

Cultural Experience Design in Contested Times: A Controversy-Mapping Approach

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Abstract

Practitioners in cultural experience design (CXD) navigate a contested landscape: conceptual disputes about cultural value, design trade-offs without settled answers, evaluative fault lines shaped by politics and institutional convention. The field has accumulated no shared overview of this terrain. This paper introduces a controversy map as a first collective orientation instrument for that landscape, assembled through a transdisciplinary think tank and informed by controversy-mapping approaches from science and technology studies. Organized across three interrelated layers – conceptual, design-oriented, and evaluation-centered – the map renders major tensions visible as orientation axes for deliberate positioning. In polarized, platform-driven environments, it gives practitioners the overview they need to locate their own projects within the field's disputes and stake out a position on their own terms.

Keywords

Cultural mediation, experience design, methodology, theory, agonistic pluralism, positionality, transdisciplinary think tank, controversy mapping, postdigital museum

1. Cultural Experience Design in the Postdigital Condition

Over the past decade, *cultural experience design* (CXD)¹ has emerged as an essential field of postdigital practice in museums and other cultural institutions, where digital interfaces and infrastructures are now deeply embedded in everyday cultural production, reception, and dispute. By means of websites [1], mobile applications [2], digitally augmented exhibition formats [3], visualization interfaces [4], narrative guides [5], gamification strategies [6], or immersive installations [7], CXD frames how cultural materials and topics are encountered, interpreted, and remembered. Work once regarded as mere mediation now shapes how an institution appears and how readily people can enter it. Museums increasingly rely on the design of such mediating experiences to stay accessible and relevant as their work moves into digital and hybrid environments.

Yet despite its internal complexity and growing importance, CXD is frequently kept secondary and instrumental by two forces at once. Institutions position it as a mediating layer that translates established content into accessible formats, casting designers as technology specialists tasked with building and optimizing interfaces, while conceptual and theoretical authority is assumed to reside in cultural scholarship, curatorial practice, or institutional mission. The field's own prevailing method consents to this placement. User-centered design, as it is commonly practised, brackets contextual and normative commitments and defers them to clients: it falls to the client to decide a project's overall positioning, and to settle the questions of data, users, and tasks that foreground desired effects such as client and user acceptance [8]. Positioned downstream by institutions and unequipped by

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¹With the term “cultural experience design” (CXD) we gather design practices aiming to enable and sustain meaningful encounters with cultural materials in postdigital environments, which treat *experiential depth*, *interpretive plurality*, and *the contested nature of cultural value* as constitutive dimensions of the field, on a par with its technical competences. We introduce the term as a deliberate postdigital umbrella, drawing together practices of several genealogies (user-centered and interaction design, exhibition and content design, digital humanities, and analog traditions of cultural mediation and heritage interpretation) under one working definition, which Section 3 develops in full.

its dominant method to contest that position, CXD has little room to raise the questions its work continually encounters.

At the same time, the wider apparatus of CXD is substantial. In addition to its deep anchoring in user-centered design [9, 10], the field builds on participatory and co-design approaches [11, 12], iterative prototyping practices, and qualitative and quantitative evaluation frameworks codified in standards such as ISO 9241-210 [13]. Several conceptual models have been proposed to spell out the multifaceted nature of cultural experiences themselves [14, 15, 16, 17]. Practitioners navigate heterogeneous stakeholder constellations, institutional constraints, ethical sensitivities, and technological infrastructures [18, 19]. As such, CXD already constitutes a mature craft: It calls for imagination, for transdisciplinary and intercultural fluency, and for a certain agility in moving between communities and their commitments [20, 21, 22].

What this maturity has not yet produced, we think, is a synoptic reflection on the normative premises and negotiations that shape work in its field before any project begins, and that shape how that work is received. In line with debates in the Digital Humanities, CXD faces the question of whether it needs only to develop “*theories of building*” (that is, methodologies) or also the “*building of theories*” and the related competence to navigate conceptual and normative disputes [23]. Abstract as it sounds, the question is a practical one. Conceptual and discursive competence can help designers see the larger landscape surrounding each project, and the risks that landscape carries. It can help them develop, share, and collectively revise an overview of the contested design space the field already inhabits, and stake out or calibrate positions in ongoing negotiations about what “*culture*” fundamentally is and does. Design practice always already operates within frameworks that determine what qualifies as meaningful and who holds authority over it. Through its choices of emphasis, framing, or measure, however, it helps keep those frameworks in place, or nudges them elsewhere. Some of the most basic questions—such as *what kinds of cultural experience are worth designing, on whose terms, by which means, and which impacts will be measured*—follow from basic commitments that are rarely made explicit. Surfacing these questions and related debates is the first move toward a more deliberate practice which we think our field now increasingly needs.

CXD professionals work in a public and sometimes exposed position: receiving their conceptual mandates mostly from curatorial and scholarly authority upstream, they meet audiences responses first. Operating in close contact with digitally networked publics, practitioners regularly encounter how differently institutional value claims travel once exposed to plural and polarized audiences, including ones invested in outright culture wars, and how cultural assumptions are refracted or resisted in everyday reception [24, 25, 26, 27]. This firsthand experience of cultural meaning-making and mediation under dispute calls for a new kind of reflection that bridges upstream and downstream roles. Bringing curators, scholars, and designers into more deliberate conceptual and theoretical exchange can cultivate shared responsibility for how cultural meaning and value is articulated, mediated, and experienced today. In polarized environments, we consider such joint reflection to be a precondition for credible and durable cultural engagement [28].

2. Culture, Meaning, and the Illusion of Consensus

Cultural materials—and cultures as a whole—have been defined as “*human creations that define what is real and important*” for those who create, preserve, or share them [29, p.627]. Accordingly, museums and cultural institutions justify the preservation of cultural materials with regard to their “aesthetic, historic, scientific, or social value” [30]. Whether manifested as images, texts, artifacts, ideas, music, narratives, films, intangible heritage, or born digital objects, cultural assets carry meaning and value at multiple scales: from intimate and mundane attachments to collective and historical levels of worship and reverence [31].

In this context, agonistic readings of culture—which provide the foundation for our reflections—emphasize a structural ambivalence: Cultural materials can foster deep belonging, keep collective memory alive, and give communities a sense of value, continuity, and shared purpose. But they also

do the opposite: what resonates for some may feel foreign, exclusionary, or imposed on others – not least because the culture that wins institutional recognition tends to reflect the values of those with the power to confer it [32, 33, 34]. The values that materialize in cultural creations bind and separate simultaneously. Where liberal societies grant disagreement room to flourish rather than suppressing it, dissent about culture is everywhere: what some celebrate as ‘heritage’ others experience as imposition, provocation, or something to actively disinherit [35].

Public rhetoric on cultural heritage, however, tends to simplify or sideline precisely these tensions. Within authorized heritage discourse (i.e. culture as sanctioned by whoever currently holds the power to authorize it) [36], governing bodies consistently frame culture and heritage as a repository of ‘shared values’ and ‘unifying resource’, needed to form and maintain collective identity and social cohesion [37, 38]. For established systems and their actors, such narratives are convenient. They foreground consensus, stability, and tradition while papering over the reality that cultural meaning and value is continuously contested, and that cultures or collective identities are, in Hall’s words, always ‘sites of struggle’ [39].

The account we develop here begins from the opposite premise. In plural societies, disagreements over art and culture should not be interpreted as aberrations from a harmonious baseline, but as the baseline itself [40, 41]. They arise from the coexistence of multiple actors and networks—and their competing ‘orders of worth’ [42]—each grounded in distinct accounts of legitimacy that do not readily align. If cultures define what is ‘real and important’ [29], they do so *agonistically*. Forces of sympathy and antipathy, of deliberation and demarcation, gather communities of sharing around every conceivable topic, yet each camp of agreement is shadowed by those who dissent or do not care. In this setting, talk of “shared values” tends to invoke a settlement that was never reached, and to provoke the very counter-claims it tries to foreclose, rendering contestation a structural consequence of cultural activity itself. Digital communication has intensified these dynamics considerably. Platform media amplify controversy through the attention economy of objection, outrage, and tribal polarization [28, 25, 43]. Across our timelines, cultural content and heritage circulates less as material with inherent value [30] than as a carrier of contested meaning, and it is exactly the contested edge that travels well [44, 45]. Agonistic energy, in this sense, is built into the economic and algorithmic foundations of digital platforms.

For designers working within cultural institutions, this environment heightens strategic and ethical stakes [46]. Every design choice—from conceptual framing to implementation and evaluation—risks being read as a signal or position in a wider site of struggle, shaping circulation, uptake, and even the basic willingness to engage with a cultural offering [47, 27]. The viability of a CXD project thus hinges on how its implicit commitments are perceived, and whether designers are aware of the multiple value frameworks they are entering. The foundational question therefore shifts: *If cultural meaning and value is neither uniform nor consensual, how should institutions and designers proceed in its articulation?* For a field caught between contested mandates upstream and plural reception downstream, conflict literacy belongs to professional formation as much as the methodological competences the field has spent two decades developing.

3. A Think Tank Moment: Discovering Internal Complexity

Our confrontation with cultural complexity has its origins in the friction of discussing design practice. Within the context of a CXD think tank at the European Centre for Culture & Creativity², experts from design, cultural studies, digital humanities, computer science, evaluation research, and museum practice convened to reflect on the state of the field.

Reflecting on the state of the field meant first settling what the field was. We use *cultural experience design* as a deliberate umbrella term for a field of practice: a community of practitioners united by a shared object—the design of meaningful encounters between publics and cultural materials in postdigital

²European Centre for Culture & Creativity, Cultural Experience Design Think Tank. See <https://culture-creativity.ustp.at/en/areas-of-activity>.

settings—even where their methods differ. We take on one more label in an already crowded vocabulary because the term gives a shared name to a practice already pursued across several communities: interaction and interface design, exhibition and content design, digital humanities work, evaluation and user-centered design, and the analog traditions of cultural mediation and heritage interpretation on which the field still rests [48, 49].³ What the CXD umbrella adds is twofold. First, a common object these communities can recognize across their differences of training and idiom. Second, a shared emphasis on the qualities that object is meant to sustain: experiential depth, interpretive plurality, and the contested nature of cultural value. Naming the field this way also locates it within an established research tradition. Experience Design, and the User Experience (UX) research it grew from, has long theorized experience, though largely as interface usability or as hedonic and emotional response to technological artefacts [50]. Carried into cultural settings, that lineage tends to import a customer-journey logic that brackets the affective depth, interpretive stakes, and normative contestation characteristic of cultural engagement [51]. Recent work toward a *museum-specific experience design* extends the tradition toward cultural specificity [17], while keeping the user as its primary category and leaving the upstream curatorial dimensions of meaning-making largely outside the design conversation. CXD inherits the methodological rigour of this tradition and extends its object to the contested, plural, and curatorially mediated character of cultural value.

Back in the think tank, what initially appeared as a collaborative exercise in consolidating that field of practice quickly revealed a more productive dynamic: persistent and productive tensions structured nearly every discussion. Should evaluation focus on cognitive comprehension or affective resonance? Are qualitative insights more valuable than generalizable quantitative measures? Is playful engagement appropriate in contexts of historical trauma? Should design aim for universal accessibility or remain locally situated and culturally specific? How much authorial control is desirable, and how much emergent co-creation should be permitted?

None of these debates could or can be resolved by fiat. They reflect diversified commitments, disciplinary backgrounds, and normative intuitions – and each position is known to carry strengths and limitations. What became evident was that CXD is internally structured by controversies at multiple levels, including methodological, epistemological, and conceptual ones. While acknowledging the many challenges connected to these tensions, we also consider them to constitute the field’s richness and relevance. They document that CXD navigates heterogeneous publics, value systems, and institutional mandates.

This realization prompted a further step: Conflict or controversy literacy seems desirable and even necessary to navigate the internal methodological landscape of our field. Various types of tension warrant mapping and articulation rather than concealment or deference to external decision makers, such as users, clients, or curatorial authority. Drawing together related knowledge might yield a shared orientation that makes essential fault lines more visible and navigable. On this ground we argue that CXD cannot mature as a field by refining tools and techniques alone. What is required is an explicit reckoning with the conceptual and normative premises beneath its projects, and the controversies they set in motion, which shape collaboration and reception even while they rarely surface.

4. Controversy Mapping as Representational Practice

In science and technology studies, Bruno Latour proposed shifting attention from stable “matters of fact” to the more dynamic “matters of concern” [52]. The move redirects inquiry toward the networks of actors, values, and negotiations through which provisional stability emerges, whether the achievement is a scientific fact, an institution, a public, or a digital interface. In this context, controversies mark

³The framework addresses itself first to practising designers from these communities who work inside and for cultural institutions, and among them especially to students, trainees, and newcomers who have not yet acquired the standing to hold a considered position when questions of cultural value come under institutional pressure. For these practitioners above all, the conflict literacy we develop below is least available and most needed.

the salient processes by which such ‘facts’ are generated, challenged, and eventually maintained.⁴ As a methodological consequence the procedure of *controversy mapping* has been developed as an approach to conceptualize and visualize socio-technical disputes, so that the structure of a dispute with its positions, relations, and dynamics becomes available for orientation instead of being flattened into a for-and-against [53]. It sets aside the question of who is right and asks instead: what positions exist, how are they articulated, who mobilizes them, and how do they interact? This shift of perspective amounts to a figure-ground reversal of inquiry: Settled facts invite mapping precisely because they have gone quiet, yet that quiet is what hides the extensive networks of actors and interactions that produced them. Controversies are the phases before such closure, when positions, alliances, and stakes are still legible. For the many unfinished matters of concern across modern society, attending to the dispute is therefore the only purchase available on a situation still being decided. And where resolution is neither imminent nor the goal, knowing the principal factions and the fault lines between them is the actual point [54, 55].

For a field such as CXD—situated at the intersection of design, culture, technology, and public discourse—this approach offers two advantages that existing reflexivity frameworks do not fully provide. First, it treats tensions as structural features rather than anomalies to be overcome through more inclusive processes, as tensions do not tend to resolve when design spaces get more participatory. Second, and more operationally, it establishes a shared cognitive frame within which disagreement becomes navigable across roles – between curators, designers, and evaluators who currently lack a common vocabulary for their normative divergences. In this sense, controversy mapping functions simultaneously as epistemic and discursive clarification, but also as a synoptic pedagogical resource. Such clarity matters all the more in polarized environments. As complex societies diverge over the meaning of culture and the role of technology in shaping it, anticipating and documenting recurring fault lines should become part of responsible mediation and education practice. In this context, mapping can help design students and practitioners to localize the position of their own project and to proceed with greater awareness of affiliated or contrasting positions already in play. Drawing on the discussions within our think tank, and informed by the broader literature, we began to outline a preliminary instrument for navigating CXD in the wild as a structured controversy map of recurring tensions across three interconnected layers (see sec.5).

METHODOLOGY: To develop a first version of this map, the think tank convened about 5 times between March and November 2025, with sessions held both at location and online. Participants included 12 experts drawn from design practice, cultural studies, digital humanities, computer science, evaluation research, and museum and heritage practice.⁵ Each session combined structured inputs with open deliberation. No single disciplinary framing was privileged in advance; the convening logic was explicitly transdisciplinary, aimed at surfacing productive friction rather than arriving at consensus. The controversy map emerged inductively from this process. Recurring points of disagreement were first identified through session notes and transcripts, then consolidated into provisional axis formulations that were tested, refined, and enriched from literature research and debates in subsequent sessions. Axes were retained when they recurred across multiple sessions or disciplinary perspectives and when they resisted resolution by appeal to technical best practice alone. What remains at the current and preliminary point of development aims to document genuine normative disagreement in our community - positions where we expect reasonable and well-informed practitioners to diverge.

This procedure is loosely analogous to what Venturini and Munk [53] describe as the cartographic phase of controversy mapping: a move from observing disputes in situ to assembling them into a

⁴Applied to CXD, this reframing has another important implication: ‘content,’ ‘users,’ ‘cultural values,’ and ‘institutional authority’ are not stable inputs that design translates into experiences but they are themselves effects of ongoing negotiation, inscription, and mobilization [18]. Mapping related controversies does not merely document disagreements about these entities but helps to trace the processes through which they are provisionally stabilized or destabilized.

⁵Coordinated by Sibylle Moser, participants included (in alphabetical order) Wolfgang Aigner, Daniela de Angeli, Victor de Jesus Oliviera, Simon Ganahl, Yuliia Kovalenko, Eva Mayr, Vlad Mihaescu, Franziska Proksa, Kasra Seirafi, Silviu Vert, Georg Vogt, and Florian Windhager.

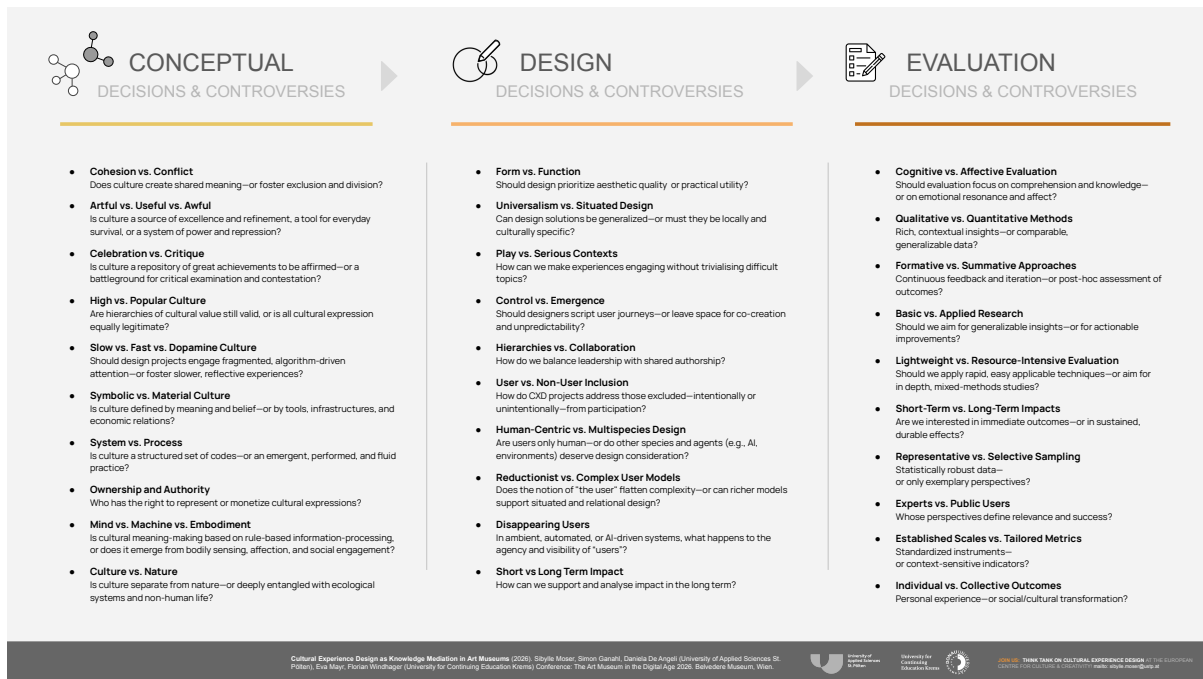


Figure 1: The CXD controversy map (state of Jan. 2026). The map articulates central field tensions as schematic A–B pairings linked to underlying value questions. The oppositions are not intended as rigid alternatives but as orientation axes along which projects may position themselves in varying degrees. (License CC BY-SA 3.0)

navigable representation. Our application differs from canonical controversy mapping in one significant respect: rather than tracing disputes across external sociotechnical networks, we were mapping controversies internal to a professional community, among participants who recognized themselves as part of the field under scrutiny. This reflexive dimension adds both practical credibility and an epistemic limitation, as the map cannot claim the detachment of an outside observer. It is an articulation from within, offered as a shared orientation instrument [56]. This distinguishes the map from positionality statements as currently practiced in HCI research, which tend to locate reflexivity in the identities and biographical contexts of researchers [56, 57]. The controversy map relocates reflexivity collectively to the normative structure of culture and the CXD field itself, aiming to evolve into a shared professional resource.

5. Assembling a CXD Controversy Map

Our current version of a controversy map for cultural experience design (Figure 1) organizes the field along three interrelated layers of decision-making: (1) *conceptual controversies*, (2) *design-oriented controversies*, and (3) *evaluation-centered controversies*. This sequence reflects the internal logic of design practice: Conceptual assumptions about culture inform design decisions; design decisions shape evaluation strategies; evaluation outcomes, in turn, feed back into both design and conceptual framing. While analytically distinguishable, these layers are tightly entangled in practice.

The axes assembled here sit at deliberately different levels of abstraction. The conceptual layer holds ontological and political oppositions about what culture is and whom it serves; the design and evaluation layers hold operational decisions about format, interface, and method. They belong on one map because each conceptual or political commitment translates, sooner or later, into a concrete design and measurement choice. Whether culture is taken as a source of shared meaning or as a site of conflict (a conceptual axis) bears on whether one designs for consensus and broad access or for situated, agonistic encounter (a design axis), and on whether success is then read as shared comprehension or as plural, affective response (an evaluation axis). The map’s left-to-right organization is built to make such movements legible, so that a method choice can be traced back to the premises it enacts, and a

premise forward to its instrumental consequences.

The map visualizes recurring tensions within each layer as stylized A–B pairings. These oppositions are not intended as rigid alternatives or mutually exclusive camps but as heuristic coordinates that make structured disagreements visible. In reality, each dimension can be considered as a continuum—commonly structured by a complex debate—along which projects position themselves by degrees. The apparent binarization serves an analytical purpose as it condenses complex discussions into legible axes without denying their internal nuance. In practice, most practical decisions tend to unfold between such poles and combine elements of both, or shift over time as institutional contexts evolve. By modeling tensions as sliders rather than binary verdicts, the map foregrounds *positioning* and *positionality effects* as an unavoidable feature of cultural practice (see sec. 6.4). Every project occupies coordinates within this design space, whether explicitly articulated or tacitly assumed. By rendering these positionings visible, we expect to gain the opportunity to reflect on the commitments and trade-offs that shape projects, professional judgment, and ultimately also institutional appearances.

Although the three layers follow a conceptual-to-evaluative sequence, our discussion proceeds in a different order. We begin with the instrumental layers of design and evaluation, where tensions are immediately visible in everyday practice, before turning to the deeper conceptual fault lines that structure them.

5.1. Designing Cultural Experience: *Navigating Instrumental Controversies*

At the level of formative **design practice** (Figure 1, center), controversies surface in concrete and immediate ways. They are recurring procedural tensions that shape project meetings, creative note taking, R&D proposals, interface sketches, funding negotiations, or prototype revisions. Design-oriented controversies preconfigure how cultural experience is structured and materially realized. Many of these tensions are longstanding within design theory while others have intensified under digital and postdigital conditions. Together, they form the central instrumental layer of CXD.

- One of the most enduring debates concerns **form and function**. From early modernist principles to contemporary interface design, the question of whether aesthetic refinement should guide utility or utility should discipline form has structured professional discourse for decades. In cultural contexts, the stakes are amplified. A visually ambitious installation may deepen immersion and symbolic resonance, yet complicate accessibility or task clarity. A streamlined, efficiency-oriented interface may enhance usability while reducing experiential richness. Each orientation expresses a prioritization of value [58].
- A second axis concerns **universalism and situated design**. Should cultural interfaces aim for broadly generalizable solutions, scalable across institutions and contexts – or should they remain deliberately embedded in local histories, languages, and specific user communities? [59] Universalist aspirations promise comparability and reach. Situated approaches foreground contextual integrity and cultural specificity. The decision reflects assumptions about the portability of meaning and the scope of institutional responsibility.
- The tension between **play and seriousness** in design becomes especially salient in contexts of historical trauma, political conflict, or ethical sensitivity [60]. Interactive, game-based, or immersive strategies may foster engagement and perspective-taking. They also require careful calibration to avoid trivialization. Designing for emotionally charged material demands both creativity and restraint, particularly when audiences differ in their proximity to the histories represented.
- Another long-standing question concerns **control and emergence**. Should designers choreograph user journeys to ensure narrative coherence and institutional framing? Or should they allow exploratory interaction and ambiguity that invites reinterpretation and co-creation? [61] Scripted pathways offer clarity and accountability. Open systems accommodate multiplicity and discovery. Most projects navigate between these poles, negotiating how much guidance and how much unpredictability to embed.

- Questions of **hierarchy and collaboration** further complicate practice. Cultural production often rests on curatorial leadership and scholarly expertise, yet participatory design traditions advocate distributed authorship and shared authority. The balance between institutional coherence and collaborative inclusion remains contested, especially in projects that engage community stakeholders or marginalized groups.
- The distinction between **users and non-users** foregrounds the problem of exclusion – especially with regard to the digital sphere: Who remains outside the intended audience, whether through technological barriers, cultural framing, accessibility constraints, or algorithmic filtering? Addressing inclusion involves not only interface compliance but requires reflection on structural access and representational presence [62].
- Relatedly, debates around **reductionist versus complex user models** challenge the notion of “the user” as a stable category. Simplified personas may facilitate design workflows, yet they risk flattening lived diversity and relational identities. Richer models that account for intersectionality, temporality, and context promise greater sensitivity while increasing design complexity [63].
- The emergence of ambient, automated, and AI-driven systems raises further questions about **disappearing users**. When recommendation engines, adaptive interfaces, or predictive infrastructures shape cultural experience in the background, the agency and visibility of users become less explicit [64]. Designers must consider how autonomy, transparency, and accountability operate within such systems.
- Finally, the temporal dimension of **short- and long-term impact** intersects with many design decisions. Some interventions aim at immediate engagement and measurable uptake, others aspire to durable transformation in perception, dialogue, reflection, or institutional trust [65]. The time horizon embedded in a design brief shapes both form and ambition.

Taken together, these controversies structure much of CXD’s practical terrain, and none of them yields to technical optimization: each requires judgment, a documented trail of decisions, and an explicit account of where the project stands. Controversy literacy at this layer supports transparency in trade-offs and strengthens institutional accountability: *How should a cultural experience we consider valuable enough to shape actually be shaped?*

5.2. Evaluating Cultural Experience: *Measuring What Matters*

If design controversies concern the shaping of experience, **evaluation controversies** (Figure 1, right) concern its validation. Here, too, tensions are neither incidental nor easily resolved as they reflect longstanding methodological debates or recurring institutional pressures.

- Building on the multifaceted nature of cultural experiences (cf. [16]), **cognitive and affective facets** can be evaluated. Should cultural interventions be assessed primarily in terms of comprehension, knowledge acquisition, and measurable learning outcomes? Or should emotional resonance, immersion, empathy, and attitudinal shifts carry equal or greater weight? Educational institutions often privilege cognitive indicators for their apparent objectivity and comparability, but in museum contexts, affect is known to support learning processes [66, 67]. Similarly, experiential design traditions emphasize affective depth as central to cultural engagement. The choice between these orientations signals assumptions about what constitutes meaningful impact.
- Methodological debates further unfold between **qualitative and quantitative approaches**. Standardized surveys and statistical analysis enable aggregation and comparison across projects and institutions. Interviews, observations, and interpretive case studies provide contextual richness and insight into situated meaning-making. Each generates a different kind of knowledge. The tension is not technical but epistemic: what form of evidence is considered persuasive? Ideally, qualitative and quantitative measures are combined [68] - but mixed-methods approaches require more resources than are available in most CXD projects.

- The distinction between **formative and summative evaluation** structures project timelines and resource allocation. Continuous feedback and iterative refinement support adaptive development but demand sustained engagement [69]. Post-hoc assessment may satisfy accountability and reporting requirements while overlooking processual dynamics that shape long-term effects [70]. Again, a combination of both approaches would be most valuable - if resources permit.
- Closely related is the tension between **basic and applied research**. Should evaluation aim to generate generalizable insights about cultural experience, contributing to broader theoretical understanding? Or should it prioritize actionable improvements within specific institutional contexts? These orientations often coexist uneasily, especially under funding regimes that require demonstrable impact and given the heterogeneity of cultural experiences and users. However, more basic research on postdigital cultural experiences could contribute to a better understanding of influential factors, which would transform the field as a whole towards more knowledge-driven CXD.
- Practical constraints introduce another axis: **lightweight versus resource-intensive evaluation**. Rapid, easily deployable instruments allow broad coverage and institutional feasibility. In-depth, mixed-methods studies promise nuance and reliability but require substantial investment [68, 69]. Decisions about scope and depth inevitably reflect institutional priorities.
- Temporal framing further shapes evaluative practice. **Short-term and long-term impacts** rarely align neatly. Immediate responses are measurable and reportable. Durable transformation in perception, trust, or cultural dialogue unfolds slowly and is challenging to measure: they are difficult to quantify and drop-out rates are high in longitudinal studies [71]. The time horizon embedded in evaluation design and long-term access to study participants determine what kinds of change are visible. Especially for European projects, the measurement of mid- to long-term impacts of digital cultural experiences becomes a challenge [72].
- Sampling strategies also encode value judgments. **Representative versus selective sampling** involves trade-offs between statistical robustness and exemplary depth. Large-scale representativeness promises generalizability; carefully chosen cases may illuminate structural patterns that broad surveys obscure. In any case, sampling items, such as demographics, lifestyle, or digital literacy, reflect assumptions about factors that might impact cultural experiences [73]. To understand the full range of meaning making activities, it is therefore important to profile study participants in light of cultural audience research and to ensure that different types of visitors [74, 75] are represented in a sample.
- Questions of authority enter evaluation through the distinction between **expert and public perspectives**. Should relevance and success be defined primarily through scholarly criteria and institutional benchmarks? Or should public users determine what counts as meaningful engagement? Each approach foregrounds different constituencies and different understandings of legitimacy.
- Finally, the choice between **established scales and tailored metrics** reflects a tension between comparability and contextual sensitivity. Standardized instruments allow benchmarking across projects and time. However, most have been developed in an analog context [76, 77] and before they can be applied for the evaluation of postdigital cultural experiences, their validity in these contexts has to be assessed. In contrast, custom indicators align more closely with the specific aims and values of a given intervention and are more open to underrepresented aspects of cultural experiences, such as embodied cognition [78, 79, 80].
- Should cultural experiences be measured on an **individual or collective level**? Most evaluations target individual experiences, but in cultural contexts social factors like conversational elaboration [81] or social media [82, 83] are highly influential. The level of analysis then shifts from the individual to groups or societies at large (e.g., in [82]).

These controversies form the evaluative counterpart to debates in the formative design phase. Evaluation

instruments are themselves acts of recognition: what gets measured acquires visibility and the capacity to shape future practice. Controversy literacy at this level supports methodological integrity and guards against the reduction of CXD value under narrow performance regimes: *What forms of cultural meaning are worthy of measurement — and whose criteria define worth?*

5.3. Conceptualizing Cultural Experience: *What Counts as Valuable Culture?*

Beneath design choices and evaluation frameworks lies the contested terrain of **conceptual design decisions** (Figure 1, left) — the assumptions about cultural value and meaning that give the other two layers their orientation. These assumptions travel downstream as settled ground. Designers receive them as mandate and meet their consequences first: in public reception, platform circulation, and institutional credibility, it becomes clear which conceptual commitments hold, which generate friction, and which dissolve on contact with audiences the upstream frameworks did not picture. The authorized heritage discourse generating many of these mandates was calibrated for audiences and media ecologies that no longer fully exist [25]. Designers working at that interface have accumulated knowledge institutions are only beginning to need. The first column of the controversy map makes these tensions available to the whole conversation — upstream and downstream alike.⁶

- The tension between **cohesion and conflict**, already examined in the context of polarized publics, resurfaces at the conceptual layer of the map. Institutional traditions often privilege narratives of unity and shared heritage, treating the cultural value of their collections as relatively settled and widely recognized rather than as a matter of ongoing negotiation [36]. At the same time, many cultural materials carry histories of exclusion, antagonism, unresolved struggle, or diminished relevance for certain publics. Their value cannot always be assumed as compelling or self-evident [34]. Clarifying this axis therefore shapes strategic choices: whether institutions treat their holdings as inherently persuasive, or whether they engage in active contextualization and argumentation—explaining, interpreting, and making the case for why particular materials deserve engagement. In contested or indifferent environments, cultural mediation may require cultivation and persuasion, rather than mere display [85].
- Relatedly, the axis of **celebration and critique** captures whether culture is approached as a repository of achievements to be affirmed or as a domain in need of sustained interrogation. Museums and heritage institutions often navigate between commemorative narratives and the obligation to address exclusionary or violent histories. What in recent decades appeared as a broad professional consensus—namely that critical engagement forms part of institutional responsibility—has itself become a site of renewed political negotiation [86]. Debates over curriculum, heritage preservation, restitution, and structural injustice illustrate how conceptual frameworks remain hotly contested, elevating the stakes of commitment and cancellation [87, 88]. For critical digital design, this axis entails concrete trade-offs: how explicitly to articulate structural critique, how to balance accessibility with analytical depth, and how to operate within institutional constraints without reverting to celebratory simplification [89].
- The triad of **artful, useful, and awful** sharpens and refracts this broader distinction. It corresponds to enduring schools of thought and divergent cultural worldviews. The “*artful*” orientation treats culture as refinement, excellence, and aesthetic achievement—an arena in which standards, mastery, and distinction matter [35, 90]. The “*useful*” perspective approaches culture as practical knowledge and social resource: a medium for everyday survival, identity formation, skill transmission, and communal continuity [91]. The “*awful*” lens, by contrast, foregrounds culture as

⁶The conceptual axes mapped here extend into broader conflicts currently shaping public discourse: disputes over whether to *preserve, disrupt, or transform* long-standing cultural norms, whether to center *national heritage or transnational perspectives*, whether to *protect against symbolic harm or expand freedom of expression*, and the pervasive struggle over *which cultural forms, histories, and identities deserve recognition and transmission to begin with*. These conflicts — exhaustingly discussed as ‘culture wars’ [84] — intersect with and at times reconfigure familiar political divisions. They form the environment within which institutional decisions about cultural value are interpreted, contested, and mobilized, and they give the axes mapped here a reach well beyond professional debate.

a system entangled with domination, symbolic violence, and structural inequality [46]. These positions map onto long-standing scholarly traditions how to frame “culture” and they intersect with the cohesion–conflict axis in significant ways. While artful and useful framings often align with narratives of shared value and collective continuity, the “awful” orientation tends to emphasize antagonism and structural tension. In practice, institutions rarely inhabit only one of these perspectives, yet the relative weight they assign to each shapes curatorial priorities, funding rationales, and the interpretive latitude granted to design.

- Debates over **high and popular** culture are long-standing, yet they remain consequential. Although aesthetic hierarchies have been repeatedly challenged, distinctions between elite and mass culture persist in institutional prestige economies, educational systems, and funding structures [35]. Many cultural heritage institutions continue to anchor their identity in canonized works and consecrated forms, while facing growing pressure to broaden audiences and operate within media environments shaped by popular culture and platform logics. This creates a persistent dilemma: how to revitalize and contextualize high-cultural holdings without diluting their specificity or retreating into defensive exclusivity. The axis therefore reflects not merely differences in taste, but competing understandings of legitimacy, audience engagement, and institutional responsibility [92].
- Temporal and technological conditions intensify further tensions. The contrast between **slow, reflective engagement** and **fast, dopamine-driven attention** captures a contemporary dilemma [25]. Should cultural design adapt to fragmented, algorithmically curated media ecologies that reward immediacy, emotional salience, and continuous stimulation? Or should it cultivate sustained attention, contemplative space, and forms of engagement that resist acceleration? Decisions here concern not only format and pacing, but the cognitive and affective dispositions cultural institutions aim to support. Whether projects align with platform logics or attempt to counterbalance them reflects broader commitments about attention as a cultural resource and about the kinds of subjectivities institutions seek to foster in digitally saturated environments [93].
- Another longstanding debate concerns **symbolic and material conceptions of culture**. Is culture primarily constituted by meaning, belief, interpretation, and representation? Or is it inseparable from tools, infrastructures, labor relations, and economic systems that condition cultural production and circulation? Interpretive traditions foreground narrative, discourse, and symbolic order, while materialist and infrastructural approaches highlight the economic, technological, and logistical conditions under which culture becomes possible. These orientations generate distinct understandings of responsibility and intervention. One emphasizes hermeneutic sensitivity and discursive critique; the other foregrounds institutional structures, resource distribution, and the material consequences of cultural systems [94].
- The axis of **system and process** further complicates matters. Culture can be conceived as a structured set of codes, canons, and traditions that maintain continuity across time and provide shared orientation. It can also be understood as emergent, performed, and fluid—continually enacted, revised, and renegotiated through everyday practice [36]. System-oriented perspectives tend to privilege preservation, transmission, and stability. Process-oriented perspectives emphasize experimentation, reinterpretation, and transformation. These orientations shape institutional strategies: whether emphasis falls on safeguarding established forms or facilitating ongoing re-articulation and cultural innovation.
- Questions of **cultural ownership and authority** remain persistent and politically charged. Who has the right to represent, preserve, interpret, or monetize cultural expressions? Claims to scholarly expertise, lived experience, national heritage, community stewardship, or ancestral custodianship frequently intersect and collide. Debates over restitution, intellectual property, community co-curation, and digital reproduction illustrate how authority is negotiated rather than given [95]. For cultural institutions and designers alike, these questions determine whose voices are amplified, whose perspectives are centered, and whose claims to legitimacy are recognized in

processes of mediation and display [86].

- Debates on culture, media, and technology are often framed by metaphors such as the “**mind** as computer” – prevalent in public discourse on AI – and meaning-making as a process of “decoding.” These metaphors suggest that cognition and communication function in ways analogous to **machines**, reflecting longstanding controversies in the cognitive sciences. Are perception, thought, and cultural signification based on the computation of mental “representations,” or does cognition emerge from embodied sensing, affection, and social engagement? While cognitivist approaches conceive meaning primarily as the outcome of information processing, theories of **embodiment** point out that cognition is embodied, embedded, extended, and enactive (the so-called 4Es) – some putting the very concept of representation into question [96]. The debate resonates with the discussion on multisensory perception and conceptual metaphor in media design [97, 98], the body as a source of reasoning in the arts [99], and the relationship between artificial intelligence, art and human creativity [100, 101].
- Finally, the tension between **culture and nature** has gained renewed urgency under ecological crisis and technological transformation. Earlier models often treated culture as distinct from natural systems—a domain of symbolic production separate from material environment [52]. Contemporary perspectives increasingly emphasize entanglement: cultural practices shape and are shaped by ecological infrastructures, resource extraction, climate change, and multi-species interdependence [102]. The rise of AI systems and data infrastructures further blurs boundaries between human creativity, technical mediation, and environmental consequence. To conceptualize culture today involves grappling with planetary limits and nonhuman agency as constitutive rather than peripheral.

Even as a non-exhaustive selection, these axes represent major debates which structure contemporary cultural negotiations across institutional settings, media ecosystems and whole societies. Design and evaluation controversies already presuppose positions along these conceptual dimensions. Through selection, framing, sequencing, and omission, CXD projects inevitably align with particular understandings of culture – even when neutrality is the stated goal. *What carries meaning and value in contemporary culture – and who holds the authority to define and redesign it?* If cultural experience design aspires to maturity, it must recognize its participation in the articulation of cultural value itself. Recognizing this situates our profession within the contested terrain it already inhabits and marks the threshold of a more reflexive, strategically aware phase of understanding and practice.

6. *You Are Here* - How to Use Controversy Maps in CXD

Controversy maps can function as a practical instrument for structured reflection within design teams and cultural institutions. Its purpose is to make the normative coordinates of a project discussable at an early stage and traceable throughout development. We suggest a three-part procedure.

- **Identification:** At project outset, teams review the map and select three to five tensions most relevant to the specific brief. A project addressing contested heritage may foreground “Celebration and Critique” and “Play and Serious Contexts.” A data-intensive visualization may highlight “Cognitive and Affective Evaluation” or “Control and Emergence.” The aim of this phase is to create a productive focus rather than an exhaustive reflection.
- **Positioning:** For each selected axis, the team formulates its provisional orientation. This step requires explicit articulation of priorities and constraints. The position can be recorded in a short design rationale or project charter, creating clarity about intended emphasis and anticipated trade-offs.
- **Documentation and Revisit:** These recorded positions serve as reference points during prototyping and evaluation. When friction emerges, teams can return to the documented coordinates

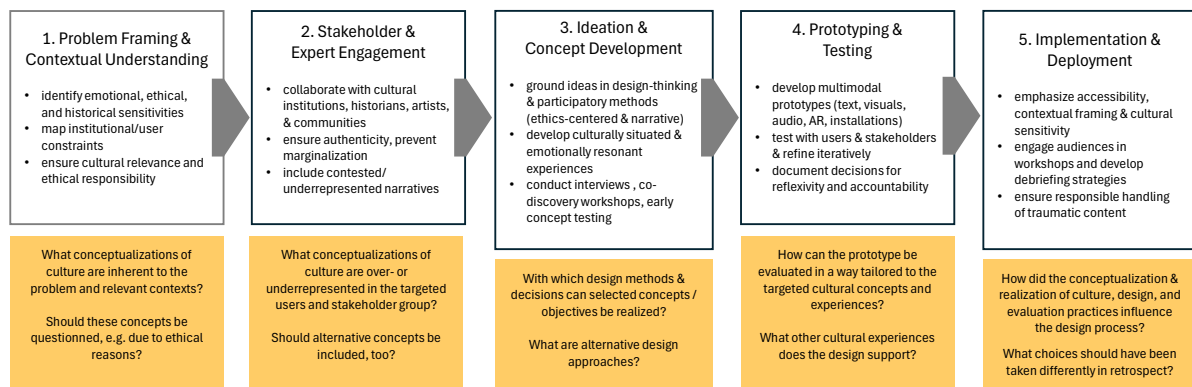


Figure 2: The controversy map triggers reflection on different questions (in orange, bottom) during different phases of CXD workflow (top) (License CC BY-SA 3.0)

and reassess alignment. The procedure supports communication with institutional stakeholders by providing a transparent account of how decisions were shaped.

Figure 2 introduces reflective questions for five phases of a CXD project that have been identified as core steps by the participants of the CXD Think Tank⁷. Identifying relevant positions on culture, design and evaluation and revisiting them iteratively throughout the workflow, strengthens internal coherence and sharpens strategic awareness. As CXD prototypes meet users and stakeholders, positions taken early are tested against reception and revised, so the map's axes work as hypotheses that travel through the design cycle and get re-marked as it proceeds. It supports teams in navigating plural value landscapes with more deliberation and clarity.

While the controversy map has only recently been formalized in its current configuration, many of its axes emerged from reflective work in earlier projects conducted in contested environments. In retrospect, these projects reveal how structured attention to tensions—later consolidated within the map—already informed design negotiations and reframed trade-offs. The following case descriptions illustrate how engaging controversy dimensions, even prior to their systematic articulation, contributed to clearer positioning, recalibration of design strategies, and more deliberate institutional communication.

6.1. Controversy Case Study 1: Play and Serious Contexts

The tension between **play and serious contexts** captures one of the most ethically charged dilemmas in cultural experience design: how to make difficult or traumatic histories accessible through interactive and potentially playful formats without trivializing the subject matter or alienating audiences who consider such mediation inherently disrespectful.

Project context: Two Agonistic Games were designed to stimulate critical reflection on dark heritage through multiperspectivity and unsettling play, asking players to inhabit uncomfortable roles and make morally charged decisions within historical settings [103]. They were deployed in a temporary exhibition at the Ruhr Museum in Germany and evaluated soon after their installation using a mixed methodology including interviews and surveys.

How the tension surfaced: There is a cultural assumption that games are inherently lightweight or entertainment-oriented. As a consequence, designers working with dark heritage must continuously negotiate the legitimacy of interactive media while shaping emotionally responsible forms of engagement. This perception is not new, but rather part of a broader historical trajectory in which emerging media have often been deemed inadequate for representing reality and especially its most traumatic dimensions. For many years, printed books were considered the only medium capable of conveying the horrors of the past with appropriate seriousness [104], while other forms of media were

⁷Depending on the size and complexity of a project, phases will be iteratively revisited or skipped altogether.

met with skepticism. Steven Spielberg's *Schindler's List*, for example, was strongly criticized for what was perceived as a 'trivialization' of the Holocaust, reflecting a broader prejudice against film as a less authoritative medium than the written word [105]. While cinema has since gained recognition as a legitimate vehicle for cultural memory, more recent media - particularly games - continue to face similar doubts regarding their suitability for addressing sensitive historical subjects [106].

This tension is not hypothetical – some visitors refused to play the Agonistic Games, believing such interactive experiences to be trivializing and disrespectful [103]. Such reactions reflect the concern that once serious thematic material is placed within a ludic framework, it risks being reduced to a mere 'game piece' and therefore stripped of its moral weight [106]. Placing historical trauma into interactive systems may be perceived as mistreating cultural memory or engaging with it in a less respectful manner than it deserves [107]. As a result, topics that evoke strong emotional responses - particularly the Holocaust - are often avoided in games altogether, effectively rendering them taboo within the medium [107, 108]. As Chapman notes, although World War II is a frequent theme in videogames, the Holocaust is rarely addressed unless framed through extremely careful and constrained narrative strategies [107].

Additional factors compound this hesitation, including the relative lack of widely recognized authors within the game industry comparable to figures such as Spielberg or Tarantino, who have historically pushed moral and cultural boundaries in other media [106]. This absence reinforces the perception that games lack the cultural authority to engage with complex historical trauma. The rejection of the Agonistic Games thus aligns with a broader skepticism toward interactive media, rather than being an isolated response to a single project. This rejection persisted despite the games having been developed in close collaboration with museum curators and experts in memory studies, and despite the development team having conducted in-depth research through interviews with survivors and extensive literature review.

This issue over the negative perception of interactive experiences was confirmed by other projects that similarly engaged with difficult historical events, and not only games. For example, the MEMORISE Distant Learning Platform (DLP) [109] sought to present diary pages of Holocaust victims through a structured, empathetic, and accessible digital interface. Despite avoiding gamification in a narrow sense, the project still confronted the familiar problem of being perceived as reductive.

The technology itself can negatively hinder a cultural experience. For instance, the Agonistic Games rely on touch screens and some visitors did not feel confident enough with the technology to engage. Technology can overshadow meaning, for instance, by distracting or even repelling people. Spotlight Heritage Timișoara as an example uses AR/XR and immersive digital storytelling to reveal the layered identity of a multicultural city [110, 111]. Despite a human-centered design process, the XR features become too prominent or fragmented, causing confusion rather than deepening engagement with place, history, and identity.

Yet, despite these challenges, games hold significant potential for the construction of cultural memory. Their widespread popularity and accessibility enable them to reach audiences that traditional media may not [107, 112]. More importantly, games can position players as active participants within historical scenarios, empowering them to make meaningful decisions and engage more deeply with complex contexts [112]. The non-linear nature of games further allows for the representation of multiple perspectives, arguably more flexibly and convincingly than linear media such as novels or film [112]. Thus, while games are frequently perceived as problematic, this very tension underscores the importance of critically engaging with history rather than dismissing it outright.

Positioning decision: The design team explicitly grounded their approach in agonistic theory [113, 114], prioritizing the creation of unsettling choices to provoke critical reflection rather than offering clear "right" answers or traditional win conditions. They emphasized multi-perspectival gameplay, deliberately allowing players to inhabit roles such as victim, perpetrator, and bystander [115]. This prioritization of emotional and ethical discomfort required trading off player comfort and conventional hero narratives commonly seen in mainstream games. Additionally, the team focused on embedding a resonating context, ensuring the subject matter was either personally relatable or tied to specific locations, which sometimes limited broader accessibility in favor of deeper contextual engagement.

Overall, the design decisions reflect a conscious trade-off between entertainment and critical engagement, privileging reflective, and at times unsettling, experiences over immediate enjoyment or narrative clarity.

Consequences and recalibration: When the Agonistic Games were deployed at the Ruhr Museum, a portion of visitors refused engagement entirely. For them, the interactive format was itself the problem: regardless of content or intent, the medium signaled trivialization. This rejection was not a failure of research thoroughness, as the games had been developed in close collaboration with museum curators and experts in memory studies, grounded in survivor interviews, and informed by extensive historical literature. Nor was it a failure of theoretical ambition: the agonistic framework was deliberately chosen for its capacity to hold moral complexity without resolution. What the reception revealed instead was a gap between the design team's positioning and the interpretive frameworks available to audiences: agonism as a narrative strategy was sufficiently unfamiliar that the games' critical intent remained opaque to those who most needed to recognize it. To address issues of reception and misunderstanding, the development team planned to more clearly communicate the purpose of agonistic games, emphasizing that these experiences prioritize reflection rather than winning. This would be achieved through in-game briefings, visual cues, and supporting materials that explicitly frame the experience and set appropriate player expectations. The team also aimed to improve integration within exhibitions by encouraging museum professionals to treat games as core curatorial elements—key interactive artefacts—rather than optional add-ons, thereby elevating how these experiences are perceived. Games allow visitors to be active participants, to make decisions, and to explore their consequences. As such, they can be powerful tools for sharing dark history and other difficult topics when given the opportunity.

Reflection for CXD: The Agonistic Games case makes visible something that better process design alone cannot resolve: a project can be methodologically rigorous, institutionally grounded, and theoretically sophisticated, and still encounter audiences for whom the medium itself forecloses engagement. The refusal to play was not addressed by more collaboration, more research, or more careful calibration – all of which were already present. What it exposes is that the play-serious axis carries a normative charge that precedes any individual project: cultural assumptions about what interactive formats are for run deep enough to shape reception before content is encountered. For CXD, this means that positioning on this axis is not only a design decision but a communicative challenge, as a chosen position must itself be made legible to audiences who may not share the conceptual vocabulary in which it was made. This points to a broader need within the field for shared guidelines that support the design of interactive experiences dealing with dark heritage and other complex topics. Such guidelines would help practitioners anticipate where misunderstandings are likely to arise, identify practices that risk undermining engagement, and articulate strategies—such as clear communication of intent or well-structured in-game briefings—that can scaffold more productive encounters.

6.2. Controversy Case Study 2: Culture vs. Nature

The tension between **culture and nature** has gained renewed urgency in CXD under conditions of ecological crisis, technological transformation, and the rise of AI systems. Earlier design frameworks largely treated culture as a domain of symbolic production separate from material environments and nonhuman actors. Contemporary perspectives increasingly emphasize entanglement: cultural practices shape and are shaped by ecological infrastructures, multispecies interdependence, and the computational systems that mediate experience. For designers, this axis raises concrete questions: Whose perspectives count as relevant? Which actors deserve representation in the design process? And what frameworks can support this expanded scope of attention?

Project context: The InSituEx research agenda⁸ seeks to develop a framework for Multispective Experience Design (MiXeD), fostering an analytic and ethical agility to shift one's own position and understand situations from diverse points of view, including nonhuman ones. A central methodological component of MiXeD is the notion of "Polyphonic Personas," which reconceptualizes the established per-

⁸Directed by Simon Ganahl at the University of Applied Sciences St. Pölten, <https://insituex.ustp.at/> [accessed 2026-03-17]

sona method to capture the multi-perspectival interplay of human and nonhuman actors in experiential settings.

One of the starting points for this approach was the “Climate Media Frames” (CliMeF) project⁹, which systematically investigated how environmental initiatives have been framed in Austrian television and print media from the 1970s up to the present day. The project’s case study on wind energy framing revealed a clear dichotomy between supporters and opponents. This polarization is particularly evident in recent controversies in Lower Austria, where over half of Austria’s wind energy is produced and more than half of its wind turbines are located (see the energy balances at Statistics Austria¹⁰). In analyzing the collected data, the CliMeF team noticed that similar types of actors repeatedly appear in historical and international comparisons of wind power debates: opposing residents and conservationists; supportive mayors and energy entrepreneurs; rare bird species (e.g., eagles) and special landscapes (e.g., forests) as reasons for opposition; objects perceived as particularly disruptive (e.g., the warning lights on wind turbines). The interdisciplinary team explored ways to represent this typology in a comprehensible manner and experimented with the method of design personas [116].

How the tension surfaced: The persona method holds significant potential for mediating such contested issues: it promises to combine ethnographic methods with narratological concepts, making it well-suited to representing controversies involving multiple actors. However, in its conventional form, the method remains anthropocentric—focused more on selling products or services than on authentically representing multispecies lifeworlds—and tends to generate stereotypes when qualitative data collection and analysis is applied superficially [117].

The Polyphonic Personas approach builds on recent advances in the field of more-than-human design [118, 119, 120], but also harnesses the rich tradition of multi-perspectival storytelling in literature and its reflection in narratology [121] – especially the notions of “focalization” [122, p. 189ff.] and “polyphony” [123]. It rethinks personas as dynamic characters embodying diverse human and nonhuman roles within experiential settings. This redefinition aligns with the conceptual framework of actor-network theory [52], acknowledging that sociotechnical controversies involve a multitude of interacting entities [53], as well as with recent literature on environmental communication calling for ethical concepts and research methods that transcend anthropocentric frameworks [124].

Positioning decision: Building on the findings of “Climate Media Frames,” the projects of the InSituEx research agenda not only analyze and map the recent wind power controversies in Lower Austria, but also create and even perform multi-perspectival and multimodal personas and scenarios in a participatory research and design process. Thus, apart from analyzing and mapping, the projects aim to literally mediate these controversies, that is, encourage stakeholders involved to understand the debates from other human and nonhuman positions.

To avoid the often stereotypical and anthropocentric implementation of conventional marketing and design personas, it is essential that Polyphonic Personas are empirically grounded and conceived as more-than-human. In the InSituEx projects, any additional data collection and evaluation required beyond the CliMeF project results is carried out as supplementary content analyses, interviews, and observations, following established practices in social and ethnographic research [125, 126, 127]. The Polyphonic Personas are finally created in a collaborative workshop of media scholars, environmental sociologists, experience designers, narratologists, and ornithologists.

Consequences and recalibration: However, both current literature on climate change communication and the results of the CliMeF project show that offering such information for reception is not enough. Rather, participatory and experiential approaches seem necessary for mediating environmental controversies. To address this challenge, the InSituEx projects draw on the original meaning of “persona” as a mask in ancient theater [128]. Ecologically oriented theater studies [129, 130, 131] as well as the therapeutic methods of psychodrama and sociodrama [132] provide several points of reference for such an approach.

Hence, the interdisciplinary team develops a concept for “ecodrama workshops” enabling stakeholders

⁹<https://research.ustp.at/en/projects/climef-climate-media-frames> [accessed 2026-03-17]

¹⁰<https://www.statistik.at/en/statistics/energy-and-environment/energy/energy-balances> [accessed 2026-03-17]

in the Lower Austrian wind power controversy to perform the Polyphonic Personas created in the InSituEx projects. The participants will not only embody roles that correspond to their personal standpoint, but also adopt other human and nonhuman positions (such as residents, conservationists, mayors, entrepreneurs, birds, trees, and wind turbines). The goal of this ecodramatic approach is expressly not to force compromise or consensus, but rather to cultivate mutual understanding by imparting the perspectives of conflicting actors, which is a prerequisite for advancing ecological solutions.

Reflection for CXD: The Polyphonic Personas approach exemplifies a broader challenge at the Culture vs. Nature axis: expanding the circle of relevant actors in design requires not only conceptual frameworks but practical methods for translating nonhuman perspectives into design decisions without falling into either anthropomorphic projection or superficial gesture. For CXD, this axis poses a question that existing toolkits are not yet equipped to answer: when cultural experience design takes place in environments shaped by ecological systems, algorithmic infrastructures, and multispecies entanglement, who and what counts as a stakeholder? How the field answers this question will shape not only methodological innovation but the broader scope of what CXD considers its responsibility.

6.3. Controversy Case Study 3: Embodied Cultural Experiences

The distinction between **body and mind** is a century-old dualism in Western cultures, related to questions of what it means to be human, to be conscious, and to reflect on the world through language and abstract thought. This dualism emerged in the 17th century, an era that witnessed the first attempt to design a speaking machine. It climaxed in the 20th-century idea, that the mind operates like software, running on the brain as an organic machine. As a potent metaphor, “the mind as a computer” has informed disciplines central to text comprehension such as psychology, linguistics, and media and communication studies. It ultimately raises the question whether cultural meaning-making can be translated into computational processes and algorithms respectively.

The tension between mind, machine, and embodiment became a pressing issue in the 1970s, when the computer model of mind was challenged by a “second-generation cognitive science” [133] that introduced the concept of *embodied cognition* [96]. Proposed as an alternative to cognitivism, this concept argued that cognition—and cultural experiences—cannot be understood independently of spatial and temporal situatedness, movement, subjective feeling, and meaningful interaction.

Project context: The project *Cognition of Aesthetic Media* was conducted at the McLuhan Program in Culture and Society, University of Toronto, funded by the Austrian Academy of Sciences [134]. It faced the challenge to understand the role of body and technology in poetic language, exemplified by texts in the work of multimedia performer Laurie Anderson. What is the difference between listening to a recorded song by Anderson as opposed to reading it, for example, in a printed booklet? When do cultural audiences choose to read lyrics and when to listen to a song – and how is it possible that a conceptual artist who was deeply rooted in New York’s Avant-garde movement landed a hit in the British charts with the 8-minute-long song “O Superman”?

How the tension surfaced: The controversy between mind, machine, and embodiment has implications for the empirical study of narration and literary reception. In cognitive psychology researchers often conceptualize text semantics as based on “propositions”, disembodied micro-units of cognitive processing, which are used to construct hypotheses, build mental models, and draw inferences from narrative worlds [135]. While cognitivist models proved productive when conceiving reading as a process of problem-solving, they reveal limitations in the context of media design. From the perspective of media aesthetics, the materiality of linguistic signs and the modalities of language, such as the visual nature of writing and the oral nature of the voice, shift attention toward multisensory perception and prelinguistic, body-based processes of cultural meaning-making which manifest themselves, for example, as conceptual metaphors in language [79].

Positioning decision: As a consequence, the study *Cognition of Aesthetic Media* focused on the multisensory design of poetic texts surfacing in the deliberate use of prosody, rhythm, gesture, and the adoption of crossmodal image schemas in Anderson’s artistic work. It investigated the impact

of media modes in a comparative study design, which explored the role of mediation in the cultural experience of Anderson's song Kokoku by conducting expert interviews in Canada and Austria: How do cultural professionals who were proficient in film, writing, or music create meaning from a text mediated through recorded voice, print, and video? Does expertise in aesthetic designs and media modes of reception such as reading and listening make a difference in personal interpretation, emotional response, and affective value of the lyrics? In other words, does media aesthetic text design affect the message of the song?

Consequences and recalibration: A qualitative content analysis of the interviews showed that, when listening to the song, native speakers from Canada perceived the lyrics as fragmented and affectively charged by immersive sound and vocal performance (intonation, timbre, rhythm) as did non-native speakers from Austria [136]. Moreover, these performative qualities were perceived by all interviewees regardless of their media specific expertise.

The dualism of voice and script, however, requires further critical explication within an intermedial framework that emphasizes the synchronic interplay of multiple media types. In addition, the concept of media modes needs to be extended, as factors such as the normative distinction between pop music and avant-garde, knowledge about genres and meta-concepts of media (interviewees' assumptions about the function and value of script and voice) brought the sociocultural conditions of the cultural experience to the forefront.

Reflection for CXD: The project *Cognition of Aesthetic Media* demonstrates how conceptions of meaning-making often rely on implicit assumptions, for instance, that textual information exists independently of corporeal experience and technological mediation, or that text comprehension is purely a process of computation. It shows that the tension between the computer model of mind and models of embodied cognition is likely at work whenever designers apply concepts of semantics, understanding, interpretation and translation. The tension becomes most prevalent when design overlooks preconceptual dimensions of meaning-making, as manifested in the multisensory liveliness of human bodies, metaphoric thinking, and affective relations between people, minds, and technologies. As written text remains a pivotal component of many cultural experience designs, ranging from museum labels and multimedia guides to apps and screen-based narratives, CX design strategies should explicitly address the materiality of script and voice as well as the embodied nature of textual meaning-making. Designers are encouraged to move beyond purely visual representations by enabling users to deliberately enact linguistic information through bodily and multisensory engagement. This involves extending graphic design into multimodal formats, integrating audio and tactile elements, and leveraging intermodal principles of cognition such as rhythm, duration, spatial position, and intensity for multimedia designs (e.g. rhythm of graphic and vocal text elements). By foregrounding these embodied dimensions, design can anchor text-based experiences in multisensory, performative formats that foster the integration of reflective and immersive modes of textual interpretation.

6.4. Advancing Reflections on CXD Positionality

Beyond individual projects, the controversy map supports pedagogical and institutional reflection by structuring questions of positionality. Within HCI and design research, *positionality* acknowledges that researchers' identities, experiences, and value commitments shape research questions, methodological choices, and interpretations [57]. Recent analyses of positionality statements in CHI publications show that such reflections often foreground personal background, disciplinary training, or relationships to research communities [56]. They promote self-awareness and reflexivity, yet their influence on methodological decisions and design outcomes is frequently left implicit. In many cases, positionality statements appear as discrete declarations attached to sensitive domains rather than as integrated components of design reasoning.

The CXD controversy map extends this conversation by embedding positionality within a structured matrix of recurring tensions. Rather than limiting reflection to identity markers or biographical context, the map situates design teams within conceptual, design-oriented, and evaluative axes that shape professional judgment. It invites articulation of how a project positions itself with respect to celebration

and critique, control and emergence, cognitive and affective evaluation, or other structured tensions during a CXD design project. In doing so, it connects reflexive awareness to concrete design decisions, stakeholder negotiations, and evaluative frameworks. This approach broadens positionality from a statement of subjectivity to an explicit mapping of normative orientation. It supports consistency between declared values and enacted design strategies, and it provides institutions with a shared vocabulary for examining inherited assumptions. In this sense, the controversy map offers a structured expansion of current positionality practices in HCI, aligning reflexive awareness with operational clarity during different phases of a cultural experience design project (see also Figure 2).

7. Consolidating CXD: Summary & Outlook

Cultural experience design has built a strong instrumental foundation over the past two decades. User-centered methods, participatory processes, and mixed-method evaluation have established its credibility as a mature craft. What remains underdeveloped is the field's capacity to account for its own normative position and to acknowledge that design decisions about framing, implementing, and measuring are, alongside their technical dimensions, interventions in ongoing disputes over cultural meaning, value, and authority.

The controversy map developed in this paper is an instrument for making these forms of inevitable positioning explicit and to render related tensions navigable. By organizing recurring disagreements across conceptual, design-oriented, and evaluation-centered axes, it offers practitioners a shared vocabulary for locating their projects within contested terrain and for articulating, rather than involuntarily inheriting, the commitments that shape their work. This is, we would argue, the working program CXD has always implied: extending its analytical and methodological rigor into the normative dimensions of the field — into the experiential depth, interpretive plurality, and contestation over cultural value that every project already navigates. We consider the practical stakes of this shift to be tangible: In polarized environments, designers who cannot articulate their normative coordinates are less able to anticipate interpretive reactions, negotiate institutional expectations, or hold a position when it is challenged. Controversy literacy, against this background, is a form of strategic sovereignty.

The obstacles are also real: Explicit positioning of design projects requires institutional support—such as collaborative trust, professional autonomy, and tolerance for disagreement—and thus conditions that are unevenly available. The map will be easier to use in research and academic contexts than in tightly constrained application settings. The map itself also remains a provisional instrument as a conceptual snapshot at a particular moment of the field's development. It requires collective testing, expansion, and revision through sustained practice and debate across diverse institutional contexts. What it offers now is a starting point for a conversation the field has largely deferred: About what kinds of cultural experiences CXD considers worth designing, on whose terms, and with what awareness of the contested ground on which that judgment is made.

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Declaration on Generative AI

During the preparation of this work, the authors used Claude Sonnet in order to enhance content and to check grammar and spelling. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

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