Multidimensional Study of Water Elements in Spatial Art: A Cultural Perspective

Yang Yeqiu Department of Design, Politecnico di Milano 20158, Milan, Italy yeqiu.yang@polimi.it ORCID: https://orcid.org/0000-0002-6261-2980

Abstract: This article examines the multidimensional applications of water elements in spatial art through a cultural lens, specifically focusing on three key dimensions: symbolic meanings (including cultural and philosophical interpretations), expressive characteristics (encompassing physical and aesthetic properties), and practical applications (covering contemporary artistic practices and environmental implications) across different cultural contexts. Through interdisciplinary analysis, the study introduces two theoretical frameworks: the "Four-Dimensional Water Symbolism" model and the "Three-Dimensional Water Expression" model, which illuminate the cultural significance and aesthetic potential of water elements. The research employs a qualitative methodology, analyzing case studies from diverse cultural backgrounds to demonstrate how water elements transcend physical properties to embody cultural values and philosophical concepts. Results demonstrate that water elements in spatial art function as cultural mediators, bridging traditional and contemporary artistic expressions while facilitating cross-cultural dialogue. This research contributes to cultural studies by providing a comprehensive understanding of how water elements in spatial art reflect and shape cultural narratives. The findings suggest that contemporary applications of water elements increasingly function as vehicles for cultural expression and environmental consciousness, offering new perspectives on the intersection of art, culture, and ecology.

Keywords: Water Elements, Spatial Art, Cultural Symbolism, Cross-Cultural Aesthetics, Environmental Art

1. INTRODUCTION

Water elements in spatial art represent a unique intersection of cultural symbolism, artistic expression, and environmental consciousness. As Gaston Bachelard characterized water as the "material of dreams," this fundamental element has transcended its physical properties to become a powerful medium in contemporary spatial art practices (Bachelard, 1983). The increasing prominence of water-based vocabulary in our cultural discourse, as noted by de Luca and Mroz, reflects the growing significance of water elements in spatial artistic expression (de Luca & Mroz, 2023). In the realm of spatial art, water's unique properties and cultural connotations have made it an increasingly significant medium for artistic expression. As

Zhang and Li demonstrate in their analysis of Shanghai's waterfront renovation, water spaces serve not only as physical environments but as vital zones for organic renewal and cultural revitalization (Zhang & Li, 2020). Their concept of "organic renewal" highlights how water-based spatial development must balance multiple factors including historical preservation, ecological sustainability, and public engagement. This understanding aligns with de Luca and Mroz's observation that water-based environments must be thought through a "matrix of power relations" including military engagements, resource exploitation, and racialized relationships (de Luca & Mroz, 2023). Recent research has revealed significant developments in how contemporary artists engage with water in spatial practices. Bailey-Charteris's work on "The Hydrocene" introduces a groundbreaking curatorial theory examining the confluence of art, water, and climate crisis in eco-aesthetics (Bailey - Charteris, 2023). This framework resonates with Zhang and Li's emphasis on the ecological aspects of waterfront development, where water spaces become sites for negotiating environmental challenges while preserving cultural heritage (Zhang & Li, 2020). The concept of organic renewal in waterfront spaces offers new perspectives on how water can create immersive experiences that challenge traditional human-nature relationships. Contemporary spatial artists and architects have begun to recognize the profound implications of water's dual nature - its physical presence and cultural significance. This recognition has led to innovative applications that transcend traditional boundaries between art, architecture, and cultural expression. These developments suggest a growing sophistication in how water is conceptualized and utilized in spatial art, moving beyond mere aesthetic considerations to engage with pressing ecological and cultural concerns of our time. This study scope encompasses three primary dimensions:

(1) Cultural-symbolic dimension: examining water's role in different cultural traditions and philosophical systems

(2) Artistic-expressive dimension: analyzing water's physical properties and their aesthetic applications

(3) Practical-environmental dimension: investigating contemporary applications and ecological implications.

The interconnection of these dimensions provides a comprehensive framework for understanding water elements in spatial art. The current discourse on water elements in spatial art, however, often emphasizes technical and aesthetic aspects while overlooking their deeper cultural implications. This study addresses this gap by examining how water elements in spatial art function as cultural mediators, facilitating dialogue between different cultural traditions and contemporary artistic practices. Through analysis of case studies from diverse cultural contexts, this research explores how water elements contribute to cultural expression, environmental consciousness, and spatial experience in contemporary art and architecture. This study is particularly relevant in the context of increasing global concern in cultural heritage preservation and environmental awareness. As societies grapple with questions of cultural identity and environmental sustainability, understanding how water elements in spatial art can bridge these concerns becomes increasingly relevant. The research draws on interdisciplinary perspectives from cultural studies, art history, architecture, and environmental philosophy to develop a comprehensive framework for analyzing water's role in spatial art. This study addresses the following research questions:

(1) How do water elements in spatial art reflect and transmit cultural meanings across different traditions?

(2) What are the key expressive characteristics of water elements and how do they function in contemporary spatial art?

(3) How can water elements bridge cultural expression and environmental consciousness in modern artistic practice?

2. METHODOLOGY

This study employs a qualitative research methodology that integrates multiple analytical approaches to examine water elements in spatial art across cultural, aesthetic, and environmental dimensions. The research design combines historical-cultural analysis, critical discourse analysis, and detailed case studies of contemporary spatial art installations from 2001 to 2024. The selection of this specific time frame was determined by several critical factors: first, 2001 marked a significant turning point in water-based spatial art with TeamLab's establishment and their pioneering integration of digital and interactive technologies in art installations; second, this significant developments in environmental period encompasses consciousness and sustainable design practices in spatial art; and third, this timeframe captures the evolution from traditional water features to sophisticated water-based installations incorporating advanced sustainable technologies and digital interfaces. The twenty-three-year span provides sufficient temporal depth to identify significant trends while remaining contemporary enough to offer relevant insights for current practice. The

primary data collection focused on 15 significant water-based spatial artworks, selected through a systematic sampling process based on three key criteria: (1) cultural significance, as measured by citations in academic literature, critical reviews, and exhibition history in major cultural institutions; (2) innovative water element application, evaluated through technical documentation and critical reception; and (3) geographical diversity, ensuring balanced representation across cultural regions, particularly from Asia, Europe, and the Americas. This systematic selection process employed both purposive and theoretical sampling methods to ensure comprehensive coverage of different approaches to water element integration in spatial art. The selected installations represent various scales of intervention, from intimate gallery spaces to large-scale public installations, allowing for analysis across different spatial contexts and cultural settings.

The research methodology integrated multiple analytical techniques: analysis of theoretical texts exhibition critical discourse and documentation, systematic examination of artistic practices through case studies, and analysis of technical specifications and design approaches. Secondary data sources were selected based on academic rigor and contemporary relevance, including peer-reviewed publications from 2001-2024, institutional archives of major art museums and cultural centers, exhibition catalogs, and documentation from art organizations. The analytical framework employed a three-phase process: (1) individual case analysis examining cultural context, technical implementation, and artistic intention through both formal and contextual analysis methods; (2) crosscase comparison using comparative analysis to identify patterns, variations, and innovations across cultural contexts; and (3) theoretical synthesis employing grounded theory approaches to develop the "Four-Dimensional Water Symbolism" model and "Three-Dimensional Water Expression" model. The methodology was particularly attentive to the temporal evolution of water element applications, tracking changes in artistic approaches and technological innovations throughout this twenty-threeyear period. This diachronic perspective was complemented by synchronic analysis of contemporary practices across different cultural contexts. The specifically focused on installations research that demonstrated quantifiable impact through critical reception and influence in major international exhibitions. This multi-layered methodological approach enabled systematic investigation of water elements' role as cultural mediators while ensuring rigorous analysis of their contemporary applications and environmental implications.

3. SYMBOLIC DIMENSIONS OF WATER IN CULTURAL CONTEXTS

Water symbolism transcends geographical and temporal boundaries, manifesting in diverse yet interconnected ways across world cultures. To systematically analyze water's symbolic dimensions in cultural contexts, this research proposes a comprehensive theoretical framework called the "Four-Dimensional Water Symbolism" model (Figure 1). This model illustrates the dynamic interrelationships between four key dimensions of water symbolism: source, purification, reflection, and cyclical dimensions. As shown in Figure 1, these dimensions form an interconnected system where each element both influences and is influenced by the others. The visual representation emphasizes how the source dimension (represented in blue) provides the fundamental basis, while the other dimensions (shown in varying shades) build upon and interact with this foundation through cultural and philosophical interpretations. Through comprehensive analysis of philosophical texts, cultural practices, and contemporary interpretations, this research establishes that these dimensions form a dynamic system where the source dimension provides the fundamental basis for all other dimensions, the purification dimension enables the clarity needed for reflection, the reflection dimension reveals patterns that inform our understanding of cycles, and the cyclical dimension ensures the continuous renewal of the source. Together, they demonstrate the complexity and multi-layered nature of water's symbolic significance.



Figure 1: Four-Dimensional Water Symbolism Model. Diagrammatic Representation of the Interrelationships Between Water's Source, Purification, Reflection, and Cyclical Dimensions in Cultural Contexts. The Concentric Arrangement Illustrates how these Dimensions Build Upon and Influence Each Other. 3.1 Water as Source: Cultural Origins and Life Force

Water symbolism transcends geographical and temporal boundaries, manifesting in diverse yet interconnected ways across world cultures. To systematically analyze water's symbolic dimensions in cultural contexts, this research proposes a comprehensive theoretical framework called the "Four-Dimensional Water Symbolism" model (Figure 1). This model illuminates four key interrelated dimensions:

(1) Source dimension: representing water as the origin of life and cultural beginnings

(2) Purification dimension: embodying processes of cleansing and renewal

(3) Reflection dimension: facilitating contemplation and self-awareness

(4) Cyclical dimension: manifesting patterns of transformation and continuity

These dimensions form an interconnected system where each element influences and is enhanced by the others. The source dimension provides the fundamental basis, supplying the material for purification. The purification dimension creates the clarity necessary for reflection, while the reflection dimension reveals patterns that inform our understanding of cycles. Finally, the cyclical dimension ensures the continuous renewal of the source, completing the dynamic circuit of meaning. This integrated structure allows for a comprehensive understanding of water's cultural symbolism while acknowledging the fluid relationships between different symbolic aspects. The visual representation (Figure 1) emphasizes these relationships through a concentric arrangement, with the source dimension (represented in blue) at the core, while the other dimensions (shown in varying shades) build upon and interact with this foundation through cultural and philosophical interpretations. This arrangement reflects both the hierarchy and the interdependence of these symbolic dimensions in cultural contexts.

3.2 Purification Dimension: Cleansing Power

Water's purification symbolism manifests across religious, psychological, physiological, and environmental domains. Religious scholar Joseph Campbell identified a universal pattern in water purification rituals, noting that immersion in water symbolizes both death to an old state and rebirth into a new one (Campbell, 2008). This concept appears in diverse religious traditions, from Hindu bathing rituals in the Ganges to Christian baptismal ceremonies. From a psychological perspective, M. Y. Eom interpreted water as a symbol of the unconscious, suggesting that interaction with

water facilitates psychological purification and renewal (Eom, 2014). This understanding has influenced modern therapeutic practices, including various forms of hydrotherapy and water-based psychological interventions. The physiological aspects of water's purifying properties extend beyond basic cleansing to include its role in metabolic processes and detoxification. Jéquier, E., & Constant, F.'s research demonstrates water's critical role in maintaining physiological homeostasis (Jéquier & Constant, 2010). Environmental scientists, particularly through Karwowski, N., & Skidmore, M.'s research, have documented water's natural purification capabilities in ecosystem processes, highlighting wetlands' function as "nature's kidneys (Karwowski & Skidmore, 2023)."

3.3 Reflection Dimension: Mirror of Thought

The reflective dimension of water symbolism encompasses both physical reflection and metaphysical contemplation. In Eastern philosophy, particularly in Daoist thought, water's reflective properties serve as metaphors for wisdom and moral behavior. Laozi's observation that "water benefits all things without contention" has profoundly influenced Eastern philosophical and artistic traditions (Müller, 1891). Japanese Zen philosophy, as articulated by Suzuki, connects water's reflective properties with concepts of emptiness and mindfulness. This perspective has significantly influenced contemporary Japanese architecture and spatial design, particularly evident in the works of architects like Tadao Ando, who utilize water's reflective properties to create contemplative spaces (Suzuki, 2019). In contemporary art, Christian Boltanski's "The Source" installation exemplifies how water's reflective properties can be used to explore memory and temporality. Boltanski describes water as both "time's mirror and memory's keeper," demonstrating how water's reflective properties can bridge historical and contemporary narratives (Boltanski et al., 1996). The relationship between water reflection and memory continues to evolve in digital age interpretations. TeamLab's "Universe of Water Particles" installations demonstrate how traditional concepts of water reflection can be reinterpreted through technological means, creating what they term "liquid space" - environments where physical and digital reflections merge to create new forms of spatial experience(TeamLab, 2013) (TeamLab, 2024).

3.4 Cyclical Dimension: Patterns of Transformation

The cyclical dimension represents water's role in perpetual

transformation and renewal, operating across physical, cultural, and philosophical domains. This dimension manifests through three primary aspects:

(1) Physical Cycles: In the scientific realm, Robert Elmer Horton's groundbreaking conceptualization of the modern hydrological cycle provided a scientific framework for understanding water's movement within Earth's systems (Horton, 1931). This scientific understanding complements rather than diminishes water's cultural significance, demonstrating how empirical observation can enrich traditional perspectives. The hydrological cycle serves as both a natural process and a metaphor for understanding broader patterns of transformation.

(2) Cultural Cycles: From an anthropological perspective, Mary Douglas's examination of water purification rituals reveals how different cultures embed cyclic processes in their practices (Douglas, 2003). Waterbased ceremonies, seasonal festivals, and agricultural practices reflect societal desires for order and regeneration, highlighting water's role in maintaining cultural continuity. These ritual cycles differ from linear progressions, emphasizing instead the recurring patterns that sustain cultural meaning and practice.

(3) Artistic Interpretation: The artistic interpretation of water's cyclical nature finds powerful expression in works such as Wolfgang Laib's (1978) "Milk Stone" installation. Through the cyclical reaction between milk and limestone, this work symbolizes life's endless cycles and nature's irreversibility. As Laib notes, "My work attempts to capture the moment within eternity, much like the water cycle" - demonstrating how contemporary artists engage with traditional cyclical symbolism through modern forms of expression.

(4) Philosophical Integration: Martin Heidegger's observation in "Being and Time" that "circulation is not mere repetition, but a mode of being" provides a theoretical foundation for understanding water's cyclical symbolism (Heidegger, 1962). This philosophical insight resonates with various cultural traditions, particularly evident in Chinese Daoist philosophy's emphasis on "following the way of nature." The cyclical dimension thus transcends mere repetition, representing instead a fundamental mode of existence and understanding. This cyclical dimension differs from the source dimension in its emphasis on ongoing processes rather than origins, patterns of transformation rather than fundamental essence, and temporal continuity rather than primordial nature. Through its integration of scientific, cultural, artistic, and philosophical perspectives, the cyclical dimension completes the Four-Dimensional Water Symbolism model while opening new possibilities for understanding water's role in cultural expression.

4. EXPRESSIVE CHARACTERISTICS OF WATER IN CULTURAL AND ARTISTIC CONTEXTS

The expressive characteristics of water-fluidity, transparency, and reflectivity-serve as fundamental elements in cultural expression and artistic creation. These properties transcend mere physical attributes, forming what contemporary cultural theorists recognize as a crossdisciplinary framework for understanding water's symbolic significance (Pallasmaa, 2024). The "Three-Dimensional Water Expression" model (Figure 2) provides a structured framework for understanding how water's expressive characteristics manifest in spatial art. The model visualizes the complex interactions between the dynamic-static dimension (illustrated through flowing lines), the real-illusory dimension (shown through overlapping planes), and the integrated dimension (represented by interconnecting elements). Each dimension is further divided into three key aspects, as detailed in the diagram's legend, demonstrating the multifaceted nature of water's expression in artistic contexts. The visual organization of these elements emphasizes their interdependence and continuous interaction in creating meaningful spatial experiences. Within this model, the dynamic-static dimension explores temporal and kinetic qualities "continuous flow," "energy transfer," "rhythmic and through transformation"; the real-illusory dimension investigates the interplay between physical presence and perceptual experience through "material interaction," "digital mediation," and "psychological resonance"; while the integrated dimension examines the synthesis of these qualities through "experiential impact," "cultural interpretation," and "environmental response". The dynamic-static dimension manifests in contemporary installations like Olafur Eliasson's "Waterfall" (2016), where flowing water creates tension with architectural structure, and TeamLab's "Universe of Water Particles", where digital simulation captures water's movement patterns (Aouf, 2016; TeamLab, 2024). The real-illusory dimension is exemplified in works such as James Turrell's "Water Work" series (1992), where physical water creates optical illusions through careful manipulation of light and space (Hansen et al., 2011). These case studies demonstrate how artists strategically employ water's expressive characteristics to create meaningful spatial experiences that bridge physical presence and perceptual



Figure 2: Three-Dimensional Water Expression Model. Visual framework Illustrating the Dynamic-Static, Real-Illusory, and Integrated Dimensions of Water's Expression in Spatial Art. The Overlapping Elements Represent the Continuous Interaction Between These Dimensions in Creating Meaningful Artistic Experiences.

4.1 Water in Motion: Fluidity

Water's fluidity embodies profound cultural and philosophical significance across civilizations. Ancient Greek philosopher Heraclitus's famous assertion that "no one steps in the same river twice" captures not only water's physical nature but also prompts deeper cultural reflection on change and temporality. This philosophical perspective finds resonance in contemporary thought, as Deleuze extends the concept of fluidity to encompass thinking and existence itself, suggesting that fluid dynamics offer metaphors for understanding consciousness and cultural evolution (Deleuze, 1994). In artistic creation, water's fluidity serves as a powerful medium for cultural expression through multiple dimensions. Bill Viola's installation "The Crossing" exemplifies this multifaceted application, using water's dynamic properties to explore universal themes of life, death, and rebirth. As noted in Nawrocki's analysis of Viola's work, the artist expressed his intention to "explore the cycle of life, death, and rebirth, and human vulnerability in the face of natural forces (Nawrocki, 2000)." This exploration demonstrates how water's continuous movement can embody both physical and metaphysical transformations. This exploration demonstrates how water's continuous movement can embody both physical and metaphysical transformations. Similarly, lapanese photographer Nobuyoshi Araki's "Sky" series captures flowing clouds to

suggest life's impermanence, reflecting traditional Eastern philosophical concepts of transience and renewal (Araki, 2012). From a scientific-cultural perspective, Horton's modern hydrological cycle concept provides a scientific foundation that complements cultural understandings of water's perpetual motion (Horton, 1931). This scientific framework enriches rather than diminishes water's cultural significance, demonstrating how contemporary knowledge can enhance traditional cultural perspectives through empirical observation and systematic analysis. The hydrological cycle serves as a bridge between scientific understanding and cultural metaphor, illustrating how water's physical properties inform its symbolic meanings.

In religious and cultural traditions, water's fluidity carries profound symbolic meaning that extends beyond mere physical movement. The Daoist concept of "the highest good is like water" emphasizes water's adaptability and resilience (Müller, 1891), suggesting that fluid motion represents ideal patterns of behavior and thought. This philosophical interpretation finds parallel expression in Hindu traditions, where flowing river waters are viewed not only as channels of spiritual purification but as manifestations of divine consciousness (Eck, 1996). These cultural interpretations demonstrate how water's fluid nature serves as a universal metaphor for spiritual and philosophical concepts across diverse civilizations. The integration of these perspectives - philosophical, artistic, scientific, and religious - reveals how water's fluidity functions as a comprehensive framework for understanding cultural dynamics and human experience. Contemporary artists and designers increasingly leverage this multidimensional understanding, creating works that engage with water's fluid properties on both physical and conceptual levels. This approach acknowledges water's role not only as a material element but as a medium for exploring fundamental questions about existence, change, and cultural identity.

4.2 Water's Clarity: Transparency

Water's transparency serves as a cultural mediator between physical and metaphysical realms, offering unique possibilities for spatial and conceptual exploration. Finnish architect Juhani Pallasmaa articulates this quality eloquently: "Transparency is not merely a visual quality but a spatial experience that blurs the boundaries between inside and outside, here and there, present and past (Pallasmaa, 2024)." This observation reveals transparency's role in cultural space-making, functioning not just as a physical element but as a medium connecting different dimensions of human experience. The interplay between transparency and spatial perception creates opportunities for deeper cultural and philosophical engagement. Contemporary artistic interpretations of water's transparency demonstrate its evolving cultural significance. TeamLab's "Borderless" digital art exhibition exemplifies this innovative approach, using water surfaces as projection media to create dreamlike spaces that challenge traditional cultural boundaries between reality and virtuality (TeamLab, 2024). These installations demonstrate how water's transparency can be manipulated through technology to create new forms of spatial experience. Marine biologist Sylvia Earle's research further enriches this understanding by emphasizing water's transparency in marine ecosystems, providing a scientific perspective that deepens cultural appreciation of water's role in maintaining life and interconnectedness (Earle, 2010).

This scientific insight reveals how transparency functions both as a physical property and as a metaphor for environmental consciousness. In philosophical and cultural contexts, Bachelard's analysis in "Water and Dreams" establishes profound connections between water's transparency and concepts of purity and truth (Bachelard, 1983). He suggests that transparency symbolizes not only physical clarity but also clarity of thought and spiritual purity, a perspective that resonates across various cultural traditions. From ancient Greek concepts of the Spring of Truth to Chinese cultural notions of "still water reflecting clarity" (Raphals, 2013), transparency has consistently served as a powerful metaphor for wisdom and understanding. These cultural interpretations demonstrate how water's transparent nature transcends physical properties to embody deeper philosophical meanings.

4.3 Water's Mirror: Reflectivity

Water's reflective properties provide a unique visual language that bridges cultural memory and contemporary expression, offering profound insights into perception and identity. Merleau-Ponty's philosophical insight that "mirror images belong neither to the object itself nor to mere appearance" reveals reflection's fundamental role in cultural perception and identity formation (Merleau-Ponty, 1968). This perspective aligns with Lacan's mirror stage theory, emphasizing reflection's crucial role in psychological development and cultural identity formation (Lacan, 2002). Together, these theoretical frameworks illuminate how water's reflective properties contribute to both individual and collective understanding. Contemporary artists utilize water's reflectivity to explore complex cultural themes through innovative approaches. Japanese artist Tatsuo Miyajima's "Time in Water" exemplifies this sophisticated application, using water's reflective distortion of LED numerals to investigate temporal perception across cultures (Miyajima, 2004). This work demonstrates how reflection can serve as both a physical phenomenon and a metaphor for time's fluid nature. Similarly, American artist Robert Smithson's "Spiral Jetty" employs salt lake reflections to challenge cultural perceptions of natural and artificial boundaries, creating a dialogue between landscape and human intervention (Smithson, 1996). These artistic explorations reveal how water's reflective properties can be used to question established cultural paradigms and create new modes of understanding. The scientific understanding of water's reflectivity, as studied in climate research by Hansen et al., provides additional layers of cultural significance when considering global environmental challenges (Hansen et al., 2011). This scientific perspective demonstrates how reflection serves not only aesthetic purposes but also plays a crucial role in planetary systems and environmental balance. McHardy further enriches this understanding through analysis of water reflection's metaphorical meanings from Greek mythology to modern literature, revealing its enduring role in cultural expression and identity formation (McHardy, 2008). This interdisciplinary approach illuminates how water's reflective properties continue to shape cultural narratives and environmental consciousness. Through these combined perspectives, water's reflective nature emerges as a powerful tool for cultural expression and environmental awareness. Contemporary artists and designers increasingly recognize this potential, creating works that leverage reflection to explore questions of identity, perception, and ecological responsibility. This integration of scientific understanding with cultural interpretation demonstrates how water's reflective properties continue to evolve as a medium for artistic expression and cultural dialogue.

5. CULTURAL APPLICATIONS IN CONTEMPORARY SPATIAL PRACTICE

5.1 Spatial Shaping: Physical and Psychological Reconstruction

The application of water elements in spatial art is both rich and profound, not only shaping physical space but also deeply influencing people's psychological perceptions and cultural understanding. Finnish architect Juhani Pallasmaa points out that water can alter the texture, sound, and light of space, thereby affecting overall spatial perception. This resonates with the concept of "domain fusion" within water's transparency characteristic (Pallasmaa, 2024). Tadao Ando's "Water Temple" expands visual space through water reflections, creating a serene atmosphere that demonstrates the "image reconstruction" aspect of water's reflectivity (Ando, 2015). Ando believes water creates "space between reality and fantasy," a viewpoint that aligns with water's reflective function on the cognitive level. Jean Nouvel's "Louvre Abu Dhabi" uses water bodies to blur boundaries between architecture and environment, showcasing water's fluidity through "continuous change" and transparency through "domain fusion" (Dhabi & Nouvel, 2019). American landscape architect Lawrence Halprin's "Portland Open Space Sequence" creates rich sensory experiences through water's dynamic changes, emphasizing that "water movement can evoke bodily memory and emotional resonance (Halprin, 1970)." This relates closely to water's fluidity through "rhythmic flow" and the purifying function of its cleansing dimension. From a cultural symbolic perspective, Chinese architect I.M. Pei's design of the Suzhou Museum combines traditional garden water elements with modern architecture (Pei, 2006). He believes that "water in Chinese culture symbolizes life and wisdom, serving as a medium connecting past and present," reflecting water's source dimension as life's origin and cycle dimension as the way of circulation.

5.2 Sensory Integration and Cross-sensory Applications

Water elements' application in multisensory artistic experiences not only embodies John Dewey's emphasis on "whole-person participation" in artistic experience but also demonstrates water's multidimensional characteristics in artistic creation (Dewey, 1934). Olafur Eliasson's "Weather Project" blurs spatial boundaries through water mist, demonstrating the "visual horizon extension" of water's transparency while reflecting deep contemplation on the relationship between subjectivity and objectivity in the thinking dimension (Aouf, 2016). Japanese artist Yoichiro Kawaguchi's digital artwork "Hydrodynamic Ocean" uses computer simulation of water flow to create an immersive visual and auditory experience, demonstrating water's fluidity through "continuous change" and the life source symbolism in its source dimension (Kawaguchi, 2007). Bill Viola's video installation "Ascenders" creates powerful visual and auditory effects through "light and scene fusion" of water's reflectivity while embodying the life cycle concept in its cycle dimension (Nawrocki, 2000). These works fully utilize water's multidimensional characteristics, creating rich sensory experiences that expand the boundaries of artistic expression while deepening our understanding of perceptual processes, validating water elements' unique value and vast potential in multisensory artistic creation.

5.3 Concept Conveyance: Artistic Expression of Thoughts and Emotions

Artists ingeniously use water elements to convey complex concepts and themes. Deleuze's perspective provides a philosophical foundation for this innovative expression, while artists' practices demonstrate the diversity and depth of water elements in concept conveyance. Olafur Eliasson's "Green River" utilizes the "continuous change" of water's fluidity and "visual horizon extension" of transparency to provoke environmental discussions by changing river water color. American artist Maya Lin's "Water Bodies" series demonstrates the "evolutionary inheritance" of water's fluidity, recreating vanished water systems through wood to explore human activities' impact on natural environments (Lin, 2016). British artist Andrew Rogers' large-scale landscape installation "Rhythms of Life" employs the "rhythmic generation" concept of water's fluidity, simulating water flow through stone arrangements to explore human-nature relationships (Rogers, 1996). Through systematic analysis of these artistic practices and theoretical frameworks, this research proposes the "Water Element Spatial Art Practice Framework" (Figure 3), a comprehensive model for understanding and applying water elements in contemporary spatial art.

The framework's molecular structure visualization represents the dynamic interrelationships between three core dimensions: conceptual expression, spatial reconstruction, and sensory fusion. The connecting lines between these elements illustrate how each dimension influences and enhances the others, while the overall circular arrangement emphasizes the holistic nature of water-based spatial art practices. This visual framework provides practitioners with a structured approach for integrating water elements in their artistic creations while maintaining awareness of cultural, spatial, and experiential considerations. These works not only demonstrate water elements' diversity in concept conveyance but also deepen our understanding of themes such as environment, culture, time, and human nature. Through ingenious use of water's three-dimensional characteristics, these artists create works that are both visually stunning and rich in content, validating water elements' unique value and infinite possibilities in





6. DISCUSSION

This study advances the field of water elements in spatial art by establishing novel theoretical frameworks while building upon existing research foundations.. The Four-Dimensional Water Symbolism model and Three-Dimensional Water Expression model advance understanding of water's cultural symbolism and expressive characteristics in spatial art beyond traditional aesthetic and phenomenological interpretations. These theoretical frameworks effectively integrate Bailey-Charteris's concept of "The Hydrocene" with cultural and philosophical dimensions, supporting de Luca and Mroz's theory of "elemental cinema" while expanding their work through cultural interpretation frameworks (Bailey - Charteris, 2023; de Luca & Mroz, 2023). The findings also complement Zhang and Li's concept of "organic waterfront renovation," extending its application beyond architectural contexts to broader artistic practices (Zhang & Li, 2020). The Water Element Spatial Art Practice Framework developed in this study builds upon Stoltz's analysis of ecological art's productive capacity, revealing complex interactions between cultural symbolism, artistic expression, and ecological awareness (Stoltz, 2023). This multifunctional approach aligns with Tironi and Garretón's work on hybrid ecologies, suggesting new possibilities for integrating traditional water

elements with emerging technologies (Tironi & Garretón, 2024). However, the study acknowledges methodological limitations regarding sample size and geographic distribution in capturing global diversity of water-based artistic practices. These limitations, along with challenges in quantitatively measuring cultural impact, suggest future research directions including longitudinal studies tracking installations' evolution, comparative studies examining cultural traditions' interpretations, and investigations into emerging technologies' transformation of water-based spatial art practices.

7. CONCLUSION

The multidimensional exploration of water elements in spatial art reveals profound intersections among art, science, philosophy, and cultural practices. This research's theoretical frameworks challenge conventional physical-aesthetic dualism by demonstrating how water elements in spatial art reflect the evolution of human cognition: from concrete to abstract thinking, from static to dynamic perception, and from fragmented to integrated understanding. These frameworks illuminate how water elements function as critical mirrors reflecting societal concerns about ecological crises, cultural discontinuity, and technological advancement. The study demonstrates water elements' capacity to mediate between different cultural perspectives, temporal dimensions, and spatial experiences, providing valuable insights for cultural studies, architectural design, and environmental philosophy. As technological innovations expand potential applications through digital media and interactive installations, this research emphasizes the importance of balancing technological progression with cultural sensitivity and ecological awareness. The findings contribute to both theoretical discourse and practical applications in contemporary art and cultural studies, offering perspectives for addressing environmental challenges and cultural transformations through thoughtful integration of water elements in spatial art.

References

Ando, T. (2015). Water temple. Architectuul

Aouf, R. S. (2016). Olafur Eliasson installs giant waterfall at Palace of Versailles.

- Araki, N. (2012). Sentimental sky [Rat Hole Gallery].
- Bachelard, G. (1983). Water and Dreams: An Essay on the Imagination of Matter. *The Pegasus Foundation and Braun-Brumfield*.

- Bailey-Charteris, B. (2023). Misty Bodies of Water and Artistic Relationality in the Hydrocene. Oceania, 93(3), 335-343.
- Boltanski, C., Moure, G., Jiménez, J., & Clair, J. (1996). Christian Boltanski: advent and other times. (No Title).
- Campbell, J. (2008). The hero with a thousand faces. New World Library.
- de Luca, T., & Mroz, M. (2023). Elemental world Cinema: Special issue ii: Water & air. *Studies in World Cinema*, *3*(2), 147-155.
- Deleuze, G. (1994). Difference and repetition. Columbia UP.
- Dewey, J. (1934). Art as Experience (New York: Minton. Balch & Co.
- Dhabi, L. A., & Nouvel, J. (2019). Louvre Abu Dhabi. In: Retrieved from Louvre Abu Dhabi: louvreabudhabi. ae/en/about-us.
- Douglas, M. (2003). Purity and danger: An analysis of concepts of pollution and taboo. Routledge.
- Earle, S. A. (2010). The world is blue: How our fate and the ocean's are one. National Geographic Books.
- Eck, D. L. (1996). The goddess Ganges in Hindu sacred geography. *Devi: Goddesses of India*, 137-153.
- Eom, M.-y. (2014). Water: a symbol of potential. *Journal of Symbols & Sandplay Therapy*, 5(1), 30-35.
- Halprin, L. (1970). Portland Open Space Sequence. The Cultural Landscape Foundation
- Hansen, J., Sato, M., Kharecha, P., & Von Schuckmann, K. (2011). Earth's energy imbalance and implications. *Atmospheric Chemistry and Physics*, 11(24), 13421-13449.
- Heidegger, M. (1962). Being and time (J. Macquarrie & E. Robinson, trans.). In: New York: Harper & Row.
- Horton, R. E. (1931). The field, scope, and status of the science of hydrology. *Eos, Transactions American Geophysical Union*, 12(1), 189-202.
- Jéquier, E., & Constant, F. (2010). Water as an essential nutrient: the physiological basis of hydration. *European journal of clinical nutrition*, 64(2), 115-123.
- Karwowski, N., & Skidmore, M. (2023). Nature's Kidneys: the Role of the Wetland Reserve Program in Restoring Water Quality.
- Kawaguchi, Y. (2007). Hydrodynamics ocean. In ACM SIGGRAPH 2007 art gallery (pp. 204).
- Lacan, J. (2002). Écrits: A selection (B. Fink, trans.). New York: W, W, Nortyn.
- Lin, M. (2016). Boundaries. Simon and Schuster.
- McHardy, F. (2008). The "trial by water" in Greek myth and literature. Leeds international classical studies, 7(1), 1-20.
- Merleau-Ponty, M. (1968). The visible and the invisible: Followed by working notes. Northwestern University Press.
- Miyajima, T. (2004). Time in water.
- Müller, M. (1891). The Tao Teh King (I. J. Legge, Trans.). Oxford University Press.
- Nawrocki, D. A. (2000). Bill Viola: Intimations of Mortality. Bulletin of the Detroit Institute of Arts, 74(12), 44-56.
- Pallasmaa, J. (2024). The eyes of the skin: Architecture and the senses. John Wiley & Sons. Pei, I. M. (2006). Suzhou Museum: An I. M. Pei masterwork. Google Arts & Culture

- Raphals, L. (2013). *Divination and prediction in early China and ancient Greece*. Cambridge University Press.
- Rogers, A. (1996). Rhythms of life. Andrew Rogers
- Smithson, R. (1996). Robert Smithson: the collected writings. Univ of California Press.
- Stoltz, B. (2023). A Nature Thing: What Does Contemporary Ecological Art Produce? Arts,
- Suzuki, D. T. (2019). Zen and Japanese culture (Vol. 334). Princeton University Press.
- TeamLab. (2013). Universe of water particles.
- TeamLab. (2024). TeamLab Borderless introduction.
- Tironi, M., & Garretón, M. (2024). Hybrid Ecologies of artificial intelligence: prototyping terrestrial practices through a design installation.
- Zhang, H., & Li, D. (2020). Rebirth (Mutation)—Water, an enigma: Exploring organic waterfront renovation at the "Planning & Architecture" section of the 2019 Shanghai Urban Space Art Season (in sentence case, with the subtitle after the colon). *Time Architecture* 68–75.