

Carbon Movements: Relational Dramaturgy in Deaf and Hearing Dance Creation

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Entering the Unknown

Entering . . . in Performance

You walk into a black box theatre. To your left, a wooden frame filled with coal-black grain covers the stage floor. To your right, wearable belts with adjustable vibration levels are positioned on steeply raised rows of chairs. In between, two rows of chairs are arranged among miniatures of the stage, inviting spectators like you to touch. If you do, a white underlayer is revealed as your interaction leaves traces and clears ground (see figure 1).



Figure 1. *Carbon Movements* performance, Fluid Fest, Calgary 2023.
Photo by Darin Gregson.

Image description (previous page): Defined by a spotlight, a young child shapes black grain in a miniature frame with their hand. Their light-skin face expresses calm focus. We glimpse their eyes below large glasses and heavy bangs. From deep darkness surrounding them, we see an adult hand stretching to scoop aside grain. The image is greyscale.

The performer enters dressed in a white T-shirt and light grey training pants. He walks in front of you, visually taking in his surroundings. Approaching each miniature, he runs his fingers by a frame or gently rests his hand on grain. Darkness descends on spectators, directing your attention to light on the full-scale frame. The performer locks eyes on a distant wall while slowly stepping onto the interior. Once his body weight shifts onto the coal-black grain, he slows down and attends to the sensory touch of each step, gradually discovering white footprints left behind. When he too becomes immersed in darkness, he kneels and stretches out the palm of his hand to carefully touch the space, which offers light in return.

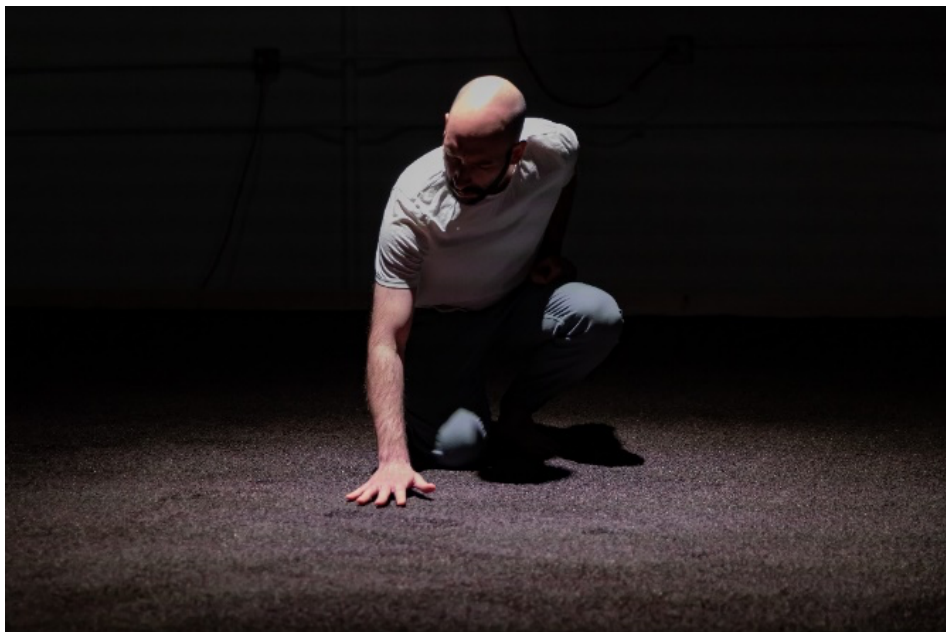


Figure 2. *Carbon Movements* performance, Sound Off, Edmonton, 2023.
Photo by Armand Bladon (<https://www.armandbladonphoto.com>).

Image description: We see Connor bending down on one knee, reaching out his arm to touch the grain with a flat hand and flexed fingers. The background is in darkness. Connor and the grain below him are bathed in soft brown light. Connor appears as a young white man with neatly trimmed beard and a close-buzzed head.

Entering . . . in Creation

This moment of touch marks the opening of *Carbon Movements*, an Invisible Practice dance–theatre work, co–created in Canada by the contemporary dance choreographer Ainsley Hillyard (hearing) and the performer Connor Yuzwenko–Martin (Deaf). The work applied vibrotactile technology solutions by David Bobier (hard of hearing) and Jim Ruxton from VibraFusionLab. The process also involved theatre dramaturgical support from Chris Dodd (Deaf), dance dramaturgical input from Pil Hansen (hearing, physically disabled) and Aimee Rushton (hearing), and American Sign Language (ASL) interpretation, primarily by Gail Benin and Andrea Konowalec (hearing). *Carbon Movements* was developed over five two–week periods in 2022 and 2023, through

- dance studio research in Edmonton,
- technological exploration at the VibraFusionLab in Hamilton,
- a dance residency at the Banff Centre for the Arts,
- production and premiere in the SOUND OFF festival of Deaf Theatre in Edmonton, and
- adaptation for tour and presentation in the Fluid Fest, a dance festival in Calgary.

This co–authored article focuses on the Deaf–centric process dramaturgy of Ainsley and Connor’s collaboration. The facilitation of hearing and Deaf dramaturgs receives secondary consideration.

The creation process began with a visual idea. Ainsley’s choreographic work is driven by strikingly kinesthetic (movement–based) images. Associations from these images inhabit her thoughts over time. When Ainsley begins to explore an image through movement, its context and conceptual potential becomes revealed. For *Carbon Movements*, the image was a performer signing through a waterfall of sand–like particles. It was evoked when Ainsley witnessed Connor perform sign poetry during the pandemic. Choreographic ideas emerged after witnessing a VibraFusionLab presentation of vibration technology for d/Deaf users (Bobier, Sawchuk, and Thulin 2021).¹ It inspired

¹ Footnote: VibraFusionLab adapts wearable technology for the purpose of providing physical vibration experiences that are accessible to D/deaf audiences and artists and can be integrated in artworks. In other contexts, vibration technology is also used to support vibrotactile communication forms, developed with and for D/deaf people who are non–signing.

Ainsley to connect the waterfall with a vibrotactile score: a composition of vibrations, transmitted through engines in the floor or in wearable objects, and sensed through touch. She imagined that this score might affect a performer, the performance space, and spectators alike.

Ainsley brought these ideas to Connor and Chris. Seeking a thematic anchor, the collaborators arrived at the concept of carbon movements. Carbon is the building block of human biology. Craving carbon, we are excavating fossil fuels and burning them to build a human-centric world at a rate that destabilizes the environment we depend on. Resonant interactions between vibrating instruments, environmental particles, and a moving body might reveal something about the environmental naivety and future of humans' carbon desire.

At the outset, Ainsley had little access to Deaf culture or language. Dedicated to reducing this barrier, she spent the pandemic lockdown months learning beginner-level ASL. Similarly, Connor felt underprepared because he lacked experience with dance and vibrotactile technology for the stage. He was, nevertheless, determined to help expand the boundaries of Deaf stage art in Canada through this challenge. In other words, both collaborators stepped into the unknown with determination to learn.

And learn they did, mostly from each other. In the first phase of the process, they shared open and honest conversations about access needs and ways of working. Ainsley received ASL advice and adjustments from Connor when working without an ASL interpreter. Over time, this led her to integrate her, now growing, signing skills fully into their work methods, also when interpreters were assisting.² Connor worked through a series of movement tasks devised by Ainsley to explore his physical and mental movement strengths and vulnerabilities. Turning, folding, and rolling repeatedly provided contact between the floor and parts of Connor's body that afforded him proprioceptive (body-experienced) awareness of the space. Gradually, these tasks and the positive feedback received from Ainsley led to more confidence in his ability to express himself through movement. He began to

² Footnote: We also learned that more work is needed to support ASL interpreters as they adapt to less-mediated communication between d/Deaf and hearing collaborators.

own being a physical person, describing himself as a Deaf body that intrinsically understands and appreciates the spatial abilities of the body.

Through these reciprocal learning processes, Connor and Ainsley avoided many of the conflicts between communication forms that repeatedly surface in publications on collaborations between d/Deaf and hearing dance artists (e.g., Stamp 2022, 54; Hodge 2020, 66–68).

When approaching Deaf and hearing collaboration (mixed hearing), it is useful to engage with a broad selection of the communication forms used in d/Deaf language ecologies, including:

- signing and facial expression in a sign language (e.g., ASL);
- writing, reading, and live captioning in a spoken language (e.g., English);
- drawing in sand or other medium;
- lip reading and vocalizing, demonstrating with movement.

Such forms differ across communities and depend on whether a person was born deaf, became deaf later in life, or is hard of hearing (Hodge 2020, 60–62). Deaf with a capital D signals self-identification with Deaf culture and language ecology, whereas deaf with a lowercase d indicates a bicultural identity, positioned between Deaf and hearing culture (Hingson et al. 2024, 3–4).

Conflicts of communication in mixed hearing collaborations are typically caused by audism. Audism refers to hearing-centric ways of knowing, working, and communicating that stereotype, exclude, or disadvantage d/Deaf people (Kochhar-Lindgren 2006, 419). For example, a hearing choreographer may give verbal instructions to a moving d/Deaf dancer, who is turned away from the signed interpretation. A hearing choreographer is likely to demonstrate movement while vocalizing instructions, leaving the d/Deaf dancer to split their attention between the choreographer and the simultaneous ASL interpretation (Hodge 2020, 66–68). Hearing dancers often rely on vocal counting or sounds to memorize and recall movement, leaving out of synch d/Deaf co-dancers who use visual and vibratory markers and cues (Hansen 2022, 41–43).

When d/Deaf dance artists repeatedly have to address audism by self-advocating for access, it is exhausting and can be disabling. Deaf culture provides a much-needed alternative to hearing norms (Kochhar-Lindgren 2006, 419). A deaf-centric dramaturgy extends d/Deaf culture and communication forms through the expressive means of the performing arts, and vice versa. Achieving this requires a creative process that is embedded in d/Deaf communication forms and ways of knowing (for other relevant examples, see Hodge 2020; and Hingson et al. 2024).

As we later return to reflect on the choices that worked for Connor and Ainsley, we are sharing our response to this call for deaf-centric approaches in mixed hearing dance creation.

Exploring Space of Expression

Exploring . . . in Performance

Kneeling, the performer moves his hands in circles through the coal-black material. He lifts handfuls of grain and watches as gravity pulls it through his fingers. Letting the material rest on his inner arm, he watches and registers the sensation of touch. As he rubs the grain into his skin, seeking more sensation, handfuls scooped up become larger and spill to the side. With fascination and curiosity, he moves in the space, sending out fans of grains. When throwing material into the air, he realizes it falls on him and can be caught. This play erases the path of footprints first created and leaves a pattern of indents and white patches. The performer discovers that a patch can be stretched by sliding through it, especially when taking off at running speed. Landing on the ground, he begins to shape oval patches with his hands and forearms, producing mountains, valleys, and circumferences—first around his body, then distributed in space.



Figure 3. *Carbon Movements* performance, Sound Off, Edmonton, 2023.
Photo by Nanc Price.

Image description: Viewed from the side and in a wash of white light, Connor is kneeling on the black grain. His attention is locked on a swirling pattern in front of him, featuring cleared ribbons of white floor. His hands are at work, creating the design.

Exploring . . . in Creation

In the second phase of creating *Carbon Movements*, Connor and Ainsley explored expression through improvised interaction with the grain, its affordances (how it wants to move), and the underlying white floor. Ainsley's choreographic instructions helped Connor understand how different motions and body intentionality can convey intent. He felt attuned (aligned and aware) to the layering of multifaceted meaning involved, in part because sign language requires comparable attention to layering and complex cues. In turn, Ainsley attuned her choreographic attention to Connor's perception and responses when identifying improvised moments to revisit with new tasks. Leaning into the strengths of his embodied memory and this new learning with confidence, Connor started contributing more dramaturgy to the emerging visual and internal narrative.

Connor and Ainsley also began to discover movement sourced in signing and to imbue signing with choreographic layers of expressivity. For example, when developing the section where Connor is creating circular patterns in the grain, his hands were initially fingerspelling *C-A-R-B-O-N*. Ainsley and Connor both felt the spelling was too literal. However, they found the way rice spilled over his hands and obscured the spelling expressive and continued working with this affordance of the grain. A subsequent section, when Connor's creation of circles moves into the larger space, carries more noticeable traces of signing. Here, the creation process started with pedestrian (everyday) movements, interacting with the grain and building compelling circular images. Ainsley tasked Connor to repeat the movements over and over again while watching as signs emerged. The result was developed into sign poetry by bridging between and expanding the signs that appeared: *searching*, *magic*, *transform*, *crush*, and *destroy*. Connor also drew on these concepts to further clarify and layer the internal, emotional intentions of his actions and reactions. A more legible choreographic sign poem is embedded in a later waterfall sequence. This sequence was sourced in a poem Connor created alongside Ainsley's haunting image. In creation, they started with the poem and let interaction with sand falling over Connor's signing hands adapt the movement.

Considering this range from sign-based movement to choreographic sign poetry, it is relevant to ask what may be gained and lost from merging choreography and signing. As described in Brie Hadley's discussion of universal design for audiences, aesthetically abstracted communication forms and access tools can produce less accessible and comprehensible experiences (Hadley 2022, 186). If, for example, the formal movement of signs is drawn on to create an abstract movement sequence that then is layered with juxtaposing intentionality, then the sign meaning is lost. Inspiration can be drawn from embodied songs and sign poetry to instead embed multisensory communication in choreography (Fisher 2021, 1–3). In these art forms, poetically expanded signs and musical bridges between signs retain strong anchors in the signs' original meaning and context, including emotional expressions (Fisher 2021, 8).

Ainsley and Connor's process of reciprocal learning and attunement between choreographic and d/Deaf language cultures ensured that d/Deaf forms of communication became more fully embedded in the work. As a result, the range of sign abstraction in *Carbon Movements* falls between dance and sign

poetry. The work includes multilayered and emotional forms of communication, which provide more clarity for d/Deaf spectators and accommodates ASL-illiterate spectators, that is, while deliberately keeping the work open for different empathetic, sensory, and interpretive experiences.

Shaping Landscapes of Agency

Shaping . . . in Performance

As the performer builds patterns with intentionality, the space reacts with pulsing vibration of air (subwoofer). He responds by organizing more intricate patterns, clearing a large circle of white space as his canvas. In turn, sections of the floor begin to vibrate, softening the edges of his designs. The performer jumps up in surprise, carefully seeking a safe foothold within patches of white that shrink in response. The paths drawn are erased and his feet end up covered in the coal-black grain. Dropping to his knees, he attempts a more forceful approach, clearing swaths of grain firmly with his forearm. When this effort fails, the vibrations come to rest. Simultaneously, miniature frames in the auditorium begin to vibrate one by one, erasing patterns created by spectators within your view. The performer discovers that an air current clearing a patch pauses momentarily when he rests both hands on the revealed floor bed. Using that connection, he expands the patch to contain his body. The clearing is white and pristine, with edges carefully managed by the performer. Back on his feet, he takes it all in and begins to appeal to his surroundings with urgency, poetically signing *want, what, desire, searching, unknown, magic, transform, crush, destroy, un-destroy/reverse destroy, expand, possible, impossible*. He pauses when a waterfall of coal-black grain slowly begins to fall in front of him. With closed eyes, he carefully reaches his arms through the fall, touched by and touching the grain while signing. Obscuring signs, the grain falls through his fingers. It mounts on his feet and covers the clearing.



Figure 4. *Carbon Movements* performance, Sound Off, Edmonton, 2023.
Photo by Nanc Price.

Image description: In greyscale, we see Connor's profile from the waist up. His hands are signing through falling grain and his head is bent with closed eyes. The image has stark contrasts of white and black. Slim outlines of Connor's arms and face catch light that otherwise seems reserved for the falling grain.

Shaping . . . in Creation

The focus of the third phase of creation was on enacting and discovering different kinds of relationships with the landscape. The tasks Ainsley first devised invited Connor to respond to the affordances of the space and manipulate them in return. Aiming for more equitably distributed agency, Ainsley wanted to empower the space to collaborate with the performer, perhaps even overtake him. The waterfall was Connor's first experience of the environment as a subjective entity: something that could affect him and require him to surrender control.

Creating a real and impactful feedback relationship was important to reflect thematically on carbon dynamics. Ainsley and Connor shared an understanding of their complicity in settler-colonial excavation and its effect on the climate. Rather than expressing this understanding explicitly, they wished to direct their spectators' attention toward dynamics of complicity and the possibility of co-existence.

A clearer feedback relationship was also needed for the dramaturgy of composition our team worked on at the Banff Centre for the Arts. Pil had that in mind when offering dance dramaturgical suggestions for how to establish readable and iteratively developing action–reaction patterns. Her focus was on interaction that might gradually increase the performer’s and the environment’s awareness of their carbon relationship.³ Chris’s theatre dramaturgical input focused on Connor’s intentions and emotional reaction to each exchange and discovery. Ainsley and Connor used dramaturgical feedback from these complementary perspectives in support of

- Ainsley’s visual mapping of materials and outlining of potential compositional journeys, and
- Connor’s fine-tuning, adding and adjusting layers of emotional intentionality.

Returning to the previous discussion of ways of working, dramaturgs were invited into the room at specific times, and their input was shared in planned discussion periods. This approach helped reduce competing gestural and vocal noise during the physical work. The hearing dramaturg, Pil, was given additional directions to filter audism. Part of a dramaturg’s role is to observe the way collaborators work and support that process. Another dramaturgical principle of relevance is to provide questions and feedback that support the agency of the artists in the room (Hansen 2018, 185–86). These principles were matched by similar priorities in Ainsley and Connor’s reciprocal learning process and collaborative approach. As a choreographer, Ainsley would lead the process and make confident decisions, after listening to and choosing between ideas, discoveries, and suggestions arrived at collaboratively during rehearsal.

In an earlier creation phase, and supported by VibraFusionLab, Ainsley and Connor had experimented with transducers under the stage floor and subwoofers (Bobier, Sawchuk, and Thulin 2021). Although felt on stage, neither were powered to affect the environment or reach spectators.

³ Footnote: For a related example of environmental feedback system as dramaturgy, see Pil’s analysis of Lee Su-Feh’s *Dance Machine* (Hansen 2022, 111–26).

The perceptual dramaturgy of the work created this far invited the viewer's eyes and embodied empathy to mirror Connor's strong attention to touch, proprioception (sense of movement within his body), and visual stimuli (Hansen 2011, 115–18). This reflects d/Deaf reliance on visual perception and motor response (Fisher 2021, 11). By adding more powerful vibrotactile stimulation and pairing it with visually detectable environmental responses, we might transcend the fourth wall. The strongly enhanced capacity of Deaf people to perceive vibration, and significant ability of the hard of hearing, is well established in research measuring neurological responses to vibration (González-Garrido et al. 2017). Vibrotactile impact might therefore expand the enacted carbon dynamic beyond the stage, immersing spectators as complicit humans in the space.

The creative team experienced a breakthrough when VibraFusionLab replaced the transducers with motors capable of producing stronger vibration. When these motors were activated, Connor no longer experienced standing on the stage; instead, he felt immersed in the full-body vibratory response of the environment. He found it scary, exciting, overwhelming, and tantalizing; emotions he now could enhance or subdue performatively (realistically) instead of theatrically (pretending).

With access to vibration impact in the last phase of creation, environmental feedback exploration became more realistic and playful. Ainsley would, for example, turn on and off motors under different floor sections, while Connor chased the vibration physically and registered his emotional response. They made vibrations travel, destabilize the grain, and overtake the performer immersively. This created a relationship between the performer and an environment that had mobility and agency.

Dramaturgical ideas were advanced for how to enhance the transfer of Connor's experience to the audience. VibraFusionLab's wearable vibration belts were already in place for spectators and incorporated into the vibration score of the work. The idea of miniatures with grain and embedded motors for the auditorium was developed to invite vibrotactile interaction and intimacy. When first suggested by Pil, the idea was to build an amplifying and multisensory bridge to Connor's discovery of environmental relationships. The final miniatures took this idea further, using interaction to gently raise questions about complicity.

Sharing Relational Space

Sharing . . . in Performance

With tender pleasure, the performer places a handful of grain caught from the waterfall on the mount. More resolutely, he walks to a stage corner, drops on his thigh, and uses the length of his legs to push grain toward the centre, again and again, clearing long white ribbons. He only pauses to repeat the action on a miniature frame between spectators. As the work progresses, his speed and forcefulness accelerate. The centre of the stage is now transformed into a mount of grain, defined by the tracks of excavation surrounding it. Slowing down in a wash of red light, the performer places finishing touches with more care and sensory attention. He shuffles on his knees and toes in a circle around the mount while moving large handfuls of grain that leave behind an organic pattern. The floor responds with global vibration, disintegrating the edges of the mount and destabilizing the performer. Dropping to the floor, he tries to hold on to the edges, but fails.



Figure 5. *Carbon Movement* performance, Fluid Fest, Calgary, 2023.
Photo by Darin Gregson.

Image description: In panorama view, we see six lit up miniatures and body parts of spectators who catch the spotlight as they touch the grain or sit by it. We also see Connor kneeling by a mount in the centre of the full-scale frame, washed in red light.

Instead, he stands and cautiously places a foot in the mount, watching it disappear in the material. Using his arms for balance, he steps fully into the mount, recentres his body weight, and then relaxes. In response, the floor vibrations migrate to the edges of the frame, and then dissipate, leaving performer and environment in shared silence. Slowly, he reaches down to touch, letting one knee integrate. With empathy, he lowers his torso and face too. You witness the performer nesting and softening into the mounds' reaction, allowing it to shape his body.



Figure 6. *Carbon Movement* performance, Sound Off, Edmonton 2023.
Photo by Nanc Price.

Image description: This close-up, greyscale image features Connor's upper body as he rests in the mount and stretches his hand through the grain with particles attached to his forehead.

The grain fills in and accentuates the negative spaces of his body while a sensuous relationship unfolds. Grain attaches to his face and arms as he stretches into the sensation . . . until he falls to rest, and the light dims. In the dark, you feel miniatures vibrating.

Sharing . . . in Conclusion

In this moment, Connor draws on connection and reciprocal care between internal and external landscapes to let a deeper understanding settle. One where past destabilization can become a lesson for what comes next. Only when revisiting his performance for our essay, Connor realized that echoes of the sign *finish* take shape when his hand settles into the mound.

At this conclusion, we see a parallel between the compositional dramaturgy of *Carbon Movements* and the dramaturgy of collaboration in the process of creating the work. Both depend on distributed agency, reciprocal feedback, and learning to listen with multiple senses. Both require entering a space of not knowing while taking time to explore and learn how to communicate. Once that has been achieved, the work that is created becomes as multilayered as the communication is, resonantly relating d/Deaf and choreographic languages to navigate with increased care.

References

- Bobier, David, Kim Sawchuk, and Samuel Thulin. 2021. "An Interview with David Bobier of VibraFusionLab." *Canadian Journal of Disability Studies* 10 (2): 237–54. <https://doi.org/10.15353/cjds.v10i2.800>.
- Carbon Movements*. 2023. Choreographed and designed by Ainsley Hillyard, created with and performed by Connor Yuzwenko–Martin, dramaturgy by Pil Hansen, Chris Dodd, and Aimee Rushton, technical development by VibraFusionLab, ASL interpretation by Gail Benin and Andrea Konowalec. Produced by Invisible Practice. Touring performance at Fluid Fest, C–Space, Calgary.
- Fisher, Vicky J. 2021. "Embodied Songs: Insights into the Nature of Cross–Modal Meaning–Making Within Sign Language Informed, Embodied Interpretations of Vocal Music." *Frontiers in Psychology* 12:624689. <https://doi.org/10.3389/fpsyg.2021.624689>.
- González–Garrido, Andrés A., Vanessa D. Ruiz–Stovel, Fabiola R. Gómez–Velázquez, Hugo Vélez–Pérez, Rebeca Romo–Vázquez, Ricardo A. Salido–Ruiz, Aurora Espinoza–Valdez, and Luis R. Campos. 2017. "Vibrotactile Discrimination Training Affects Brain Connectivity in Profoundly Deaf Individuals." *Frontiers in Human Neuroscience* 11:00028. <https://doi.org/10.3389/fnhum.2017.00028>.

- Hadley, Bree. 2022. "A Universal Design for Audiences with Disabilities?" In *Routledge Companion the Audiences and the Performing Arts*, edited by Matthew Reason, Lynne Conner, Katya Johanson, and Ben Walmsley. Routledge.
- Hansen, Pil. 2011. "Perceptual Dramaturgy: Swimmer (68)." *Journal of Dramatic Theory and Criticism* 25 (2): 107–24. <https://doi.org/10.1353/dtc.2011.0023>.
- Hansen, Pil. 2018. "Dance Dramaturgical Agency." In *Contemporary Choreography*, 2nd ed., edited by Jo Butterworth and Liesbeth Wildshut. Routledge. <https://doi.org/10.4324/9781315563596-17>.
- Hansen, Pil. 2022. *Performance Generating Systems in Dance: Dramaturgy, Psychology, and Performativity*. New ed. Intellect Books.
- Hingson, LaReina, Keely Song, and David Schekall. 2024. "Use of American Sign Language and Deaf Participants in Dance Theater: Considerations in Practice." *Journal of Dance Education*, ahead of print, February 7. <https://doi.org/10.1080/15290824.2023.2227859>.
- Hodge, Gabrielle. 2000. "The Ideology of Communication Practices Embedded in an Australian Deaf/Hearing Dance Collaboration." In *Sign Language Ideologies in Practice*, edited by Annelies Hermann, Markus Steinbach, and Ulrike Zeshan. De Gruyter.
- Kochhar-Lindgren, Kanta. 2006. "Hearing Difference Across Theatres: Experimental, Disability, and Deaf Performance." *Theatre Journal* 58 (3): 417–36. <https://doi.org/10.1353/tj.2006.0159>.
- Stamp, Kathryn. 2022. "Exhibiting Images of Disabled Dancers: Comparison, Reconstruction or Disruption?" *Dance Research* 40 (1): 41–60. <https://doi.org/10.3366/drs.2022.0357>.