Expressive Bodies
Engaging with Embodied Disability Cultures for Collaborative Design Critiques

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ABSTRACT

In our experience as researchers engaging with non-academic audiences, we observed that it remains a challenge to receive direct and critical feedback from participants. This is particularly amplified in the context of disabilities even if the researchers identify themselves as disabled given that the interaction is governed by social status and material power dimensions to say the least. To work productively with these power dynamics, we explored embodied approaches to articulating critique acknowledging the different ways of knowing stemming from different bodyminds. Here, we line out two exploratory cases illustrating how physical bodies can be directly attended to to express critiques in more direct ways than participants might be used to on a language based level (spoken or signed). We show how communication and critique can take on many forms encouraging us to broaden our methodological toolset to incorporate practices common in disability cultures. Our experiences show that we need to embrace crip approaches to knowledge production to receive more actionable and useful feedback in developing technologies with disabled communities.

CCS CONCEPTS

• **Social and professional topics** → **People with disabilities**; • **Human-centered computing** → **Accessibility design and evaluation methods**.

KEYWORDS

disability cultures, Deaf cultures, Autism, Neurodivergence, crip methodologies, embodied critique, critical bodyminds

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1 BRINGING BODIES BACK INTO CRITIQUE

Methods involving people when evaluating, testing and assessing technologies in Human-Computer Interaction (HCI) come with a range of expectations as to which skills these people have to bring to the interaction to be considered as suitable partners. This becomes particularly relevant when designing and developing technologies with and for disabled people [23], although the notion that bodies are relevant to the technological research we conduct has potentials reaching beyond these populations [40]. Here, the suggestion is often to adapt methods to make them and the overall research environment, be it virtual or physical, accessible to participants, while leaving the methods themselves untouched [23]. Such adaptations become more and more common to be reported on, such as work by Dingman et al. on adapting interview practices for Deaf and Hard of Hearing (DHH) populations [7]. How easily methods can be adapted to specific populations might also explain why some disabilities are catered more to in technological accessibility research than others [25]. Overall, within communities researching technologies for and with disabled people, we further notice an emerging trend of moving towards 'cultivating access' [26]. However, in general purpose technological contexts, the ableist paradigms of Western societies [3] seep into the design and development as well as the methods for assessment allowing us to understand their potentially exclusive character [41], which has been illustrated in detail for virtual reality technologies [12].

In thinking with disability cultures [36], crip theories [30] and notions of disability justice [33], we draw on an understanding of situated knowledges [14] to probe how we might think about not only making existing methods accessible, but in a notion of cripistemologies [16] develop complementary methods arriving at different kinds of knowledges. Doing so we aim at acknowledging how bodyminds in their particularities [4] aid us in honouring a range of ways of knowing about and understanding technologies. A first step here is to involve disabled people in research about them due to their individual and relevant expertise [32], which has been argued for HCI specifically prominently in previous publications [28, 44]. However, a recent survey by Sarsenbayeva et al. illustrated that 32% of articles discussing motor disabilities and technologies are still published without indicating the involvement of disabled participants at all [38]. Similarly, even in games, we observe a dominance of the medical, i.e., individualising model of disability governing research questions, technological design and

development as well as assessment [43]. To attend to the particularities of disabled knowledges, recent years have seen an uptake of first person research methods, so far mostly in the context of autoethnographies detailing travel experiences of hard of hearing [15] or blind travellers [46]. Regardless, the expertise of disabled researchers remains, at least partially, subject to epistemic violence [49]. This makes it difficult to consider methodological approaches with even less foundation in more classical understandings of what methods can and should do in HCI and what principles they should be anchored on.

To explore how this might look like, we reflect on two exploratory case studies that illustrate the potentials of understanding critical feedback not just in ways of direct language based engagements or detached sensor measurements (see also, [2]). In both, we collaborated with disabled people in different settings at different times with a focus on what we may achieve by attending to what we call *expressive bodies*, i.e. the use of the body-based expressiveness of a range of different bodyminds beyond direct language based communication – spoken or signed. With these, we hope to show possible steps of how we might go beyond the cultivation of access by specifically positioning our research not just in the context of disabilities but disability cultures and the situated practices and relations therein as they pertain to the construction and negotiations of different knowledges [16].

In this experience report, we start by probing the two different ways of embodying critique, we observed, first in the context of participatory design with autistic children then in the context of observing actors in the production of a short movie by Deaf filmmakers. We show initial steps as to how bodies can express themselves in different ways with different functions of what critique might be as contextually required. In reflecting on these, we discuss and speculate on the potentials of expressive bodies as a way of moving towards critical crip methodologies in HCI [48] more broadly. We choose the form of an experience report as a non-anonymous venue to openly and transparently engage with our own positionalities and the particularities that come with our research contexts and inquiries.

2 TWO WAYS OF EMBODYING CRITIQUE

In our initial probing of an understanding of embodied critique as relevant to the contexts of disabilities and technologies, we draw on two case studies that allow us to speculate on the potentials of such approaches. Both lie multiple years apart, the first one occurring in 2015 whereas the latter happened during the end of 2021. Furthermore, both of these situations come with entirely different positionalities of participants and, due to the large temporal gap between them, partly also the researcher involved in both. Our intent is to show how embodied critique can have different functions even though there are shared aspects as to what can be the base of a conversation stemming from attending to expressive bodies in addition to language based communication.

In that we need to acknowledge the epistemological limitations of our own embodiments. Katta is a hearing, neurodivergent, nonbinary, white researcher with chronic illnesses from central Europe and the main person conducting the research inquiries presented here, which all occurred in Austria. They have taken classes in Austrian Sign Language (Österreichische Gebärdensprache – ÖGS) regularly during the past two years. Robin is a Deaf, cis male, white graduate student also from central Europe studying in Austria. He is a native signer of German Sign Language (Deutsche Gebärdensprache – DGS[1]). Both of them have collaborated on this work by drawing on their researched and lived experiences across and within their respective communities. However, given the specificity of our own embodiments as well as those of our partners, we can only offer the start of a broader conversation towards critical crip methodologies. We do not stake the claim to offer any finalised insights on these matters, but rather intend to present an additional "articulation towards Crip HCI" [48], an invitation to a conversation about how we might consider methods grounded in disability cultures to understand technologies with disabled communities differently.

2.1 Taking on Emotions like Capes

The first project we draw on was concerned with the participatory design of technologies for the holistic wellbeing of autistic children, called OutsideTheBox [10]. As part of this project, which ran from 2014 through 2017, Katta was involved in eight different case studies where a team of designer-researchers developed eight functional prototypes based on year-long participatory engagements with individual (or, in one case a pair of) autistic children. Our overall methodological approaches and practices have been described elsewhere (e.g., [ibid]).

Here, we report on our collaboration with Dean[2], specifically from a session during which we aimed at evaluating the technological artefact we previously designed and built together after a longer break from meeting each other due to the summer holidays. While we later had developed a participatory form of evaluation [45], this was one of the sessions, that inspired us to do so, occurring in 2015, when Dean was about eight years old. In building up a collaborative relationship with Dean in the months prior, we had to first figure out how to build up an environment of trust in which Dean would feel comfortable voicing his perspective instead of trying to figure out what might be the specific thing we would like to hear at a specific moment.

This was particularly pronounced for Dean, which we deem likely to be based in the use of Applied Behavioural Analysis (ABA) in his education and family. Subsequently, Dean's parent implied that they expected us to follow the structural approach of ABA. The approach requires a child, to be under a near-constant therapeutic setting ('intense' treatments expect 36 hours per week [8]). At the time of our collaboration, it was not yet academically discussed, but studies showed later that an exposure to ABA in early education potentially leads to a development of Post Traumatic Stress Disorders for individuals [21] and is predominantly assessed as "detrimental" later in life [29]. This has lead to quite a movement of professionals leaving the field of ABA [22], with some psychologists even going as far as characterising the involved practices, particularly those around operand conditioning, as abuse [37]. Subsequently, we did not feel comfortable complying with the parent's request.

[1] ÖGS and DGS are, in contrast to the shared spoken language between Austria and Germany, entirely different languages, even from different language families.
[2] We have altered his name to protect his privacy in this publication.

Yet, the daily use of ABA still influenced the communication between design-researchers and Dean, requiring a base of trust and a constant, fairly explicit encouragement towards being critical or even just silly. In addition with the long break between prior engagements and the different context of use of Dean's technology away from interactions with us towards use in a family context, we were worried about how we could encourage Dean to voice critical feedback, where appropriate.

Figure 1: Interaction with Dean during the evaluation session while talking about the technology with the artefact (to the left) and while playing out emotional responses to the artefact

Hence, about a month before the session, we had organised a social outing during which Dean and Katta visited a movie theatre to watch the movie "Inside Out" (Pixar, 2015). Inspired by the five emotions in the movie (Joy, Sadness, Anger, Fear, Disgust), we supplied five chairs with five coloured cloths as props. We further provided three different scenarios that were familiar to Dean. He could pick any emotion for each scenario and show us how he would interact with his object in that context. Through that, we could identify core emotions affecting the experiences Dean had with the artefact.

In embodying these emotions, Dean became much more expressive and direct in his assessment of the technology. While during an early conversation in the session, the comments Dean made were somewhat descriptive and his motions more illustrative of what you could see (cf. Figure 1 on the left), but less assessing or critiquing the object or the interactions he had with it. Using the chairs and using his body to express different aspects the interaction could take on, matching specific scenarios (i.e., family, school, friends) to distinct emotions and playing out their reactions made Dean loosen up and share more insights into his nuanced assessment of his artefact, that was context dependent and layered. Whereas previously, he presented the object in a matter-of-fact way as global "good", taking on the emotional capes, in a way, encouraged him to be more expressive with his body in articulating these critiques. This is further illustrated in the close and animated interaction between Dean and Katta shown to the right in Figure 1).

This physical closeness was accompanied and potentially even fuelled by the simultaneously established aesthetic distance through acting things out [19]. Taking on a personified embodiment of an emotion and playing it through creates this distance and, with it, creates a space of plausible deniability. In light of insecure power positions and the need for re-establishing previously held relationships which had a precarious nature at best, Dean could enter a space where he could express critique through his body while also having the fallback option of declaring this 'just play' or 'a joke' in case we would respond negatively to his articulations.

Conceptually, this is supported by the notion of a surrogate body position [42], one where Dean's body becomes the expression of the emotive potential. This means, the self and the embodied persona (in this case, the specific emotion with their known characteristics) create a new melange of critical potential that can be abandoned at a moment's notice in case this becomes necessary due to the social circumstances turning out to be precarious or unsafe for whatever reason. Through that, this procedure offers an option for establishing the trust and safety net that is necessary when power dimensions are complex and fraught. Or, phrased a bit more bluntly: if you are used to critique being discouraged, taking it up again needs to happen in a structural form that allows for plausible deniability to at least partially remove the stress this form of communication tends to bring along in your everyday experiences.

2.2 Acting out Technology

Our second case revolves around the notion of sign language avatars and the critique from Deaf individuals. Particularly, native signers are already used to utilising their bodies more in language based interactions, including literally embodying different perspectives in constructed dialogues (i.e., the reporting of a dialogical situation) [31]. However, this is an implicit language feature that is applied semi-automatically and with little explicit reflection on the topic discussed (akin to Schön's concept of reflection-in-action). By deliberately thinking through making different choices in expressing critical perspectives through one's body, signers enter a state of actively reflecting on their critique beyond the direct relationality to language (akin to reflection-on-action [39]).

The topic of sign language avatars is a highly controversial one within Deaf communities globally [6] as well as locally [11]. Deaf representatives argue that sign language avatars reduce the complexity of both written and signed languages, potentially contributing to language deprivation for younger signers or those acquiring sign languages later in life. Further, they are less likely to understand the register of communication required for specific audiences and only operate one-way from written to signed content and should be carefully used in specific contexts only [20]. Recent research by Quandt et al. illustrates further that native signers require a higher degree of quality regarding the overall motion capabilities of sign language avatars to be sufficiently acceptable for them [34]. Additional research suggests, that Deaf populations prefer if language parameters for avatars differ from human signing in some aspects, for example signing speed and timing [1].

Methodologically, within HCI, there are specific recommendations as how to include Deaf communities in research on sign language avatars. Kipp et al. suggest focus group interviews and

online surveys [18]. However, group dynamics in these research settings and the often heavily text-focused modes of online surveys come with their own problems and exclusions, privileging people who feel comfortable to provide feedback in groups. Surveys, even with questions signed, come with the issue of providing limited options for answers, which often still have to be provided as text, and, subsequently, critical nuance. Open questions are only available to those who feel confident in using written English (or, as is the case with our reference, German), which to many native signers is a language acquired later in life or those with sufficient technological savvy to provide a link to a video responding in sign. Hence, these approaches only present a starting point on including Deaf people as experts, but they do not orient themselves on Deaf cultures and linguistic styles, rather they nominally adapt existing methods (following a hearing logic) [47]. Further, there is often an increased strain on organisational capacities and budgets due to the hiring of interpreters necessary if not all participants are appropriately fluid in a shared sign language – though Mack and Tian suggest that researchers working with Deaf communities need to acquire proficiency in ASL (or rather, the local sign language) to adequately understand cultural differences and nuances) [27]. Similarly, while we know that different people and different embodiments result in different assessments [17], we need to go beyond just aggregating those and aiming at a general view but allowing for methods attending to the particular and specific – as driven by the situated interests in how critique towards technological artefacts might be articulated by disabled communities themselves.

For this case study, Katta did not plan any sessions or invite participants, rather they have been invited by a Deaf filmmaker to observe practice sessions and the shooting of a short film which was conceptualised entirely in Austrian Sign Language. The story of the movie concerns itself with the technical hubris and glitches involved if there would be a car navigation application that included a sign language avatar to replace spoken instructions. The film pokes fun at technology developers, startup cultures and the limited capabilities of sign language avatars. Instead of using an actual avatar, the director decided to have the avatar being embodied by a Deaf actor.

We report here from the practice session in November 2021[3] during which Katta closely observed how the actor, a native signer, actively worked on figuring out their embodiment of the avatar along with the director's instructions. These observations were recorded as notes, which illustrated different styles of signing comparing the actor's general conversational style with how they went about embodying a sign language avatar. They then discussed their notes with the actor (in Austrian Sign Language), which prompted corrections and additional emphasis on certain aspects from the actor but also aided them in reflecting how their acting is perceived and what it communicates, making subtle changes for the second practice run, after which we discussed additional observations and reflections. That way, both Katta and the actor could profit from the interaction with their respective interests, be they observing embodied critique or refining the performance for the movie.

[3]Everyone present was recently PCR tested (as was freely available to everyone in Austria at the time) and fully vaccinated against COVID-19.

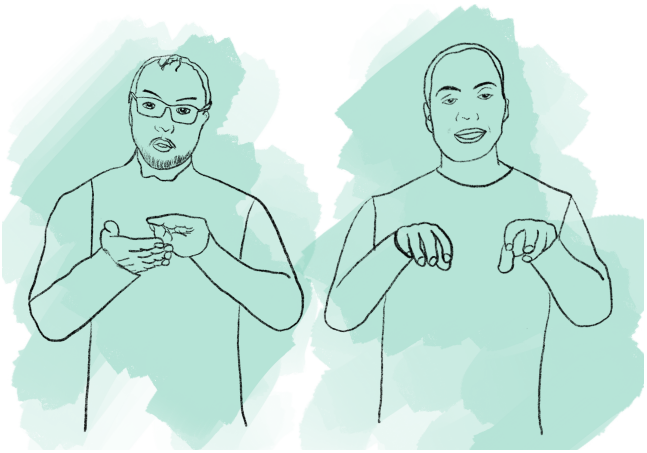

Figure 2: The actor signing as the avatar during a practice session (left) and in the final movie (right).

From these observations and reflective conversations, we identified a strong emphasis of the perspective of both the filmmaker and the actor to be centred around sign language avatars as they experience them in their environment being ridiculously absurd to some extent. The director kept on instructing the actor to reduce their facial expressions even further until they essentially removed this language feature, which serves both affective and grammatical functions [35], entirely. At the same time, the actor overemphasised mouth actions (or visemes, which are used to different degrees in different sign languages [5]) to a point of them becoming meaningless and void of any information. Additionally, the actor pointed out during the first reflection that he deliberately kept his shoulders almost entirely motionless, which additionally restricted the expressiveness of his hands and overall use of the upper body in communication (see also, the additional stiffness on the right of Figure 2 in the final movie compared to initial practice runs depicted to the right). During the practice run it became clear that three-dimensional characteristics of Austrian Sign Language, particularly as they pertained the use of classifiers [9], ended up being difficult to translate to a two-dimensional plane especially in the context of providing directional information. This difficulty could explain why sign language avatars rarely use classifier constructions.

Essentially, the perspective of the director and the actor towards sign language avatars as they expressed them collaboratively through embodiment and instruction as well as active linguistic reflection illustrates similar critical aspects as Krausnecker and Schügerl identified in their research based on different focus groups with Deaf and hearing participants separately [20]. "In all focus groups with deaf participants, it was noted that the avatar "closely follows the German syntax", which was described as unpleasant, tiring, not mature, as a "gimmick", "nice experiment" and even as a "botch-up"" [20, p.5]. Hence, critique is available in other, more classical settings as well and content wise, our approach comes to similar conclusions. However, methodologically, our approach is oriented on mutual exchange and presents a collaborative process instead of one shaped solely by researchers. Even if it is more

difficult to systematise what we found by doing so and make reproducible for other contexts, together with Dean's case study, we find that there is potential for this concept of expressive bodies to be useful in involving disabled participants by honouring their respective cultural, personal and communicative styles and preferences.

3 EXPRESSIVE BODIES – TOWARDS A CRITICAL CRIP METHOD(OLOGY)

Across these two case studies, we could see that turning to expressive bodies allows us to understand more about the mental models that people hold about technologies. We aimed at illustrating that the embodiment of critique as a mode of attending to disability cultures allows us to 1) fleetingly create safer spaces when the interactions with researchers might be unclear regarding their implications for power dimensions; and 2) engage in a mutually reflective dialogue that has an explicitly reciprocal character compared to the more extractive tendencies occurring in more traditional methods for knowledge acquisition.

Turning to expressive bodies does not mean abandoning language based methods, but using bodies actively as a way to attend to the particular and the situated assessment of disabled peoples along their lines of preferred communication and cultural conventions. That way, they complement existing methods and present a way of drawing on individual experiential knowledge, such as is already done by autoethnographic and first-person research methods, in a relational and collaborative way. We deem these particularly useful to understand situated nuances of marginalised perspectives on technologies in a mutually respectful manner.

In a light analogy to the distinction between expressive and instrumental technologies in a queering approach to HCI [24], we suggest that there might be a distinction to make between expressive and instrumental methods in the ways we assess technologies in HCI more generally and in disability contexts specifically. Orienting ourselves towards the expressiveness of different bodyminds and the associated cultural aspects means using the research endeavours not in an instrumental way with the intent to answer specific research questions that are predominantly shaped by researchers and their institutional contexts but instead appreciating and cherishing the relationships and interactions that might arise in collaboration.

Hence, the approach is based on practices of cripping. "Cripping spins mainstream representations or practices to reveal able-bodied assumptions and exclusionary effects. Both queering and cripping expose the arbitrary delineation between normal and defective and the negative social ramifications of attempts to homogenize humanity, and both disarm what is painful with wicked humor, including camp" [4]. Our second case study illustrates how these practices might look like, by actively making fun of and exaggerating the embodiment of the sign language avatar, and how they lead to the construction of insights and situated knowledges. Subsequently, we position our approach within cripistemologies [16] and crip technoscience [13] and hope that the concept of expressive bodies can function as an additional "articulation" towards what might at some point be called Crip HCI [48].

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