

P/REFERENCES OF DESIGN



THE AESTHETICS OF LISTENING: MATERIAL- DISCURSIVE EXPLORATION OF VERBATIM TESTIMONY AND AUGMENTED REALITY.

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ABSTRACT | This paper introduces a novel approach combining augmented reality (AR) and verbatim testimony to create sensory engagements with data as interactive digital artefacts. The project aims to supplement existing research by communicating how aspects of care feel from the perspective of young people with experience in the UK care system. Through a posthumanist lens, we explore trauma-sensitive considerations and material-discursive aspects of meaning-making. The project emerged from a collaboration with The Verbatim Formula, a participatory arts initiative. During playful workshops, care-experienced young people and theatre practitioners co-created AR artefacts using verbatim theatre and generative design techniques. These artefacts, comprising verbatim testimonies and physical expressions of lived experiences, were presented to policymakers at the Department for Education in London. Leveraging feminist scholarship, the study engages with new materialist concepts to analyse human-technology data interactions during the live performance. The paper foregrounds aesthetic and ethical considerations, examining the material-discursive dimensions of audience co-performativity with the AR artefacts. The insights contribute to dialogues on redefining data boundaries and conceptions of value in generative design research. The AR artefacts are spotlighted as active agents in creating and disseminating knowledge, offering a new trajectory for understanding and engaging with data and values. This approach positions listening and co-performativity as a mode of care and a sensory practice of knowing, challenging conventional perceptions of data and technology towards humanising policy and care services.



1. Introduction and Overview

“I think this form of listening is a very embodied mode of attentiveness.” Maggie Inchley of The Verbatim Formula (TVF) expresses how it feels to perform a verbatim recording.

This paper presents a novel approach to data visceralisation (Koterwas, 2023; Lee et al., 2020), blending verbatim testimony with augmented reality (AR). We discuss insights into the process and material practice of co-developing and presenting trauma-sensitive augmented reality (AR) artefacts to communicate an understanding of how navigating care services feels from the perspective of young people with lived experience. Care experience refers to individuals in or with a history of being in the care system. The traditional approach to policymaking for care services leans heavily on quantitative data for decision-making, which can lead to a disconnect between the lived experiences of people with care experience and those formulating policies.

This research, in collaboration with The Verbatim Formula (TVF), a participatory arts initiative, aims to enrich the knowledge base, supplementing statistics by highlighting novel trauma-informed and responsive approaches to communicate the lived experiences of individuals interacting with care services. It seeks to humanise policy and care services by providing textured and plural insights. It celebrates creative expression and encourages co-performative ways for policymakers to listen and engage somatically with the narratives of care-experienced individuals.

The paper draws on theoretical notions of more-than-human and emergent agency as conceptualised by feminist scholar Karen Barad (2007). We explore Barad's new materialist concepts by interpreting human-technology data interactions, particularly during a live verbatim performance made to policymakers at the Department for Education (DfE) in London. The paper foregrounds aesthetic and ethical considerations, analysing the material-discursive dimensions of audience co-performativity with the AR artefacts. We discuss how these entangled interactions can produce new forms of engagement and understanding with data, extending beyond human-centred narratives to include the agential capacities of digital artefacts and environments in shaping experiences. The insights are discussed in relation to the implications for affective data representation in transdisciplinary applications of generative design research.

The AR artefacts were co-created during trauma-informed workshops with young people who are care experienced and TVF theatre researchers and practitioners. These sessions enacted playful, performative inquiry, blurring disciplinary lines between human-computer interaction (HCI) and applied theatre to elicit novel, somatic experiences with participants and lens-based technologies. The resulting AR artefacts embody sensory information as data, comprising verbatim testimonies and physical expressions of lived experiences. These artefacts emerge from the entangled co-creative journey, where the interfaces between human and more-than-human assemblages shape the unfolding narrative. This situated and performative meaning-making process illustrates the co-constituted agential relations between data and personal value systems, resonating with Barad's (2007) ethico-onto-epistemo-logical principles that highlight the inseparability of emergent values, ways of being, and knowing.

The analysis spotlights the AR artefacts as active agents in creating and disseminating knowledge. They act as interfaces for audience interaction, inviting spatial, somatic, visual, and auditory engagement with the materialised data. This performative interface between human and non-human elements as a form of data visceralisation is exemplified in the interpretation of interaction with the AR prototype by Nadhim Zahawi, then Secretary of State for Education.

The conclusion summarises the research contributions to redefining data boundaries and conceptions of value by illustrating the role of material-discursive practices in data interaction and audience engagement. It underscores the potential of AR and verbatim testimony in creating interactive, emotionally engaging experiences, challenging conventional perceptions of data and technology. The paper concludes with a trajectory for future work that continues to develop an understanding of the generative dynamics for

engaging with data and values, where listening and co-performativity become a mode of care for the other and a sensory practice of knowing.

2. Care Experience

Care experience is a term used to describe a person currently in care or with a looked-after background. In the UK, the most common settings for care delivery are Foster, Kinship, and At Home. Foster care involves placing a child or young person with a foster family, Kinship care refers to care by relatives or friends, and At Home care involves providing support services to families in their own homes. The vast majority of people enter the care system due to a need for care and protection. However, media narratives and prevalence data presented as statistics on care identity can have dehumanising effects while perpetuating a stigmatising and fatalistic deficit discourse, which becomes embedded in the public's psyche (FrameWorks Institute, 2020). We argue that quantitative data on its own represents an incomplete picture of care identity, signifying probabilistic but not deterministic outcomes, which lack nuances of human experience or a causal understanding of how to make improvements to care systems.

The findings of the Scottish Independent Care Review (2020), which included qualitative research, unveiled critical insights into the care system, notably the need to minimise care placements, the importance of listening to care-experienced individuals, and the often dehumanising feel of the care system. These findings resonate with our research and, while perhaps not unexpected, underscore the urgency for approaches to understanding and reforming care systems and practices with and for those who access, design and deliver them.

In response, this project endeavours to embody and enact a process of attentive listening for building bridges between care experienced individuals and policy makers. Our research involves co-creating safe and brave spaces (Arao & Clemens, 2013) for creative expression, exploration and dialogue. From these experiences, the paper foregrounds epistemological and methodological contributions for new trauma-sensitive approaches to creative co-performative data presentation and interaction. The objective is to engage policymakers with an immersive, trauma-informed experience that conveys the emotional texture and experiential realities of those navigating the care system. By doing so, we hope to facilitate a deeper, more empathetic understanding of the lived experiences of those the care system is intended to serve towards policies that are informed by these insights and shaped by the compassion and understanding they engender.

3. Theoretical Background

This section outlines the theoretical framework guiding this study, which integrates transdisciplinary concepts to address our objectives within trauma-sensitive generative design research. The framework is structured into two main subsections: firstly, principles of empathy and trauma-informed design, which lay the ethical foundation for understanding and applying design practices that are sensitive to young people with care experience. Secondly, agential realism is explored, emphasising the relational dynamics in the co-creative processes of knowledge production. This theoretical bricolage scaffolds our approach to engaging complex ethical challenges of participation, representation, agency, and uncertainty. It also highlights more-than-human assemblages and co-performative nature of digital materiality for creative expression, underpinning our generative approach and methods for engaging with and through data.

3.1 Empathy and Trauma-Informed Design Research

By critically appraising the framing of empathy within design methods, this section aims to develop a more holistic conceptualisation of subjective lived experience in design research. As noted by (Brown, 2010), mainstream design thinking frequently positions empathy as a mechanism for designers to 'put themselves

in the users' shoes' with the intention of gaining a deeper insight into user needs and experiences. This perspective risks not adequately acknowledging power relationships and oversimplifying the complex dynamic nature of identity and empathetic engagement in posthumanist and transdisciplinary applications of design research with stigmatised communities.

Drawing upon our prior experience in community-based speculative design and participatory photography workshops with young people who have experience with care systems, we frame our understanding of empathy through Edith Stein's (2012) phenomenological framework. Stein emphasises empathy as a deeply embodied understanding, bridging the gap between observing and experiencing emotions. Her concept of empathy, where one is 'alongside the other but never one with them,' offers a more nuanced and respectful approach than the notion of putting ourselves in the other's shoes. It suggests that while experiential engagement can lead to a better understanding of another's experiences, complete identification with the other is neither possible nor desirable, as it risks erasing the individuality and subjectivity of the other person and may not be ethically cognisant of power relations (Stein, 2012). This distinction invites a mindful and ethical approach to empathise with participants, recognising the limits of our understanding alongside the importance of respecting participants' autonomy and individual lived experiences.

Given the tendency of individuals with care experience to have imposed framings, a key starting point for our generative workshops drew on queer theory for the co-creation of safe and brave spaces for dialogues and creative expression (Arao & Clemens, 2013). Fundamental to this endeavour is an emphasis on trauma-informed practice, recognising the self-efficacy of individuals in shaping their own narratives and representations throughout the data generation, analysis, interpretation, and representation processes.

Building on the framing of empathy in design research, this section provides an overview of the research's application of trauma-informed and responsive practice grounded in a UK policy context. The principles covered include a nuanced understanding of our fundamental ethical duty of care, including preventing re-traumatisation in the research activities and nurturing emancipatory and reparative practices. This discussion aims to bridge the theoretical insights on empathy with practical approaches in trauma-informed and responsive care.

Gabor Maté (2022) defines trauma as a psychologically distressing event outside the usual human experience, often involving intense fear, terror, and helplessness, with complex trauma persisting over time and being difficult to escape from. In the context of policy, trauma is frequently communicated through the related principle of Adverse Childhood Experiences (ACE), which tend to be higher for care-experienced individuals (Appleton & Stanley, 2010). Simkiss's (2019) research highlights that the transition into care itself, despite being a protective measure, can also be a traumatic experience, exacerbating the sense of insecurity and loss, making it more challenging for these children to form stable, trusting relationships, develop a sense of self-efficacy, and feel safe and loved.

Trauma-informed practice recognises the widespread impact of trauma and seeks to create environments that promote safety, trust, and self-efficacy for individuals who have experienced trauma (Fallot & Harris, 2009). Drawing on guidance from NHS (2017), we emphasised safety, trustworthiness, choice, collaboration, active involvement, and building opportunities for individuals to benefit from their participation. We focused on understanding factors such as play that shape environments conducive to co-creating safe and brave spaces, facilitating active participant engagement and mitigating activities that could inadvertently cause re-traumatisation. The project's emancipatory and reparative potential was demonstrated during the participant-led performative event at the Department of Education, which emotionally engaged attending policymakers and politicians.

3.2 Agential Realism

Traditionally, Human-Computer Interaction (HCI) has foregrounded human experience and agency, positioning technologies as auxiliary instruments in the process of knowledge production. However, this perspective may limit our understanding of agency in a more expansive sense. Drawing on the feminist scholarship of Karen Barad, we challenge the prevailing assumption that human intentionality or reflexivity are prerequisites for agency. Instead, we argue that lens-based technologies actively contribute to the unfolding of phenomena in their unique ways, manifesting their agential capacity within the dynamics of a more-than-human assemblage of actors. From this perspective, lens-based technologies such as augmented reality can influence how events are framed, perceived, and interpreted, co-shaping the practices of meaning-making they are involved in.

Agential realism is a philosophical concept proposed by Karen Barad (2003) that emphasises the emergent performative nature of mattering. This perspective highlights the entanglement of human and non-human actors in the ongoing production of knowledge and meaning. Agential realism challenges the notion of fixed boundaries between subjects and objects and recognises that meaning-making is a dynamic and relational process. Barad foregrounds the notion that agency does not pre-exist but rather emerges through the dynamic 'intra-actions' between different entities, including technologies and environments. Table 1 summarises the pivotal agential realist concepts important to our research.

Table 1. Fundamental agential realist principles.

Agential Realist Principles	Description
Intra-action	Unlike interaction, which presupposes the existence of separate, independent entities that come into contact, intra-action posits that entities do not pre-exist their relations; rather, they continuously materialise through their ongoing relational engagements reshaped within the ecologies of intra-actions (Barad, 2007).
Diffractive Methodology	This study's analysis and discussion on the experience of digital artefacts employ Barad's (2007) diffractive methodology. This diffractive perspective diverges from traditional evaluative methodologies such as triangulation by not seeking fixed data points for analysis. Instead, it acknowledges the mutable and entangled nature of the research constellation, recognising the interconnectedness of all elements—participants, researchers, environment, activities, and lens-based technologies. This approach highlights the role of multiple perspectives and the active participation of research apparatuses in the shaping of unfolding phenomena. It examines patterns of difference, interference, and entanglement that arise when entities intra-act, inviting the exploration of agential relationships and uncertainty.
Ethico-onto-epistemo-ology	Combines ethics, ontology, and epistemology to explore the interconnectedness of values, existence, reality, knowledge, and belief.

Developed on agential realist foundations, this study emphasises the co-constitution of tacit and latent knowledge that are central concerns of generative design research (Sanders & Stappers, 2012) emerging from agential relationships among research stakeholders, care-experienced communities, lens-based technologies and environments. The emergent nature and focus on care identity in this research necessitate a flexible and adaptive theoretical approach, which accommodates generative insights throughout the creative and participatory design process of interpretive understanding.

Incorporating principles of agential realism into applied theatre and design research offers fertile ground for innovative explorations. This perspective can open new avenues for understanding and designing interactive experiences responsive to the complex entanglements between humans, technologies, and

environments. Additionally, by recognising the co-constitutive nature of knowledge production, researchers can develop more inclusive and collaborative approaches that value the contributions of all actors involved in the research process.

The subsequent methodology section of the paper furthers this explanation and justification for these philosophical and theoretical principles with a focus on generative design research practice. It delineates how the posthumanist perspective, along with principles of empathy and trauma-informed design research, was operationalised in the study. The section also discusses the practical application of verbatim and image theatre techniques in the co-creation and presentation of the augmented reality (AR) artefacts.

4. Methodology

“Play delights in uncertainty.”
Alex Dunedin

4.1 Generative Design Research

Our application of generative design research revolves around a playful and collaborative approach to navigating uncertainty. Generative techniques can be articulated in multiple dimensions of our creative research practice. Firstly, we work with and for communities through active and attentive listening, collectively generating topics for exploration rather than hypothesis testing. Secondly, we generate knowledge on tacit and latent aspects of social and technical phenomena by playfully and reflexively attending to what people make, improvise, and dream.

Drawing on Sanders and Stappers (2012), our generative process aims to co-develop insights that can be difficult to surface through other research approaches. By technique, we refer to the material-discursive activity - in this case, playful practice-led applications of ubiquitous technologies animated with participatory and emancipatory mindsets. These generative principles align well with the techniques of eliciting, encoding and performing verbatim testimony as practised by The Verbatim Formula.

4.2 The Verbatim Formula

The Verbatim Formula (TVF) is a participatory arts initiative based in London. TVF employs verbatim theatre techniques, using words identical to the original source, to attend to the voices of care-experienced young people. 'Verbatim' signifies a commitment to honouring fidelity in representing participants' testimonies through word-for-word performative delivery with care professionals and policymakers (Baker & Inchley, 2020). TVF emphasised reparative facets of verbatim techniques and performance, underpinned by activist and justice-orientated principles from applied theatre towards change and community cohesion.

The verbatim formula process, from the acquisition of testimonies to the headphone theatre performance, is characterised by its simplicity and accessibility, facilitated by low-fi technologies like iPods. In workshops, participants are considered co-researchers; they actively shape discussions about topics that matter to them, sharing their thoughts and experiences, which are recorded as verbatim testimonies. Subsequently, these recordings are transformed into headphone theatre performances, where audiences experience the testimonies directly, creating an intimate and impactful connection with the narratives.

This participatory method is a compelling approach to information design. It represents an affective form of data physicalisation through performance, preserving the essence of human connection through eye contact between the performer and the audience. From an ethical perspective, it respects the integrity of the co-researchers' testimonies while inviting audiences to engage with the lived experiences conveyed in the recordings in novel and immersive ways. Table 2 summarises ethical considerations aligned with trauma-informed design principles alongside our application of verbatim techniques with digital media.

Table 2. Ethical and trauma-informed design principles alongside verbatim techniques.

Ethical Consideration	Our Application of Verbatim Techniques
Duty of care, confidentiality, and privacy	Participants are not asked to repeat their story multiple times, reducing the risk of re-traumatisation or desensitisation.
Trauma-sensitive relational design	Verbatim techniques are integrated into a trauma-sensitive relational design approach, positioning participants at the centre rather than engaging in pseudo-consultation.
Active participation	Co-researchers have control over their own stories and representation throughout data collection, analysis, and communication.
Self-efficacy	Hearing their words voiced back to them can be a powerful means for young people to realise that their opinions and the things that matter to them are being heard, valued, and acted upon, supporting a sense of self-efficacy.
Attentive care	Verbatim techniques nurture a mode of attentive care through active, embodied listening for co-researchers and audiences.
Emotional engagement	Verbatim performances create emotionally affective engagement with audiences through the embodiment of what is being shared, inviting them to listen with their hearts.

4.3 Verbatim Audio with Augmented Reality Artefacts

Early in the collaboration, TVF expressed an interest in the narrative and audience engagement capabilities of immersive technologies such as augmented reality (AR), especially the notion of a 'digital trace'. We came to understand their position from an applied theatre perspective, in that the digital artefacts created would resonate with the audience after the live performance, involving a two-step rhetorical process:

- Firstly, evoking emotional echoes reminiscent of the live event — much like how certain songs, flavours, or scents can transport one back to a past emotional and sensory moment;
- Secondly, it is a means of reminding audiences of their promises to honour what they heard and experienced.

In addition to TVFs' expectations of digital technologies, we were keen to investigate how live audiences' experiences of digital artefacts might not only evoke but also provoke emotional responses on their own merit. This conceptualisation of the digital artefacts as material-discursive vessels of data positions them as a fundamental component of the live experience rather than an instantiation of a verbatim performance. This idea resonates with the enquiries posthumanist stance and Christopher Frayling's perspective of 'design as research', where he suggests that knowledge is embodied in design artefacts, which are not just an instantiation of an idea, it is the idea (Frayling, 1993).

5. Trauma-Informed Workshops

As an antecedent to the discussion section, accounts of workshop activities are communicated through critical 'reflection in action' (Schön, 1983). The augmented reality (AR) artefacts were co-created during trauma-informed workshops with the young people who are care experienced and The Verbatim Formula (TVF). These sessions enacted playful, performative research, blurring disciplinary lines between human-computer interaction (HCI) and applied theatre to elicit novel, somatic experiences with participants and lens-based technologies.

After engaging in applied theatre games as a playful way to establish a sense of safe and brave space, the care experienced co-researchers discussed what they would say if they could speak to the people in charge of the care system. They recorded verbatim audio testimonies on aspects of their lived experience, such as not being able to hug their social worker and the uncertainty of care placement moves. Key relational moments from these scenarios were then expressed in Image Theatre activities as tableaux for deeper analysis and discussion. A tableau is a theatrical technique where participants pose to create a freeze-frame with their bodies (Jackson & Boal, 2005). This creative participatory practice facilitated an embodied means of reflexivity among the participants, enabling the appreciation of multiple subjective perspectives on the same social phenomena.

Collaboratively 'making' rather than the researcher 'taking' images, various tableaux were recorded by co-researchers using a volumetric camera, resulting in 3D digital ethnographic artefacts for continued dialogue, meaning-making and reflexive practice. Figure 1 represents an image developed between the workshops in response to the testimony about not being able to hug a social worker. To preserve the confidentiality of the care experienced co-researchers in the border dissemination of media, the two figures are 'corporate parents' from Edinburgh Napier University, who willingly participated in an image theatre activity. In the UK, a corporate parent is the name given to an organisation or person who has special responsibilities to care experienced children and young people. In this improvised tableau, one participant embodied a foster carer, while the other represented a young person with care experience. Their enacted hug, depicted in the render, emerged intuitively in response to the emotional theme and timbre of the verbatim testimony.

These artefacts form spatiotemporal representations of the image theatre activity. The aesthetic decision to present the artefacts as point clouds and wireframes is congruent with the tableau workshop experience and research objectives. It preserves the fidelity of the original data while creating a layer of abstraction for addressing ethical challenges of representation and confidentiality.



Figure 1. 3D Scan of hug image statue.

To enrich the co-performative meaning-making process, we embraced the notion of prototypes as media for human interaction, presenting the co-researchers with digital prototypes of the artefacts in augmented reality (AR). The experience facilitated a reflexive process of coding and feedback. This approach underscored the importance of intersubjectivity and ongoing dialogue in the dynamic, iterative experience of creating meaning.

On one level, the prototype represents a digital echo of the initial image theatre experience, encapsulating data as a trauma-informed means of presentational knowing. At another level, the prototype is an invitation to engage with the sculptural piece actively and generatively. This material-discursive perspective aims to extend the actively participative process of the artefact's initial creation by opening up spaces for ongoing dialogue by exploring the affectual collaborative meaning-making potential of AR data artefacts with the co-researchers and audiences.

The sensory information codified in the AR artefacts from the workshops comprises data as verbatim testimony and physical expression of lived experience. The AR artefacts are framed as a potential interface for ongoing meaning-making, illustrating co-constituted agential relations between data and personal value systems. This positioning resonates with Barad's (2007) ethico-onto-epistemo-logical principles, highlighting the inseparability of emergent values, ways of being, and knowing.

6. Performance at the Department for Education

“What’s your available agency to make a change?”

Sylvan Baker TVF

The account of the audience engagement with the verbatim AR artefact was part of an event titled ‘My Story, My Words’ that took place at the Department for Education (DfE) in London. Pseudo-names are used to protect the confidentiality of the care experienced co-researchers. The room where the performance took place had four rows of seating and a capacity for around 50 people; most seats were occupied, with some people standing at the back. Audience members included the Head of Wandsworth Social Services, the Minister of State for Children, Nadhim Zahawi, and senior civil servants from the DfE. Our showcase of the AR artefacts was preceded by other performative activities delivered by the co-researchers.

When it was our turn, we continued the ethos of a prototype as a means of crafting interactions and dialogue with the audience and initiated a ‘show and ask’ communication to solicit comments and elicit feedback. A co-researcher, whom we will pseudonymously call Nathan, described to the attendees how our digital prototype draws from the testimonies of co-researchers who felt objectified by the care system, feeling reduced to mere files or numbers. Addressing this, our prototype featured the AR verbatim statue that functions via a barcode system. When scanned, it projects a 3D image, encapsulating the message: “I’m more than my barcode, I’m more than a statistic.” Yet, discerning this message requires a distinct ‘lens’ or viewpoint (See Figure 2 by Paula Siqueira).



Figure 2. AR Artefact Demo.

Preceding to a live demonstration using an iPad, Nathan invited participants from the audience to experience our digital piece first-hand. He conveyed that the heartfelt testimony "A hug can change a lot" inspired the 3D imagery. As the participant explored the AR representation – two figures intertwined in an embrace – Nathan narrated the development journey, explaining the design choices and encouraging them to explore the 3D sculptural nature of the visual (See Figure 3 by Paula Siqueira). Upon activating the integrated verbatim audio testimony projected to the audience via a Bluetooth speaker, Nathan emphasised our intention: leveraging technology to communicate narratives of how the care system feels from the perspective of those with lived experience through and beyond live performances. The audience's response was positive, and the outcomes aligned with TVF's vision of a digital trace.



Figure 3. AR Artefact Demo 2.

Going beyond visualisation, it hints towards a form of data visceralisation (Koterwas, 2023; Lee et al., 2020), conveying multi-sensory information emotionally. In line with the utilisation of verbatim techniques, trauma sensitivity is elegantly integrated by creating distance between personal stories, the performer of these and the audience.

During the Minister of State for Children, Nadhim Zahawi's closing remarks, he contemplated the need for a more humane system, expressing his personal agency for change,

"How can I get the whole system to hear you, to listen to the uncomfortable truth? We have to listen to you if we want to make the system respond and be better. I will take that away and think about how we can scale this up."

Following these reflections, he engaged with our AR prototype. Nathan assisted him in launching the application on the iPad. Zahawi then intuitively navigated around the 3D model in AR of the hugging figures, which remained anchored to the Zapcode on the lightbox (See figure 4).

From an agential realist perspective, by observing Zahawi engaging with the AR prototype, we became an integral part of the unfolding phenomena. He expressly shifted his stance to observe the model from different angles, gaining various perspectives on the figures embraced in a hug, evoking Stein's (2012) definition of empathy 'alongside the other'. Beyond passive observation, his active participation could be seen as a material-discursive mode of being, knowing and valuing. A meaning-making process involving engaging visual, auditory and somatic senses as a form of embodied cognition with digital data. In this dynamic, the actualisation of agencies within the constellation of phenomena is expressed through the interplay of several elements. These include the environment of the Department for Education (DfE), the AR 3D figures, the iPad, Zahawi and our role as observers. This entangled and contingent relationship underscores an emergent material-discursive view of reality, where both the observer and the observed co-constitute the reality being experienced.

During Zahawi's engagement with the AR prototype, the interplay between the digital and the physical realms became a focus of our attention. It was as if his movements weren't just physical adjustments; they symbolised a conceptual journey of understanding. He paused his spatial exploration to listen to the verbatim audio recording, focusing on the message that 'a hug can change a lot'. His interaction with the piece echoed a core objective and challenge of qualitative research—understanding complex social phenomena by empathetically identifying with others and attempting to grasp their subjective experiences. The extent to which this generative engagement stimulates cognitive empathy, as enabled through active participation in the narrative and connection with the stories being told, were themes we became curious to explore in future projects.



Figure 4. AR Zapcode on the lightbox. Follow the web link to see a video of the AR prototype in the DfE: <https://youtube.com/shorts/J0NtBrJGkGg>.

Zahawi was enthusiastic about his experience with the prototype and its potential for supporting his commitment to the co-researchers in exploring how to create a care system that values listening over bureaucratic protocols. He left us a card with his details requesting a version of the prototype and lightbox for his office. This was a positive affirmation of the concept and an opportunity to continue dialogues by sending him future AR testimonies as they develop.

Reflecting to what extent the digital prototype addressed TVF's interest in the narrative and audience engagement capabilities of immersive technologies, we returned to their notion of a 'digital trace'. The idea is that digital media can be positioned to evoke emotional echoes reminiscent of the live event, reminding audiences of promises they made to honour what they had heard and experienced. The interaction with Zahawi demonstrated the potential of the digital prototype to open new avenues for story presentation, ensuring that the co-researchers' narratives could continue to resonate and exert influence at both live and asynchronous events in and beyond the traditional practical and temporal limits of a live performance.

7. Discussions on Digital Artefacts as Data: Values, Being and Knowing

This section expands on the key insights gained from exploring the intersection of augmented reality (AR) technology and verbatim techniques, especially during the live Department for Education (DfE) event. Barad's (2007) diffractive methodology proved useful in analysing and interpreting how the means of investigating emergent values and phenomena interact and influence each other, communicated as critical 'reflection on and for action' (Schön, 1983).

Framing verbatim testimonies and AR artefacts as data based on ethico-onto-epistemo-logical principles that recognise the inseparable nature of emergent values from ways of being and knowing lays the groundwork for discussions on the intersections of values, data, and generative design methodologies. This discussion on digital artefacts as data and interfaces of emergent knowledge includes aesthetic and ethical discussions on the degrees to which they honour the fidelity and immediacy of lived experience and their potential for generative interaction with audiences. The focus is to illuminate the material-discursive interplay between the co-researchers' narratives, environments, audiences, and digital media materiality in contributing to understanding trauma-sensitive meaning-making and reparative practices with care experienced communities and policymakers.

Earlier descriptions characterised the digital artefacts from the co-creative workshops as active conveyors of meaning and knowledge. In exploring generative factors relating to the dialogical and socio-technically constructed values embedded within the AR prototypes, we characterise them as epistemic artefacts (Rheinberger, 1997). This perspective is extended through an agential realist worldview, recognising the intertwined nature of human and technological elements in the knowledge production process. In the context of generative design research, the AR epistemic artefact is explored in relation to co-performative extensions to our sensory perceptions. This includes material-discursive factors of how and what we come to know, who is represented and by whom. We discuss these ideas by reflecting on the AR epistemic artefact experience at the DfE performance and potential future iterations.

The positioning of the AR prototype as an epistemic artefact recognises its participative potential for codifying data that is a trauma-sensitive representation of the original image theatre activity and an ongoing co-performative experience in itself. This framing opens a perspective for exploring the blurring of spatiotemporal and conceptual boundaries between digital and physical realities towards novel and emergent material-discursive treatments of data. For instance, by actively involving the audience and the surrounding environment, the digital experience has a generative potential. While the verbatim audio remains consistent with each playback, the values and meaning derived are emergent, contingent on the audience's viewing perspective, interpretation, lived experience and ambient environment. In its 'not-yetness' (Ross & Collier, 2016), the material-discursive essence of the experience cultivates a dimension of uncertainty, one that is required to actualise agential relationships within the distinctive amalgamation of elements during each unique encounter.

The sensory information codified in the digital epistemic artefacts comprises data as verbatim testimony and physical expression of lived experience. The audience intra-acts with the artefacts through spatial, temporal, somatic, visual, and auditory means. This performative interface between human and technological entities could be seen in the conceptual journey of understanding described earlier in Zahawi's engagement with the AR prototype. In this configuration, AR offers novel, creative opportunities for representing subjective lived experiences distinct from other extended reality (XR) technologies.

Unlike virtual reality, which immerses you in a fully digital environment, AR allows for the layering of digital content onto the physical world. This layering creates a hybrid space that invites the audience to seek new perspectives alongside the image statue renders, connecting digital experiences, environments, and audiences. This blending of the physical and digital in AR enables a modality where the digital artefacts become part of the audience's immediate environment, positioning the environment and audience as characters in the unfolding narrative.

The experience of the AR prototype mimics aspects of a theatrical fourth wall break, a potentially self-revelatory experience where the lines between the audiences' physical and conceptual worlds become blurred with the digital scene. By blurring these boundaries, the audiences' intra-action implies a degree of agency to influence both the digital and physical world. The juxtaposition and interplay within the entanglement of the digital and the physical provide opportunities to study how constructing perceptually novel ways of experiencing narrative data can alter the audiences' attitudes and awareness of their own agency. The experience is intended to leave audiences with the implicit question: What is their available agency for making changes? Morrison and Kranicz's (2022) related research with extended reality (XR) technologies incorporates verbatim testimonies with the Microsoft HoloLens to explore the roles of interactive elements within mixed reality experiences.

This analysis of the epistemic artefacts as material-discursive experiences contributes to the discussion on the generative and interconnected nature of agential relations between values, design approaches, and data codified in digital artefacts. A similar conceptualisation of value alignment can be found in Barad's (2007) view of the intertwined nature of knowledge and materiality between humans and non-humans, grounded in their ethico-onto-epistemo-logical principles. This worldview underscores the reciprocal nature of the research endeavour, where lived experience, data, and values are inextricably intertwined. Such connections illustrate the entangled and reciprocal nature of material-discursive experiences, where the integration of digital media can reshape the ways we perceive and understand the world, influencing how we interact and respond to our environment and others.

The verbatim testimonies maintain the co-researchers' confidentiality while facilitating the audience's embodied listening, creating a trauma-sensitive interface between the audience and co-researchers' lived experiences. This aligns with Stein's (2012) phenomenological framework, which emphasises empathy as a deeply embodied understanding, bridging the gap between observing and experiencing emotions alongside the other. The application of applied theatre techniques with the iterative cycles of design prototypes provided introspective moments of reflexivity, enriching ethical strategies for qualitative rigour in the process and practice of digital experiences developed with and for communities as contributions to generative design research.

8. Conclusion

This research has explored the potential of augmented reality (AR) incorporating verbatim testimony in communicating and disseminating trauma-sensitive qualitative research to audiences while respecting the fidelity and emotional integrity of the original data and its source. Positioning the AR prototype as an epistemic artefact has opened new avenues for exploring interfaces between the digital and physical, introducing new pathways for appreciating the entanglement of the observer and the observed and creating opportunities for reconfiguring the audience's emotional and participatory engagement. The AR prototype's capability to involve audiences suggests a generative dimension to digital experiences. The dynamic nature of these epistemic artefacts, where values and meanings emerge contingent on individual perspectives and situated contexts, offers opportunities for developing perceptual insights into the potential affective and political possibilities of the technologies.

Positioning the epistemic artefacts as data prompts critical reflections about their impact on the ethics and politics of representation and potential value in policymaking. By disrupting conventional value structures, this experiential data unfolds a divergent counter-narrative. Beyond relying on impersonal statistics or pseudo consultations, the verbatim artefact approach signifies an opportunity for a potential relational and reparative representation of societal reality from the perspective of individuals with lived experience of the care system. Within the ethical boundaries of the research and the DfE event's political context, this enriched perspective supplements existing data and knowledge towards the potential to impact real-world conditions.

By grounding the findings in Stein's phenomenological framework and Barad's agential realism, this discussion illuminates the potential of AR and verbatim techniques in creating emotionally engaging, trauma-sensitive experiences. The insights contribute to dialogues on redefining data boundaries and conceptions of value in generative design research. The AR artefacts are spotlighted as active agents in creating and disseminating knowledge, offering a new trajectory for understanding and engaging with data. This approach positions listening and co-performativity as a mode of care and a sensory practice of knowing, challenging conventional perceptions of data and technology towards humanising policy and care services.

8.1 Future Work

“Be ruthless with systems and kind with people.”
Chanel Contos

Future research will focus on advancing the co-creation of digital epistemic artefacts, focusing on generative and speculative data imaginaries for education, advocacy, and a call to action by engaging audiences in the emotional dimensions of lived experiences. We aim to contribute further insights into the embodied co-performativity of somatic data, examining the potential of affective, collaborative approaches to meaning-making. While detailed discussions on applied findings are beyond the primary focus of this study, future applied research could strengthen the bridge between research understanding, theory development, methodological pluralism, and broader practical applications.

We will continue to explore the possibilities of immersive and affective experiences that engage audiences on a visceral level, investigating how design elements can be leveraged to provoke emotional responses and create a more embodied understanding of the experiences being represented. We are exploring how emergent extended reality (XR) technologies continue to blur the boundaries between the digital, physical, and conceptual realms, where the audience's intra-action implies a degree of agency to influence both the digital and physical worlds. The juxtaposition and interplay of forces within the entanglement of the digital and the physical provide opportunities to study how constructing perceptually novel ways of experiencing narrative data of lived experience can alter the audiences' attitudes towards their available agency for change.

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