from below? Texturology argues that this knowledge is directly acquired from skatesound and that no other source for this knowledge is possible.

"Texturology" research using skatesound is inexact, but less so than alternative candidate mechanisms for acquiring this urban material and surface knowledge:

(i) **Pedestrians** have a walking gait that provides only sporadic texture experiences, often inhibited by pressure-insulating footwear, and only produce sounds on walkable spaces.
(ii) **Automobiles**, including buses and trucks, translate textures to sounds, yet are also limited to driving spaces, sounds that are masked by their engine noise and soft tread.
(iii) **Bikes** and other rubber-tired non-motorized vehicles produce an even and pure resonance of the city streets, but like automobiles, the soft tread of inflated wheels homogenizes surface textures, rarely voicing even prevalent cracks and cobblestones.
(iv) **Wheelchairs and Strollers**, while often having rubber wheels, sometimes are so thinly rubbered as to produce a vibration in their user's body giving some knowledge of the city. Certainly, a person with a physical disability or a child in a pram has greater access to their surfaces than others.[8]

Skateboards, by contrast, use hard urethane wheels. When turned across rough ground, skateboard wheels directly resonate vibration to a steel axel, the same metal as a tuning fork, housed in an aluminum artifice called a "truck." Trucks aid the skateboarder in turning, but also attach by way of steel bolts to an even harder maple deck, a kind of wood often used for guitar necks and bodies due to its resonating qualities. In a word, a skateboard is a mobility device constructed out of simple resonating elements: an instrument played by both the city and the skateboarder. It is as if the skateboard is like a "white cane," which is designed for people with blindness "to maximize tactile and auditory input from the environment" (Cook and Polgar 2015). Skatesounds reverberate in the body of the skateboarder and echo in the ears of those nearby to the tune of the city's textures and materials. Those adept at feeling and hearing skatesound thus possess specialized knowledge of the city. And those without a tuned ear find annoyance and a source of complaint.

City surfaces and materials are "played" by a person riding on a skateboard in a rather systematic manner. Smooth surfaces produce a rushing flow. Increases in coarseness and cracks increase volatility. Like an instrument, a skateboard can be tuned to resonate the most direct correlations with the surface substrate upon which it rides. Expert participants can even derive the condition of their skateboard by its mere clank on the ground. Its trucks can be tight or loose, changing its vibratory propensities. When its deck is softened by moisture, or its wheel bearings are rusted, or its wheels partially flattened, they are replaced. Diverse "notes" and "tones" and "rhythms" of the skateboard are reflective of the speed at which the skateboarder rides, the surfaces upon which they ride, and the tricks the skateboarder selects in relation to the surfaces producing a sound "performance." It may be that the skateboarder's ability to control their sound, or conversely lose control and let the environment create an unexpected sound, makes skatesound such a powerful feature of the skateboarding experience.

From the perspective of texturology, noise complaints about skatesound from the public are a misnomer as skateboarding activity mirrors the city's surfaces and materials, reverberating loud coarse sounds to its coarse texture and soft sounds to its smooth surfaces. Thus, the city's coarse textures and materials are actively played by skateboarders to create their coarse skatesounds, a creation met with celebration by the trained ear of these participants and derision by the untaught public. By analogy, an adept violinist may play a cacophony of dissonant notes such as Beethoven's 9th or "The Devil's Interval,"[9] with the musically trained giving acclaim.

According to texturology, the skateboarder, like the violinist, is a knowledge producer of its environment using its sonifying tool. But instead of sonifying notes on a page, it emits the sounds of a city's terrain. The skateboarder's spatial knowledge is implicit, housed in the body, quickened by its unconscious "dorsal stream" processing (Goodale and Milner 1992). As Borden argues, "the spatiality of the skateboarder goes beyond the proximate body, and instead is conducted in relation to two physical 'Others' to the skater: the skateboard, and the terrain" (2001, 97). It is the skateboarder who understands the richness of the thick urban crust that pedestrians inattentively walk on every day. Skatesound forces the public to observe these surface conditions in a way never experienced before, using both the vibratory sound and feel from the skate instrument. From this method, the city can be perceived as an infinite canvas with aesthetic microtopography of artistic and sonic potential that is unlocked by a behavioral relationship between skateboarding and the ground. The skater's body knows its surface world intimately in a way that requires little conscious attention, freeing up the skateboarder to engage in their trick play and reappropriation of city spaces.

In sum, while the four perspectives discussed here present different explanations for disagreeing emotions in response to skatesound, they also reveal a spectrum from reactionary to reflective causes of disagreement, suggesting that disagreement may be endemic to skatesound debate. For instance, a subjectivist with a negative valence to skatesound cannot reason with a soundscape-based account with a positive valence, and would involve only a merely verbal dispute. These differing accounts suggest that perspective sharing may be the best strategy for finding common ground on skatesound. Rather than resorting to a subjective-based emotion when agreement is difficult to achieve, considering the basis of past associations of skateboarding and its participants may be more fruitful. In addition, common ground may be possible due to the skateboarders' specialized knowledge of the city's textures, one that can be shared with the public if they carefully listen to skatesound. In addition, this attention to sound provides a novel kind of agency over spaces in the city: a "sonic agency" that provides an added dimension of political life that can disrupt dominant orders of control (LaBelle 2018), an idea mentioned above that is deserving of further consideration.

Conclusion

Differing accounts of skatesound distinguishing emotional, associative, and epistemic responses to skatesound may expand a spectrum of common ground between skateboarding participants and the public. The four accounts of skatesounds also motivate diverse lines of research to better understand what to make of skatesounds' varying

valences and epistemologies. Future research may help better account for why skatesound scholarship is ignored or whether skatesight, i.e. "the skater's eye" (Redondo 1987) and skatesound produce the same kind of knowledge or if they are distinctive ways of knowing the city.

Our focus on texturology, a method that uses the skateboard as a tool for sonifying city streets, is a particularly fertile area for further inquiry. Texturology employs the skateboard as a kind of "Sensory Substitution Device (SSD)," normally a digital technology that translates stimuli from one sensory modality to another sense (Bach-y-Rita et al. 1969). Might a skateboard be a kind of non-digital SSD, a possible tool for an analog sensory translation from tactile textures to both sound and bodily vibration? On this view, the skateboard provides energy transfer from diverse surfaces: the cracks in tile and cement or the gaps between boards on a dock, to both vibrations felt by the user's feet up on the board up through their body and a sound emitting from the wheels to the participants ears as well as those of the general public. Perhaps, this is what Touché (1998) meant when he described the skateboard as a "sound board ('*tableau sonore*')." This translation from touch-based texture to auditory and felt vibration constitutes a unique sensory world worthy of its own investigation and research design.[10]

Knowledge produced by texturology might be understood in the context of the social theorist and phenomenologist Lefebvre, who presents distinctive interactions with the city as a kind "worldmaking," an idea adapted to skateboarding by Borden (2001) and applied to skatesound by Maier (2016). Lefebvre writes:

> "There is an immediate relationship between the body and its space, between the body's deployment in space and its occupation of space … This is a truly remarkable relationship: the body with the energies at its disposal, the living body, creates or produces its own space; conversely, the laws of space, which is to say the laws of discrimination in space, also govern the living body and the deployment of its energies. (Lefebvre 1991, 170)

The addition of the surrounding terrain's vibration and sound – a soundworld – informs the world-creation of the skateboarder to extend what is possible in city spaces, underpinning skateboarding's misfit uses of the built environment.

We conclude with a metaphor also mentioned by Konstantin Butz (forthcoming) that helps understand the ecological knowledge possessed only by the skateboarder. Imagine the skateboarder is like the diamond needle of a record player. By pushing their board, they move in the tracks of an immense surface of urban space. The skateboarder creates sound patterns according to the specificities of the surface: its materials, hardness, porosity, granularity, and joint lines. The trajectories of texture, comparable to a record's microgrooves, are then "read" by the tip of the diamond, the skate wheel, making the skater feel vibrations, from which flow a unique sound – a skateboarder's world of skatesound.

Notes

1. A visuocentric bias in skateboard media and analysis has left other sensory medias largely undiscussed like skatesound. One of the most famous discussions is "The Skater's Eye," as featured in Don Redondo's (1987) fictional tale of a character who wakes from surgery to find that her eye donor was a skateboarder. Her once-daily walk is now upset by her new eye's keen interest in a sign on a fence that reads, "pool," wherein the skater's eye independently

wanders to look over into the backyard, "forcing her to become cross-eyed for a moment." She is confronted with two visual worlds: that of a public pedestrian and of a participant skater. Some have even suggested that the way skateboarders have an eye for hacking the city is akin to how people with physical disabilities must mitigate disabling architecture like stairs (Klemin 2022). This "two-visual-worlds" distinction mirrors the skatesound polarity, where one world consists of sound and another noise.

2. https://vimeo.com/321329074.
3. https://samperkincomposer.com/skateboarding-and-composition.
4. Public Presentation at the *Pushing Boarders* Conference, Malmo, Sweden 2019.
5. See https://www.ibrattleboro.com/living/recreation-sports/2014/08/skateparks-and-noise-here-is-the-data/.
6. This insightful point is thanks to a reviewer for this journal.
7. Soundscape methodology has also been used to measure ecosystems, such as overall coral reef health: "reef soundscapes contain information about the presence, diversity, abundance and behaviour of organisms that are difficult to survey visually" (Lamont et al. 2021).
8. The lack of wheelchair access to various materials and surfaces is also problematic: stairs, curbs, bumps, roots, and other protruding obstacles in built spaces impede access and distract from the enjoyment of these varying feelings. Theirs is often not a happy knowledge as the city streets disable their access and ability to know the city through its texture (Klemin 2022).
9. The analogy between the adept violinist and the skateboarder's skatesound breaks down if we follow Lefebvre (1991) in theorizing a "soundworld." In a soundworld, skatesound is neither caused by the skateboarder n*or* their environment. Rather, the terrain informs the skateboarder's unique sounds not so much as a "second object," but rather as a collapsing condition to the very distinction between subject and object: the skateboarder and their environment are an integrated whole. It is from this integration of the skateboarder and their spaces that the skateboarder's unique soundworld is formed: the skater becomes indistinguishable from their environment. Unlike the violinist reading sheet music, the skateboarder becomes stitched to the regimes, spaces, and times of their urban space.
10. The Texturologievibratoire installation mediates the skateboard sensoryperception to the general public and can be explored here https://www.maxboutin.com/texturologie-vibratoire.

Acknowledgments

We would like to thank the audiences and co-participants at two conferences where a draft of this paper was presented: The Stoke Sessions at SDSU and Uncommon Senses IV at Concordia University. We would also like to that the two anonymous reviewers at this journal for their insightful comments.

Disclosure statement

No potential conflict of interest was reported by the authors. Interviews were conducted under ethical approval from University of Exeter ethics committee Ethics Application ID 518898.

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