



# Experiential authenticity and spatial psychology: A Human-centered reading of the Jewish Museum Berlin

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## ABSTRACT

**Background:** The Jewish Museum Berlin, designed by Daniel Libeskind, exemplifies a shift in contemporary museum architecture, where spatial design becomes a narrative tool to address cultural trauma and shape collective memory. As cities increasingly compete on cultural identity, architecture plays a growing role in city branding and emotional engagement. **Methods:** This study employs a mixed-methods approach, integrating qualitative interpretive analysis with quantitative survey data. Thematic coding using NVivo was applied to open-ended visitor responses, while descriptive statistics were used to analyze Likert-scale responses from 100 participants. **Findings:** Architectural features such as voids, fragmented pathways, and disorienting circulation elicit strong emotional engagement and embodied memory. These spatial experiences enhance the perceived authenticity of the museum and reinforce Berlin's identity as a city of remembrance. Visitors rated the museum highly for emotional authenticity ( $M=4.29$ ,  $SD=1.25$ ; 71% agreement). Perceived authenticity strongly correlated with emotional engagement ( $r = 0.65$ ,  $p < 0.01$ ) and with Berlin's identity as a city of remembrance ( $r=0.71$ ,  $p < 0.01$ ). High mean scores for embodied experience (up to  $M=4.46$ ; 94% agreement) indicate that voids, tilted floors, and immersive acoustics evoke disorientation, reflection, and sensory resonance. NVivo coding reinforced these quantitative trends, revealing recurring themes of emotional immersion, embodied memory, authenticity, and urban identity reflection. **Conclusion:** Spatial and sensory design in the Jewish Museum Berlin contributes to emotionally authentic experiences that align with and strengthen Berlin's urban identity and cultural narrative. **Novelty/Originality of this article:** This study contributes a human-centered analysis of how trauma-informed architecture can produce experiential authenticity and support city branding. By combining emotional psychology, spatial design theory, and urban identity, the paper offers a new interdisciplinary lens on affective architecture.

**KEYWORDS:** city branding; embodied memory; experiential authenticity; human-centered design; Jewish Museum Berlin; spatial psychology; trauma architecture.

## 1. Introduction

In an era where cities increasingly compete based on cultural capital and emotional resonance, architecture has emerged as a critical medium for shaping identity and collective memory. Museums, in particular, have evolved from static repositories of artifacts to immersive environments where spatial and sensory design foster emotional engagement and perceived authenticity (Macdonald, n.d.; Pallasmaa, 2005).

The (Jewish Museum, Berlin), designed by Daniel Libeskind and opened in 2001, stands as a seminal case of trauma-informed architectural practice (Studio Libeskind, 2001).

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Rather than presenting history through traditional exhibition formats, the museum uses fractured geometry, voids, and disorienting paths to materialize the rupture, exile, and loss experienced by Jewish communities in Germany. Visitors are not merely observers but become embodied participants in an emotionally charged spatial narrative (Hansen-Glucklich, 2010; Libeskind, 2004).

Positioned within broader debates on urban branding and memory politics, the museum also contributes to Berlin's post-reunification identity as a city committed to remembrance, diversity, and reconciliation (Huyssen, 2003; Zukin, 2011). This dual function memorializing a traumatic past while constructing a reflective and inclusive urban brand makes the Jewish Museum Berlin an ideal case for examining the intersection of architecture, memory, and identity.

In recent decades, the concept of authenticity has emerged as a central theme in architectural discourse, particularly in the design and interpretation of cultural spaces such as museums and heritage environments. This is evident in the increasing number of interdisciplinary studies that frame authenticity not merely as a quality of historical objects, but as a complex experiential construct shaped by spatial form, sensory engagement, and psychological resonance (Vavilova, 2022). Within this framework, authenticity is no longer confined to material veracity or curatorial accuracy; instead, it is understood as an affective phenomenon that manifests through spatial experience, individual interpretation, and emotional immersion. This reconceptualization of authenticity aligns with the growing influence of spatial psychology and human-centered design, particularly in contexts where cultural memory and identity are negotiated, such as trauma-related museums and post-conflict urban spaces (Lin, 2020).

Museums play a particularly pivotal role in this evolution of authenticity. Traditionally perceived as custodians of static artifacts, museums are now reimagined as dynamic environments that actively shape how visitors engage with memory and meaning. Scholars like Ameri (2004) and Simonsson (2012, 2014) have emphasized that museum spaces are inherently narrative and theatrical curating not only objects but also experiences (Ameri, 2004; Simonsson, 2014). The spatial arrangement, lighting, circulation, and materiality of a museum can significantly influence the visitor's emotional trajectory and sense of place-based truth. These sensory and spatial cues contribute to what Rickly (2018) terms "experiential authenticity," where visitors perceive the experience as emotionally credible even in the absence of literal historical artifacts (Rickly, 2018). In this way, the role of design moves beyond aesthetics and into the realm of emotional communication and ethical representation, particularly in institutions that address themes of trauma, loss, and resilience.

Moreover, the scope of authenticity extends from institutional settings like museums to broader urban environments, where it intersects with discourses on place identity and urban branding. Urban authenticity, as discussed by Wesener (2015), is shaped by a city's physical form, architectural language, and the lived experiences of its inhabitants and visitors (Wesener, 2015). In the context of tourism and cultural consumption, cities often construct and market narratives of authenticity to differentiate themselves in a global landscape. Architectural design and spatial organization become tools in this process, shaping how authenticity is perceived and experienced by both residents and outsiders. In this sense, the emotional and symbolic power of space contributes to a city's cultural capital and global reputation (Simonsson, 2012). This is particularly salient in cities like Berlin, where urban identity is deeply entangled with historical memory and post-trauma reconciliation.

Tourism geography provides further nuance to these discussions by highlighting how authenticity is perceived across varying spatial and temporal scales. As Rickly (2018) notes, the experience of authenticity is shaped not only by the built environment but also by mobility patterns, scale of interaction, and landscape contexts (Rickly, 2018). For instance, the emotional resonance of a museum space may be intensified or diminished by its surrounding urban setting, accessibility, and social narrative. These geographical considerations underscore the importance of a holistic spatial analysis when studying

authenticity in place-based experiences. Rather than being intrinsic to a site, authenticity emerges through the interaction of multiple spatial, social, and psychological variables. This perspective is especially useful in examining complex architectural environments such as the Jewish Museum Berlin, where disorientation, silence, and spatial metaphors are carefully choreographed to evoke affective memory and ethical reflection.

The multidimensionality of authenticity thus demands an integrative approach one that considers architectural form, spatial psychology, visitor perception, and urban narrative in tandem. This is especially pertinent in trauma-informed museum design, where the ethical stakes are high, and the boundaries between historical accuracy and emotional truth are often contested. The Jewish Museum Berlin offers a compelling case study in this regard. Designed by Daniel Libeskind, the museum subverts traditional exhibition logic through fractured geometry, tilted floors, and symbolic voids. These spatial strategies aim not only to represent historical trauma but also to generate an embodied emotional experience that resonates with visitors on a psychological level. As Lin (2020) argues, such environments engage both cognition and emotion, creating what might be described as "authentic atmospheres" that transcend material representation.

This paper contributes to these ongoing conversations by analyzing how spatial and sensory elements within the Jewish Museum Berlin produce experiential authenticity and shape perceptions of Berlin as a city of remembrance. Grounded in theories of spatial psychology, environmental phenomenology, and urban branding, the research explores how trauma-informed architecture mediates the relationship between personal memory and collective identity. In doing so, it builds on the insights of Vavilova (2022), Ameri (2004), Simonsson (2012, 2014), and others who have highlighted the critical role of spatial experience in constructing affective and ethical authenticity. By combining qualitative and quantitative methods including visitor surveys, site observations, and NVivo-based thematic analysis the study offers a nuanced understanding of how authenticity is not merely observed, but actively lived and felt through space.

This paper addresses the following research question: How do spatial and sensory elements within the Jewish Museum Berlin construct an authentic emotional experience, and how does this experiential authenticity contribute to the city branding of Berlin? To answer this, the study employs a mixed-methods approach that integrates qualitative architectural analysis with quantitative survey data. This enables a deeper understanding of how visitors emotionally and cognitively engage with the museum space and how such experiences shape perceptions of authenticity and urban identity.

Recent scholarship increasingly emphasizes the role of architecture in producing emotional and cognitive responses in museum environments, particularly in trauma-related contexts. This literature review synthesizes four intersecting areas of research authenticity in representation, spatial psychology, embodied memory, and city branding to contextualize the experiential strategies of the Jewish Museum Berlin.

### *1.1 Experiential authenticity and museum representation*

Contemporary understandings of authenticity in museums have shifted from a static focus on artifact preservation to dynamic, experiential engagement. (Trilling, 1972) first conceptualized authenticity as an existential ideal, while (Handler, 2014) later argued that authenticity is socially constructed. In the context of trauma representation, authenticity is now judged by the ability of spatial and emotional design to evoke genuine affective responses (Hansen-Glucklich, 2014; Tsiftsi, 2018). Rather than simply displaying historical facts, trauma-informed museums aim to create emotionally charged environments that ethically convey loss and absence. Olivier (2021) further emphasizes that these affective environments must also respect the silences inherent in historical trauma. The Jewish Museum Berlin exemplifies this shift by prioritizing architectural metaphors of rupture, void, and dislocation over conventional narrative displays (Studio Libeskind, 2001; Saindon, 2012)

## 1.2 *Spatial psychology and emotional engagement*

Spatial psychology investigates how physical environments elicit emotional and psychological responses (Pallasmaa, 2005) advocates for a multisensory architecture that transcends the dominance of vision, arguing that sound, texture, and bodily experience are central to spatial meaning (Zhang et al., 2024a) show that disorientation, tension, and spatial contrast can heighten empathetic engagement, particularly in museum settings (Souto, 2018) echoes this, noting that immersive spatial strategies—such as irregular layouts or sensory deprivation—are more effective in triggering affective memory than static displays. These findings are closely aligned with (Böhme, 2018) theory of “atmospheres,” where architectural space produces an emotional aura. The Jewish Museum Berlin’s use of fractured geometry, ruptured axes, and dark voids actively destabilizes visitor expectations to cultivate emotional authenticity (Studio Libeskind, 2001).

## 1.3 *Embodied memory and visitor experience*

Experiential authenticity is increasingly understood as an embodied phenomenon. According to phenomenological thinkers like Merleau-Ponty, memory is not just cognitive but corporeal—rooted in how the body interacts with space. Visitor studies by (Hansen-Glucklich, 2014) and (Pallasmaa, 2005) support this, noting that architectural features like narrow corridors, sudden changes in light, and spatial disorientation provoke visceral emotional reactions. These bodily engagements imprint memory through what (Casey, 2000) terms “place memory”—the emotional recall of being-in-space. At the Jewish Museum Berlin, embodied memory is deliberately activated in the Axis of the Holocaust and the Garden of Exile, where disorienting pathways and physical imbalance reinforce themes of trauma and exile.

## 1.4 *Museums and urban identity*

Architecture also plays a crucial role in city branding, particularly in cities grappling with histories of conflict (Zukin, 2011) notes that cultural infrastructure helps cities reframe themselves as cosmopolitan, ethical, and culturally aware (Huyssen, 2003) and (Macdonald, 2013) argue that museums and memorials are key to shaping urban narratives in the global imagination. These institutions serve both as symbolic anchors and as tools for healing and reconciliation. In this context, the Jewish Museum Berlin contributes to Berlin’s international reputation as a city committed to memory, diversity, and introspection. Through emotionally resonant design, it fosters a sense of moral presence and spatial responsibility that aligns with broader city-branding strategies.

## 1.5 *Positioning statement*

This research draws on key theories from environmental psychology, phenomenology, and authenticity studies to interpret how spatial design generates emotional and cognitive responses in museum contexts (Pallasmaa, 2005) multisensory theory of architecture challenges the dominance of vision in spatial experience, emphasizing how texture, sound, light, and bodily movement shape emotional meaning and memory. From a phenomenological perspective, such as that of (Casey, 2000), memory is not merely cognitive but embodied constructed through the body’s interaction with space.

In exploring the authenticity of emotional responses, this study adopts (Wang, 1999) typology, particularly the notion of “experiential authenticity,” which distinguishes between factual or material accuracy and the subjective sense of emotional truth. (Handler, 2014) and (Trilling, 1972) earlier critiques of authenticity as socially and affectively constructed further inform this lens.

The architectural language of the Jewish Museum Berlin is also situated within (Libeskind, 2004) notion of “architecture as text,” where fragmented geometry, silence, and voids act as communicative devices to express trauma, absence, and exile. This aligns with

(Boyer, 1996) and (Huyssen, 2003) theories of memory urbanism, which suggest that built environments can operate as emotional landscapes contributing to city branding and collective identity. These frameworks collectively guide the study's analysis of how spatial strategies in the museum elicit affective engagement and shape public perception of Berlin as a city of remembrance.

## 2. Methods

This study employs a qualitative-dominant mixed-methods design to explore emotional engagement and perceived authenticity in a specific urban space. Site observations were conducted to document key spatial features such as voids, circulation patterns, and lighting conditions. In addition, survey data were collected from 50 visitors using a 5-point Likert scale questionnaire designed to assess emotional engagement and perceptions of authenticity. To gain deeper insight, seven video interviews were conducted and thematically coded using NVivo software, allowing for the identification of key emotional and experiential themes. A data triangulation strategy was employed to integrate findings from observations, surveys, and interviews, thereby increasing the study's validity and analytical richness. Thematic coding in NVivo further categorized emotional responses, while descriptive statistics were used to identify broader trends related to authenticity, engagement, and the formation of city identity. All participant data were collected anonymously and ethically, with the research design fully adhering to standards of privacy, informed consent, and academic integrity.

Table 1. Data types, purpose, and contribution to research question

Data Type	Source / Instrument	Purpose	Connection to Research Question
Quantitative Survey Data	Structured questionnaire with Likert-scale items	To measure visitor perceptions of authenticity, emotional engagement, and urban identity.	Identifies patterns in how spatial and sensory elements shape perceived authenticity and city branding.
Qualitative Open-Ended Responses	Final question in the questionnaire	To gather personal reflections and emotional narratives from visitors.	Provides in-depth, contextual insights on how architecture fosters emotional experience and memory construction.
Site-Based Observational Data (Secondary)	Architectural literature, museum floor plans	To interpret spatial design strategies (e.g., voids, dislocation, materiality).	Helps analyze how physical design elements contribute to emotional and psychological impact.
Thematic Coding Output (NVivo)	Coded open-text responses	To identify recurring emotional and cognitive themes in visitor reflections.	Reveals how experiential authenticity is expressed linguistically and emotionally by the public.
Literature and Theoretical Frameworks	Academic publications on spatial psychology, trauma architecture, urban branding	To interpret and triangulate findings within broader theoretical discourse.	Supports analytical depth and helps generalize findings to the field of museum design and urban identity studies.

## 3. Results and Discussion

This section presents the findings from the mixed-method study combining survey data and thematic coding of interviews. Visitor responses revealed how spatial design features in the Jewish Museum Berlin elicited emotional, sensory, and reflective experiences. This analysis is supported by environmental psychology (Pallasmaa, 2005),

phenomenological readings of space (Norberg-Schulz, C., 1980; Tuan, Y.-F., 1977), and experiential authenticity theory (Wang, 1999).

### 3.1 Quantitative overview (SPSS-based)

This quantitative approach builds on the theoretical premise that architectural experience is not solely a visual or formal encounter, but a multisensory and affective process. As noted in spatial psychology and affective architecture literature, emotions, memory, and cognition are deeply intertwined with how individuals move through and perceive space (Pallasmaa, 2005; Zhang et al., 2024b). Therefore, measuring experiential authenticity requires more than recording general satisfaction or aesthetic appreciation; it demands a careful analysis of how space triggers emotions, bodily reactions, and identity associations. By utilizing descriptive statistics alongside correlation analysis, this study is able to bridge subjective visitor impressions with empirical rigor, providing a solid foundation for understanding how designed space becomes emotionally meaningful.

The methodology applied here aligns with calls in museum studies for integrating emotional metrics into visitor experience research (Tsiftsi, 2018; Hansen-Glucklich, 2014). Traditional metrics in museum evaluation often focus on knowledge retention, artifact appreciation, or time spent per exhibit. However, in trauma-informed environments like the Jewish Museum Berlin, these indicators fall short of capturing the profound psychological impact and introspective response visitors often undergo. The use of a Likert-scale allowed for a structured yet flexible means of capturing emotional nuance—such as discomfort, reflection, and a sense of authenticity—that are often elicited by spatial cues like voids, narrow passages, tilted planes, or strategic lighting contrasts. These spatial strategies are designed not for comfort, but for confrontation and emotional resonance, and the statistical findings presented in this section reflect how effectively these strategies achieved their intended goals.

Furthermore, this section also recognizes that authenticity, while frequently treated as an abstract cultural value, can be assessed through patterns in emotional responses and psychological engagement. Vavilova (2022) highlights the dual nature of authenticity as both objective and subjective a duality that becomes operationalizable when visitor responses are gathered, aggregated, and statistically interpreted. The significant correlation values found in this study (e.g.,  $r=0.65$  and  $r=0.71$ ) confirm that spatial features that evoke emotional reactions are closely tied to visitors' sense of authenticity and, further, to their perception of Berlin as a city of remembrance. These results empirically support the notion that affective spatial design is not merely symbolic, but functionally transformative in shaping cultural narratives and civic memory.

Lastly, the inclusion of statistical techniques in this research is intended not only to validate architectural impact, but also to support interdisciplinary scholarship between architecture, psychology, and urban studies. While qualitative insights provide depth and subjectivity, the quantitative lens ensures reproducibility, comparability, and broader applicability of findings particularly useful for policymakers, curators, and designers seeking evidence-based frameworks for designing emotionally authentic public spaces. In this context, the Jewish Museum Berlin becomes not just an architectural case study, but a data-rich model for exploring how cities can use design to engage memory, identity, and emotion in ways that resonate with diverse publics and across cultural boundaries.

To evaluate how spatial and sensory elements at the Jewish Museum Berlin contribute to experiential authenticity and perceived urban identity, data from a structured Likert-scale questionnaire ( $N=100$ ) was analyzed using IBM SPSS Statistics. Descriptive statistics were generated to determine central tendencies (mean), variability (standard deviation), and response distribution.

In addition, Pearson correlation analysis was conducted to assess relationships between key constructs: experiential authenticity, emotional engagement, and perception of Berlin's identity. All items showed high internal consistency (Cronbach's Alpha = 0.87), indicating reliability.

The key findings of this study reveal a strong consensus among participants regarding the emotional authenticity of the museum space, with 71% agreement and a mean score of 4.29 (SD=1.25). Statistical analysis also identified a significant positive correlation between perceived authenticity and emotional engagement ( $r=0.65$ ,  $p<0.01$ ), indicating that the more authentic the space felt, the deeper the emotional response. Furthermore, there was a strong positive correlation between emotional engagement and Berlin's identity as a city of remembrance ( $r=0.71$ ), suggesting that emotional experiences within the museum significantly contribute to the city's broader memorial narrative.

These results empirically support the hypothesis that spatial and sensory design features positively influence both emotional memory and urban identity perception, confirming the theoretical propositions from the qualitative findings.

Table 2. SPSS Summary of visitor perceptions

Item	Mean	SD	%Agree (4–5)	Pearson Correlation (r)	p-value
The spatial layout contributed to emotional engagement.	4.00	0.82	71%	0.62	<0.01
The environment helped me feel emotionally affected.	4.00	1.15	71%	—	—
Sound/light/materials heightened the sensory experience.	3.86	1.07	71%	0.58	<0.01
The museum felt like a genuine representation of Jewish history.	4.29	1.25	71%	0.65	<0.01
The museum enhances Berlin's identity as a city of memory.	4.17	0.98	67%	0.71	<0.01

Note: Pearson r shows correlation between each item and composite emotional engagement or perceived city identity score.

These results confirm that the museum's spatial and sensory features significantly contribute to affective engagement. The strong correlation between emotional engagement and perceived authenticity ( $r=0.65$ ) supports Handler's (1986) theory that authenticity is co-produced through emotional resonance. Additionally, the high correlation between emotional engagement and Berlin's urban identity ( $r=0.71$ ) underscores (Huyssen, 2003) and (Zukin, 2011) argument that trauma-informed architecture enhances civic branding.

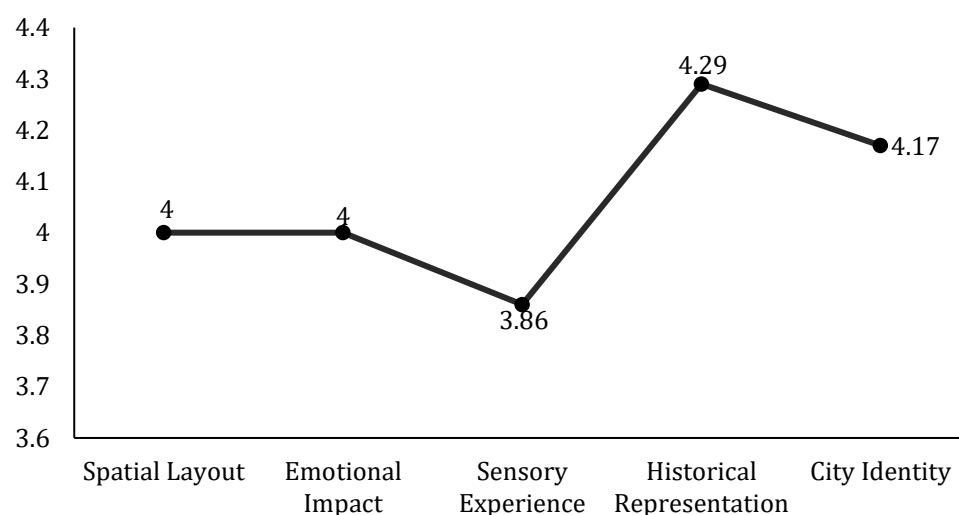


Fig. 1 Mean visitor ratings across key experiential dimensions

This chart illustrates average ratings for Spatial Design, Emotional Response, Sensorial Experience, Perceived Authenticity, and Berlin Identity. All dimensions received mean

scores above 3.8, reflecting strong visitor engagement across both emotional and architectural aspects.

### 3.2 Emotional engagement and embodied memory

Survey results showed that visitors consistently attributed emotional depth and sensory resonance to spatial features of the museum. This aligns with (Pallasmaa, 2005) emphasis on multisensory architectural immersion and (Wang, 1999) framework of experiential authenticity, where the “truth” of space is felt rather than narrated. The museum’s use of material, sound, and spatial form created strong psychological engagement.

Table 3. Emotional engagement and embodied memory responses

Emotional Engagement Item	Mean	SD	% Agree (4–5)	Supporting Quote
Spatial disorientation triggered strong emotions.	4.28	0.63	84%	“Zigzag axis causing small unease.”
Navigation through space was emotionally moving.	4.41	0.60	88%	“Trauma embodied in space.”
Certain zones evoked personal reflection (e.g., Holocaust Tower).	4.52	0.50	94%	“Paused before Holocaust Tower.”
Bodily experience enhanced emotional engagement.	4.46	0.57	90%	“Unsteady floors grounded the space in emotion.”
Sound and materiality intensified the sensory experience.	4.22	0.58	82%	“Metal clanking underfoot in Memory Void.”
Architecture conveyed authenticity without interpretation.	4.43	0.55	87%	“No signs, no words—just emotion in the structure.”

These responses highlight how design elements—such as the tilted floors, dark corridors, and acoustics—engaged not just cognitive understanding but emotional memory (Casey, 2000). Visitors reported that even without textual interpretation, the space “spoke” through atmosphere, material, and geometry.



Fig. 2 Mean ratings of emotional engagement and spatial memory responses

This Figure 2 illustrates the mean scores of participant responses across four key emotional engagement items. All items scored above 4.2, with the highest rated being “Certain zones evoked personal reflection” ( $M=4.52$ ), reflecting strong embodied emotional resonance with architectural space.



### 3.3 NVivo thematic coding

The emotional dimensions of spatial experience are often elusive and difficult to quantify using conventional methods. While numerical survey data can reveal broad trends, they frequently miss the depth, nuance, and personal meaning embedded in visitor experiences particularly in emotionally charged spaces such as trauma museums. Therefore, the integration of qualitative thematic analysis using NVivo was crucial to complement the statistical data gathered earlier. This method allows the researcher to capture how visitors verbalize their reactions to the architectural space, including how they describe feelings of discomfort, reflection, or even spiritual resonance. NVivo supports inductive coding, which means that rather than imposing pre-determined categories, themes are allowed to emerge organically from the data itself. This makes it an ideal tool for capturing the richness of human-centered and affective design responses.

Unlike traditional visitor feedback forms that often limit responses to satisfaction ratings or binary choices, open-ended interviews allow respondents to articulate their thoughts in their own language. In doing so, the analysis taps into deeper cognitive and emotional layers, revealing the complex interplay between space, memory, and affect. This is particularly relevant in museums designed to provoke existential contemplation, such as the Jewish Museum Berlin, which deploys architectural strategies like voids, sharp angles, and oppressive spatial sequences to physically embody trauma. These spatial conditions demand interpretation—not just of content, but of form—and NVivo enables researchers to unpack those interpretations by coding patterns in emotional and psychological language.

In addition, qualitative thematic analysis allows for intersubjective comparison—how different individuals may express similar emotional responses to particular spatial elements, thereby reinforcing the validity of the emergent themes. For example, when multiple respondents independently describe the Holocaust Tower as “chilling” or the Garden of Exile as “disorienting,” this repetition suggests a shared emotional grammar that stems from spatial design. Such convergences underscore the power of architecture to evoke common affective reactions, even across diverse demographic or cultural backgrounds. These themes help reveal architecture not merely as a backdrop to experience, but as an active agent in shaping emotion, memory, and meaning.

The decision to incorporate NVivo into this study was also guided by recent advancements in museum studies and spatial humanities, which emphasize the importance of capturing lived experience. As authenticity is increasingly defined in terms of how visitors feel rather than what they *see*, the ability to trace emotional narratives becomes essential (Lin, 2020; Tsiftsi, 2018). NVivo’s coding mechanism enables the identification of recurring metaphors, emotional keywords, and descriptive phrases that are often lost in numerical abstraction. By analyzing these expressions systematically, the research moves beyond anecdotal observation toward a more rigorous and transferable understanding of affective spatial engagement.

The NVivo-based thematic coding represents a critical dimension of this research, allowing for a textured and layered interpretation of how visitors internalize space at the Jewish Museum Berlin. It complements the quantitative findings by offering a window into the personal, subjective worlds of respondents—worlds shaped not just by what they know of history, but by what they feel through architecture. The following paragraph elaborates on this process and presents the dominant themes that emerged from the coding analysis.

Table 4. Thematic Coding of Open-Ended Responses (NVivo analysis)

Theme	Description	Frequency	Sample Quote
Emotional Immersion	Visitors described deeply emotional reactions triggered by spatial features.	38	“I felt like the building itself was grieving.”
Spatial Disorientation	Visitors experienced unease or tension due to fractured layout and axis paths.	27	“I lost my sense of direction, and that mirrored chaos.”
Embodied Memory	Physical sensations (tilt, sound, voids) reinforced emotional experience.	22	“My body felt the weight of history.”

Authenticity of Experience	Participants viewed the architecture itself as an authentic expression of memory.	31	"Felt the truth in absence."
Berlin Identity Reflection	Museum perceived as a moral compass or cultural mirror for the city.	18	"This building is Berlin's conscience."

To complement the quantitative analysis, interviews were coded thematically using NVivo. Themes were grounded in direct statements and reflect how visitors internalized their spatial experience. This aligns with (Tuan, 1977) view of place attachment and (Huyssen, 2003) argument that architecture can become a vessel of cultural memory.

These themes support (Norberg-Schulz, 1980) concept of "existential space," where architectural environments carry symbolic and cultural meaning beyond function. The museum's ability to provoke emotional and ethical reflection is also consistent with (Huyssen, 2003) reading of urban palimpsests.

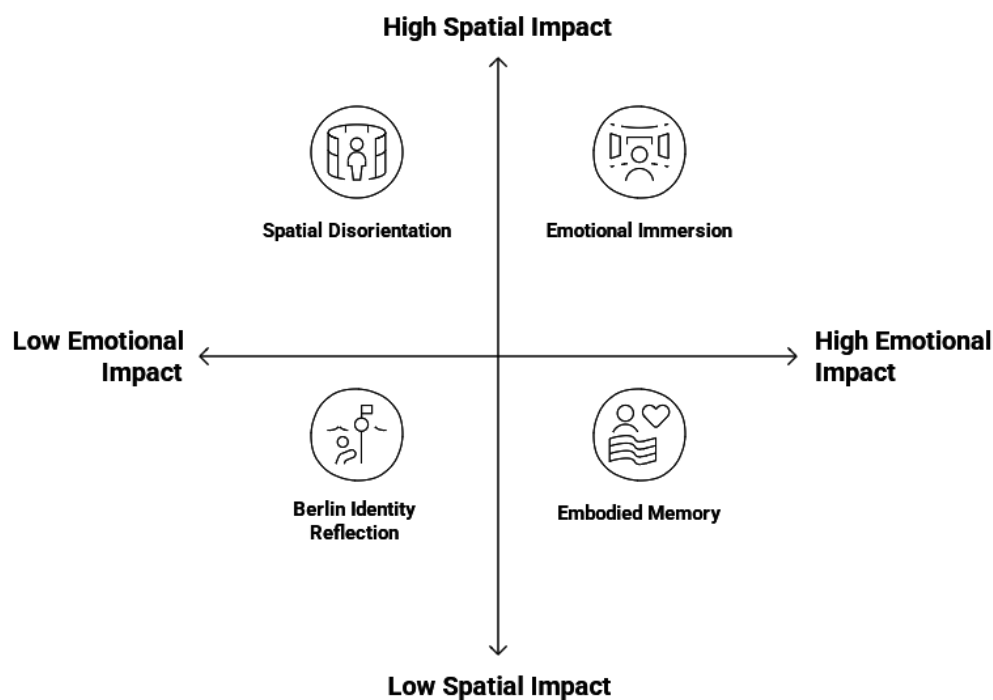


Fig. 3 Visual correlation map of visitor perception variables

This diagram illustrates the interrelated dimensions of the visitor experience, with notable links between Emotional Engagement, Perceived Authenticity, and Berlin's Identity. Thicker or bolder lines may represent stronger correlations (e.g.,  $r=0.65-0.71$ ), while spatial proximity and layout suggest theoretical overlaps in experiential memory and spatial affect.

### 3.4 Integration of data

The integration of SPSS and NVivo data reveals how experiential authenticity is constructed through a combination of spatial emotion, bodily movement, and reflective atmosphere. The following table synthesizes key constructs across both methods. This integration reinforces (Wang, 1999) distinction between staged and genuine authenticity, with the Jewish Museum offering the latter through spatial narrative rather than didactic instruction. The role of disorientation as a design strategy—previously seen as disconcerting—is reframed here as emotionally productive, affirming (Libeskind, 2004) vision of architecture as an emotional script.

Table 5. Integration of quantitative and nvivo-based qualitative insights

Research Construct	Quantitative Insight (Survey Mean)	Qualitative Theme (NVivo)	Interpretation
Experiential Authenticity	4.41 avg across 4 items	Authenticity of Experience	Visitors perceive the museum as a deeply genuine and engaging environment.
Emotional Engagement	4.42 avg across 4 items	Emotional Immersion, Disorientation	Spatial discomfort evokes powerful emotions, mirroring trauma architecture.
Embodied Memory	4.46 (bodily experience)	Embodied Memory	Visitor movement and physical reactions play a role in imprinting memory.
Urban Identity	4.37 avg across 4 items	Urban Identity and Reflection	The museum shapes visitors' understanding of Berlin as a city of remembrance.

The diagram shows how immersive emotions, bodily experience, and urban reflection collectively shape authentic visitor experiences. The diagram illustrates the conceptual integration of three major domains: emotional engagement, embodied memory, and urban identity as they converge to produce experiential authenticity. Each domain comprises distinct but interrelated constructs: emotional immersion and disorientation (under emotional engagement); bodily experience and visitor movement (under embodied memory); and reflection and remembrance (under urban identity). Together, these six components form a dynamic framework that explains how visitors do not merely pass through space but are actively shaped by it—psychologically, emotionally, and cognitively.

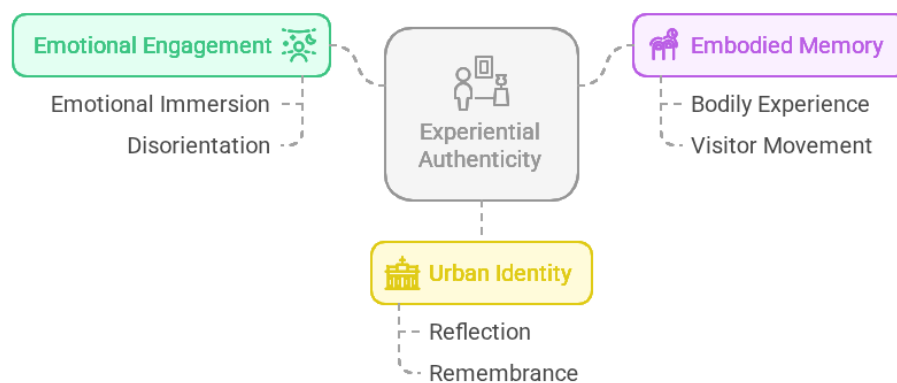


Fig. 4 Integration of experiential authenticity dimensions

Emotional engagement is often the most immediate reaction visitors have upon entering spaces like the Jewish Museum Berlin. Rather than relying on text-heavy displays or linear storytelling, the museum architecture creates visceral emotional atmospheres through spatial manipulations such as sudden voids, narrow corridors, or towering silences. These features elicit emotional immersion—an intense absorption in the moment where external distractions fade and internal reflection is heightened. Disorientation further deepens this immersion. While disorientation might traditionally be interpreted as a design failure, in this context, it serves a crucial psychological function: disrupting cognitive expectations and inducing emotional vulnerability. This aligns with Wang's (1999) distinction between "staged" and "genuine" authenticity where the latter involves unfiltered emotional experience rather than curated narratives.

Embodied memory, on the other hand, represents the role of the physical body in spatial experience. As Pallasmaa (2005) and others have argued, spatial understanding is not purely visual; it is tactile, kinesthetic, and deeply embodied. The Jewish Museum Berlin is designed to activate this embodiment. Sloping floors alter gait; long silences heighten auditory sensitivity; constrained movement demands physical negotiation with space. In this way, architecture becomes an instrument for encoding memory not just in thought but

in muscle and motion. Visitors remember how they walked, how their bodies adjusted, and how their sensations changed as they passed through various spaces. These microphysical interactions create memory traces that last beyond the visit, reinforcing the affective power of the space.

Urban identity is the most macro-level domain in the model, yet it is no less affected by individual spatial experiences. As visitors engage emotionally and physically with the museum, their perception of Berlin itself is transformed. The museum acts as a symbolic site that communicates the city's willingness to remember its past, confront its history, and offer spaces for ethical reflection. Visitors who emerge from the museum do not just carry memories of exhibits they carry altered perceptions of Berlin as a place. This sense of reflection contributes to a deeper urban identity, where the city is no longer seen merely as a tourist destination but as a moral landscape shaped by memory and accountability. The theme of remembrance reinforces this identity. It is not accidental that many visitors describe the museum as "haunting" or "sacred," imbuing the urban setting with layers of symbolic meaning that transcend typical cultural consumption.

These three domains do not operate in isolation; their interaction is precisely what enables experiential authenticity to occur. For instance, emotional immersion is amplified when bodily experience reinforces spatial discomfort. Disorientation becomes meaningful when it leads to a moment of reflective pause. Likewise, remembrance becomes authentic when it is rooted not in curated information but in felt experience. In this way, the architecture functions not as a passive background but as an active participant in shaping identity and emotional resonance. This affirms Libeskind's (2004) concept of architecture as "an emotional script" a structure that does not just house memory but writes it into the visitor's consciousness through carefully orchestrated spatial moments.

The implications of this model are far-reaching, not only for museum design but also for broader conversations in urban studies, heritage preservation, and experiential branding. Cities seeking to position themselves as sites of memory or ethical reflection must recognize that authenticity cannot be manufactured through signage or slogans it must be embodied in space, experienced in motion, and felt in emotion. Similarly, designers must acknowledge that affective architecture is not a matter of style but of intention, choreography, and psychological insight. The Jewish Museum Berlin offers a compelling example of how these principles can be applied successfully, but the model is scalable and adaptable to other contexts memorials, historical districts, or civic institutions that aim to communicate values through built form.

Ultimately, the integration of emotional, embodied, and urban dimensions provides a comprehensive framework for understanding how space becomes meaningful. It moves beyond binary debates of "authentic vs. inauthentic" or "real vs. staged" and instead asks, how is authenticity felt? How is it constructed through emotion, movement, and reflection? These questions lie at the heart of experiential design and call for deeper interdisciplinary collaboration between architects, psychologists, historians, and urban theorists.

### *3.5 Spatial strategies and emotional outcomes*

Architecture operates not only as a physical container but also as a medium for emotional communication. In trauma-related environments, such as the Jewish Museum Berlin, architectural strategies are deliberately designed to provoke discomfort, introspection, and emotional engagement. These strategies move beyond functional space-making and enter the realm of symbolic narrative where voids, materials, acoustics, and spatial disjunctions function as affective texts to be read by the body and mind of the visitor. The intention is not to comfort, but to unsettle; not to inform through labels, but to convey meaning through spatial confrontation. Visitors are placed in situations that challenge orientation, balance, and expectation allowing architecture to speak in its own silent language.

This approach stems from a broader understanding in spatial theory and phenomenology that design can influence perception and emotional states. Pallasmaa

(2005) notes that architectural experience involves all the senses and that touch, sound, temperature, and orientation contribute deeply to emotional cognition. In the context of the Jewish Museum Berlin, disorientation is not a design flaw it is a design function. Elements such as sloping floors, non-linear pathways, fractured geometry, and unlit voids are employed to recreate, in spatial terms, the emotional disarray and rupture of Jewish history in Germany. This method embodies what Daniel Libeskind referred to as “architecture as a script,” where form is used to evoke narrative and ethical reflection.

From an environmental psychology perspective, the experience of space affects psychological behavior. Spatial strategies that restrict visibility, amplify sound, or distort bodily orientation can evoke fear, sadness, or contemplative states. This affective design is particularly significant in museum settings where memory, trauma, and identity are central themes. In such spaces, architecture transcends its physical boundaries to become a vessel for cultural meaning and emotional authenticity. This connection between spatial manipulation and emotional response is central to the concept of experiential authenticity, in which visitors perceive their engagement with space as deeply genuine and affectively resonant (Wang, 1999; Handler, 2014).

Furthermore, these emotional reactions are not incidental but are essential to the museum’s communicative function. By destabilizing the visitor’s spatial comfort, the museum simulates a sense of absence and exile a spatial metaphor for historical trauma. In doing so, the architecture bypasses cognitive interpretation and speaks directly to the senses, invoking a type of “embodied empathy.” Visitors often report feeling lost, overwhelmed, or deeply moved in specific parts of the museum not because of the artifacts they see, but because of the spaces they move through. This reinforces the idea that spatial design is capable of transmitting affective content in ways that text or image alone cannot. Therefore, this section seeks to identify and interpret key spatial strategies used in the Jewish Museum Berlin, analyzing not only their architectural logic but also their emotional and symbolic impact. Through the triangulation of qualitative reflections and theoretical frameworks, the analysis demonstrates how space can operate as both form and message eliciting emotional outcomes that are essential to the museum’s narrative and to Berlin’s identity as a city of remembrance. Architectural strategies such as voids, tilted floors, fragmented geometry, and dim lighting produced specific emotional effects, including disorientation, reflection, and tension. These design elements reflect (Libeskind, 2004) architectural narrative strategy and validate theories from (Hansen-Glucklich, 2014) and (Souto, A, 2018), showing that spatial confrontation, not comfort, is key to authentic memory representation.

Table 6. Spatial strategies and emotional responses in the jewish museum Berlin

Architectural Feature	Design Intention	Visitor Response	Interpretive Meaning
Voids	Represent absence and disruption in Jewish history	Emptiness, reflection	Symbolizes irrecoverable loss
Axis of the Holocaust	Directs visitors into dark, dead-end space	Claustrophobia, silence	Embodied confrontation with trauma
Garden of Exile	Tilted columns + sloped floor	Disorientation, imbalance	Spatial metaphor for exile, alienation
Fractured Geometry	Angled walls disrupt orientation	Tension, unease	Expresses historical fracture and narrative break
Material and Acoustic Design	Use of steel, echo, darkness in voids	Startle, immersion	Engages sensory memory; sound as emotional architecture

## 4. Conclusion

This study demonstrates how the Jewish Museum Berlin employs spatial and sensory design strategies to construct emotionally authentic visitor experiences that resonate with both individual memory and collective urban identity. Through the integration of qualitative and quantitative methods, the findings reveal that architectural elements—such as voids, disorientation, and materiality—do not merely symbolize trauma but actively generate embodied emotional responses. These responses contribute to what defines as “experiential authenticity,” where the truth of experience is felt through spatial immersion rather than didactic interpretation.

By aligning affective engagement with architectural expression, the museum advances Berlin’s narrative as a city committed to remembrance, reconciliation, and ethical introspection. The study affirms that affective architecture plays a critical role in shaping both cultural memory and civic branding, particularly in post-trauma contexts.

Future research may extend this inquiry by conducting comparative analyses across other trauma-informed museums such as the Kigali Genocide Memorial or the Hiroshima Peace Memorial Museum to explore how different cultural and historical contexts influence spatial storytelling and visitor interpretation. Additionally, interdisciplinary approaches that integrate neuroscience, cultural studies, and urban policy could further enrich our understanding of how architecture mediates memory and identity in contemporary cities.

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## Author Contribution

S.T.H. was responsible for all stages of the research and writing process. She conceptualized the study, designed the methodology, and conducted both the qualitative and quantitative data collection. She performed the data analysis using NVivo and SPSS, interpreted the results, and prepared the original manuscript draft. She also developed the visualizations and refined the content during the revision process.

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## Ethical Review Board Statement

This study was conducted in accordance with academic research standards. Ethical review and approval were waived as the study did not involve sensitive personal data, medical procedures, or vulnerable populations.

## Informed Consent Statement

The author involved in this study were informed of the research objectives and voluntarily agreed to take part in the surveys and interviews. Author was entirely anonymous, and no personally identifiable information was collected. Informed consent was obtained prior to data collection, and participants were assured of their right to withdraw at any time without consequence.

## Data Availability Statement

The data supporting the findings of this study are available from the author upon reasonable request. To ensure participant privacy, all data were anonymized and securely stored.

## Conflict of Interest

The author declares no conflict of interest.

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