

ISSN 2730-2601

RICE Journal of Creative Entrepreneurship and Management, Vol. 2, No. 1, pp. 1-12,
January-April 2021

© 2021 Rajamangala University of Technology Rattanakosin, Thailand

doi: 10.14456/rjcm.2021.19

Received 11.12.20/ Revised 16.01.21/ Accepted 26.01.21

Interpretation and Application of “Water” as Medium for Landscaping Design: A Case of the Language of Flow in Fountain

Liyun Zeng

School of Civil Engineering & Architecture

Panzhuhua University, China

Email: nonsar@foxmail.com

Nuttapong Jotikasthira

Ruihui Pu

Jinkun Sun

Changjiang Tang

Rattanakosin International College of Creative Entrepreneurship

Rajamangala University of Technology Rattanakosin

Nakhon Pathom, Thailand

Email: jotikasthira@gmail.com

Abstract

The traditional medium materials of public art are basically solid forms, while artists are often obsessed with water for its variable form. This academic paper took water medium as the main study object, and further studied fountain in modern public art regarding material characteristics, historical development, formal semantics, and key applications. In addition, this paper drew a conclusion on the theoretical method and principle of water application in fountain through actual cases under study. In this sense, the interpretation and application of water could be based on understanding its special properties and cultural connotations, creating an artistic fountain with permanent vitality, meeting public spiritual needs, constructing a harmonious urban public space, and ultimately achieving the public art value of fountain.

Keywords: *Public art, water, medium, fountain, application*

1. Introduction

“Public art medium” refers to the artist’s creation of public works of art in the artist’s mind and the elements of beauty projected in the art creation associated with materials, such as stone, steel, gypsum, mud, plastics, and in modern science and technology widely used in sound, light, and electricity). Forming an original public art symbol system requires the artist’s mind, the extension of the will and the perfect combination of artistic materials (Jianggefeng, 2014).

Water is a common but special media material that artists and designers often use to create a rich form of public works of art. Especially with a long history of the fountain, it is the crystallization of the artist’s wisdom to put in the city’s public space baking atmosphere, regulated microclimate, and beautified environment for appreciation of the public.

2. Key Characteristics of Water Media

Compared with other materials in public art, water has unique properties in morphology, sound, color, smell, and sensory experience as shown in Table 1. Water has not only morphological plasticity, syllable, color special and other physical characteristics, but also a variety of perceptual characteristics, such as touchable, olfactory, temperature variability and the like.

Table 1: Comparative Analysis of Characteristics of Water and Other Media Materials

Materials	Physical Properties				Sensory Properties
	Form	Voice	Color	Smell	
Water	Solid/Liquid/Fog	Water	Colorless	Fresh	Visual/Auditory/Touch/Smell
Metal	Solid	Null	Null	Null	Visual/Touch
Stone	Solid	Null	Colorful	Null	Visual/Touch
Porcelain	Solid	Null	Colorful	Null	Visual/Touch
Wood	Solid	Null	Colorful	Null	Visual/Touch
Gypsum	Solid	Null	White	Null	Visual/Touch
Glass	Solid	Null	Colorless	Null	Visual/Touch
Plastic	Solid	Null	Colorful	Null	Visual/Touch
Concrete	Solid	Null	Grey	Null	Visual/Touch
Ribbon	Solid	Null	Colorful	Null	Visual/Touch

2.1 Plasticity of Water Media

Water in public art usually exists in three forms: solid, liquid, and fog. Under certain conditions, it can vary in these three forms, and many artists use this feature variation to show the view of the original static works with characteristics of dynamic change. The art of street behavior in Paris, France (see Figure 1) displays a dress frozen by a large ice cube to imply people in trouble, with the change of temperature and time with ice melting into water, water evaporating into fog, and thus giving people different thinking and feeling. The ice water wall of New York's Teardrop Park (see Figure 2) is a blend of ice and water, which forms ice in winter and ice drops between rock seams. In addition to the strong plasticity of solid water media, liquid and foggy water media can be combined with sculpture, installation and other forms of public art integration also through the artist's direct creation of a dynamic spray of water as a separate composition on the "water sculpture."

(<https://howcreativeswork.com/category/design/>)

Figure 1: Street Art Behavior in Paris, France (Baoshi Degree & Wang Huaifeng Beam, 2006)



Figure 2: New York Teardrop Park Ice Water Wall

2.2 The Syllables of Water Media

The stream ripples, the rain patter, the drop clatter, the gurgling water, and the spring drumbeat are the natural properties of underwater sound for syllable control for sound production with specific emotions and uses. The "sound of musical instruments" emitted by the hundred springs in Villa Este caused public amazement; the dripping sound of the water grotto in the traditional Japanese courtyard brought a secluded and profound feeling to the courtyard; the water banging in the fountain of the theme garden of Shanghai emotional Rain House made a clear sound on the glass, causing the public to interact emotionally. People can be attracted to the sound of water before they reach the water, so the characteristics of the water medium can make a sound easier for the public to identify and remember.

2.3 Color Particularity of Water Medium

Water medium is colorless and transparent, but the particularity of the material often makes it changeable color. First, German artist Herbert Dreiseitl has likened the dynamic water to "white water" (whitewater), where the state of motion, the masking of the surrounding environment, the reflection and refraction of light can make the otherwise transparent water visible. When the surface is broken and bubbles enter, these bubbles form a lot of small spheres that reflect the sun, making the water more visible and, in particular, showing depth (Delessaire, 2008). Different dynamic changes of water appear to varying degrees of white. White is the most pure and clear color of nature. Secondly, the water medium under the refraction of sunlight can also generate rainbow color or in the light of the rendering of colorful colors.

2.4 Multi-Sensory Characteristics of Water Media

In terms of sensory characteristics, in addition to the most basic visual and auditory, water media sniffing, touchable, fluidity, and temperature variability can bring people a variety of sensory experience. For one, water cannot only produce negative ions to improve air quality, so that people experience a fresh breath through the sense of smell and the surrounding grass flavor, floral fragrance, soil flavor and other fusions to produce a pleasant

smell. Second, with different flow rates, the form of water has a different touch; slowly flowing water lets people have the feeling of being gently hit, and moist, light fog makes people feel happy and cool. Third, the flow rate and rhythm of water, the ripple of water ripples, and changes in the direction of flow will cause people to produce a change in motion, just as the sudden change of the fountain water posture will be surprising. Finally, people's temperature perception of the water medium is the thermal characteristics of the water medium; solid water gives people chills, liquid water gives people cool, and foggy water can be warm.

3. Evolution of the Use of Water Media in Fountains

The fountain originated in the west. At first, westerners used fountains to connect canals to provide drinking water to the public, and the fountain, as a social life center for citizens, resembles the wells of ancient China. Along with the development of western water supply systems, the way of public water intake gradually changed; fountain water source from scarce to sufficient gradually became the royal aristocracy in the courtyard of art. Under the impact of the urban park movement and the Art Reform Movement, most royal gardens are open to the outside, and the fountain gradually moves from closed art to public art. Therefore, from ancient Greece to modern times, in the space and time dimension, the use of water media in the fountain function, form and the sensory experience of people have undergone a series of changes from single to diverse, objective to subjective, euphemistically implicit to bold direct process as shown in Table 2.

Table 2: Analysis of the Evolution of the Use of Water Media in Fountains

Time	Function	Form	Sensory	Represent
Greek	Shower/ Drinking	Sculpture-based, Water as supplement	Taste/ Touch	The Greek fountain of the Pergamon Museum
Rome	Shower/ Drinking/ Decorate	Sculpture-based, Water as supplement	Touch/ Visual	Roman bathroom Fountain/The fountain site of the ancient city of Pompeii/Hadrian Villa Fountain
Middle Ages	Drinking/baptism/ Decorate/Irrigation/ Entertainment	Sculpture-based, Water as supplement	Touch/Visual	Fountain of the Cathedral of Peruja, Italy/Alhambra Palace's Lion Fountain
Renaissance	Drinking/ baptism/ Decorate/ Entertainment	Sculpture-based, Water diversification	Auditory/ Visual	Villa Este Hundred Springs/Water Theater/Dragon Fountain/Trevi Pool Fountain
Baroque	Drinking/ Decorate/ Entertainment/ Metaphor	Sculpture-based, Water diversification	Visual/ Auditory	Four Rivers Fountain/Palace of Versailles La Do na Fountain/ Apollo Pool Fountain
Modern times	Art	Water-based, Sculpture as supplement	Visual/ Auditory/ Touch	Water Bridge at the Paris Colony exhibition/Geneva Ultra High Fountain/Louvre Pyramid Fountain

3.1 The Function Evolution from Practicality to Art

The human wisdom of water access and fountain water supply are to expand the public demand for water from life to aesthetic transformation. "Fountain City" Ancient Rome retains a large number of decorative fountains; these fountains experienced natural disasters, and the destruction of war after the Middle Ages again gushing. The reborn fountain is associated with irrigation and religious baptism, and begins to have entertainment features, as shown in the Earl of Atua Garden fountain which can be unintentionally triggered by tourists. The reform of art often breeds the emergence of new things, and the water in the fountain carries a deeper artistic language under the influence of Baroque Christian art, which in turn emphasizes symbolism--the four rivers conquered by human civilization by the four River fountain metaphor. And modern well-known artists and designers Jean Dingley, Pei, Clesse Odenberg and Daniel Buren jointly designed the fountain as urban public works of art to attract attention of the public. The enhancement of human environment and aesthetic awareness marks the complete separation of fountain water supply system and urban living water supply system. It is clear that the artistic aesthetic function of the fountain completely replaces the drinking function.

(<http://www.gooood.hk/73328650.htm>)

3.2 Evolution from Line to Form of "Water Sculpture"

The American philosopher Susan Langues once put forward that *art is the emotional symbol form of human beings*, and the form of water in the fountain is the concrete expression of the artist's emotion and popular emotion—carrying unique characteristics of dynamic change. Sculpture in ancient western fountains occupies an important position. The simplest fountain structure is the water directed from some animal sculpture nose or out of the mouth in natural fall, or under the action of pressurized device directed into the air to draw a concise and wonderful arc. The Baroque period is the transition period of dynamic water-shaped evolution; the fountain of the Palace of Versailles and the Fountain of the Summer Palace show the water constantly changing like fireworks, compared with the ancient Greek and Roman fountains in the form of more diverse and complex forms. The promotion of water media status in the fountain is most typical of the iconic fountains in modern France, the United States, Geneva, the Middle East countries, particularly Saudi Arabia and Dubai. Influenced by the Art Reform Movement and the technological revolution, the fountain language expressed by artists and designers using water media is becoming more and more artistic, and the fountain has gradually been hailed as "water sculpture," as seen in the fountain Bit created by the German artist Juries Poppe.

3.3 Sensory Evolution from Single to Integrated

At first, the fountain provided drinking water and shower water to give people a simple taste or tactile experience; the fountain in the sculpture elements of the complex changes and water-shaped diversity together give people visual impact and transformation. During the Renaissance, fountain creators focused on the control and design of water sound, water theater, water temple and other fountains filled with dramatic musical effects, giving people the puzzle of hearing. Since then, the fountain has essentially been more lively than the expression of contemplative art, and the fountain hidden at the bottom of the garden road

or round stool in the Este villa will suddenly spew wet visitors to satisfy the tactile experience. Modern fountain creators use lighting art and music art into the fountain works, to bring upon the viewer a wealth of visual and auditory enjoyment. With the production of artificial fog technology, fountain creators use foggy water media to create fountain works sprung up to join the ranks of public art with moist and light fog to give people a Unique sense of touch and other sensory experiences.

(<https://www.asla.org/2009awards/001.html>)

4. Design and Application of Water Medium in Fountain

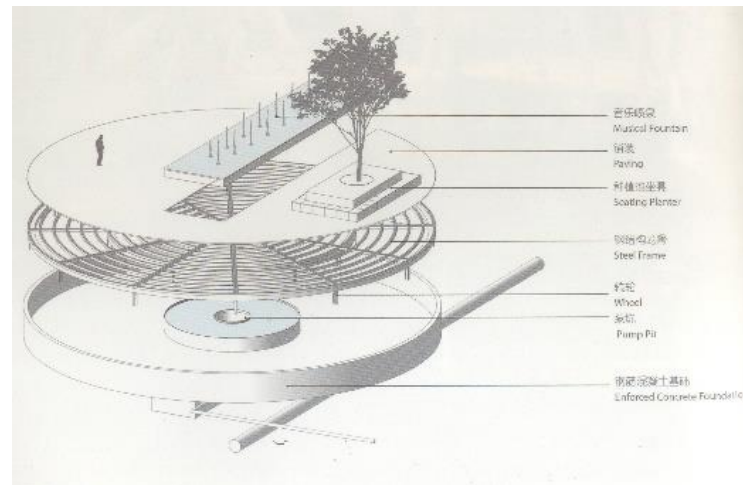
4.1 Embodying Artistic Value

Artistry refers to the feeling in the direction of visual aesthetics, which is the visual and emotional feeling that design works bring to people in terms of color, shape, material and other appearances (Ding, 2010). With the continuous improvement of public aesthetic needs, art works that do not meet the aesthetic needs of the public will certainly not be accepted.

The color particularity and morphological plasticity of water determine that hydro energy, as a good art carrier, carries the language conception of artists and designers, forms "water sculpture," and shows the artistic value of fountain. The Japanese EXPO 's FOUNTAINS (see Figure 3), which caused a lot of public visual amazement, was designed by the artist Noguchi Yong using the color of the water as an illusion, and the fountain was suspended in the air as if it had no connection to the ground, conveying mysterious beauty, while the pipes that actually supported the fountain were hidden in the vertical falling "white" moving water. The Cosmic Spin fountain (see Figure 4) at the plaza of the five crossings in Beijing is Zhang Dong from the universe to the creation of time, which conveys the perception of time through spatial visual perception. Rotating platform, such as time measurement non-stop rotation, rotation to a fixed position to trigger a short period of water spray, from the dynamic visual perception penetration into the connotation of the work, lets people feel the eternity of the universe and the short time break through the art of simple visual aesthetics--conveying the boundaries and triggering a lot of public thinking.

Figure 3: EXPO' FOUNTAINS



Figure 4: Five Crossing Cosmic Center Square Fountain (Zhang Tang Landscape, 2016)

4.2 Highlight Service Features

As an important part of urban landscape, urban public art is regarded as the furnishing in the outdoor environment, which represents functional and artistic symbolization, and plays a multiple role in the development of urban environment. This satisfies not only people's spiritual aesthetic needs, but also the demand of use (Wang, 2016).

As a public art, the creation of fountains needs to have *the function of providing services to the public*, including ecological functions and interactive functions. For one thing, *ecological function* is the most basic service function, using the characteristics of water to reduce noise or improve local microclimate. Artists and designers at *airports or highways* and other noisy places can use a syllable fountain water sound effectively to improve the ambient noise and create a combination of urban and natural ecological livable space. The West Seoul Lake Park fountain near the South Korean airport (see Figure 5) is triggered by spraying water when the plane takes off more than 81 decibels of noise, masking the noise generated by the aircraft.

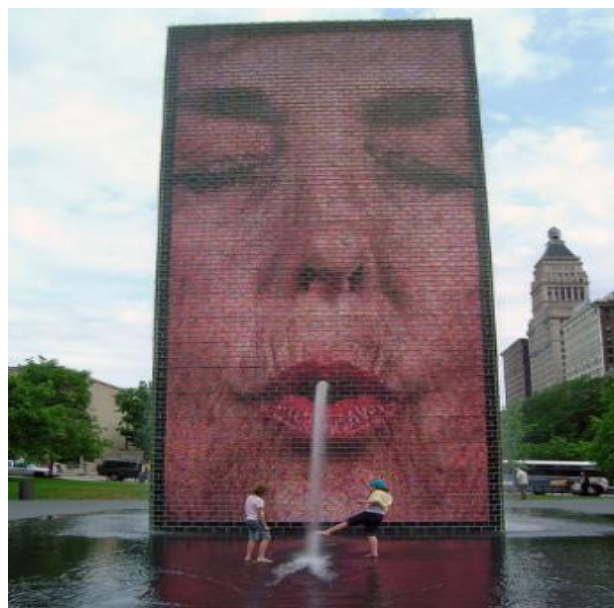
It is reported that the Beijing Botanical Garden Cherry Trench spray, which opened in 2014, can not only increase the air humidity to provide a good growth environment for rare and wet plant spruce, but also effectively absorb dust in the air, which has a significant weakening effect on haze. Second, the *interactive function* of the fountain is the strong demand of the modern public for the public art in the urban landscape after being away from nature. The Crown Fountain in Chicago, USA (see Figure 6) is a classic embodiment of interactive functions, with the designer spewing out of the mouth by photographing and collecting the smiling faces of the public and presenting them as images in the form of a large sculpture at that moment.

Fountain creators have carried out a new interpretation of the ancient traditional fountain and replaced the traditional sculpture with the image of the citizen. The water medium used to be a simple line-like expression in form, but now the simple spray water is designed with its dynamic characteristics to reflect the fun interactive experience process between the fountain and the viewing citizens.

Figure 5: South Korea West Seoul Lake Noise Reduction Fountain



Figure 6: Crown Fountain, Chicago, USA



4.3 Enriching the Sensory Experience

Fountain is not only a product of visual art, but also a complex of multi-sensory experience. In addition to the common visual and auditory design, water touchable, sniffing, temperature variability, and fluidity determine that the fountain can bring people touch, smell, Jeche, kinetic and other aspects of the sensory experience. In this regard, the fountain design and creation currently deal with the different sensory experiences of the comprehensive considerations, needs and liking of the public.

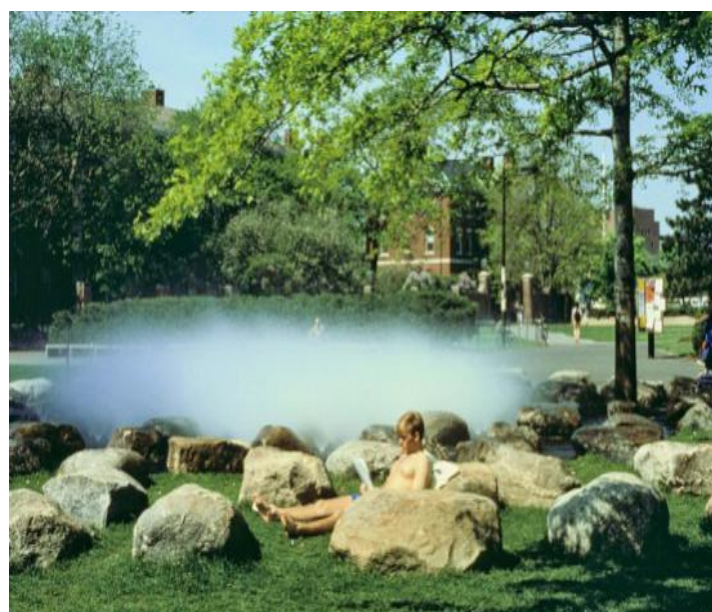
To arouse public perception of the fountain's outward-to-inner experience, fountain creators need to highlight the public characteristics of the fountain. The fountain in Francois

Miterrand Square, France (see Figure 7) is full of psychedelic colors, sometimes gushing from the ground, sometimes fog rising from the ground, "white" moving water and fog letting the public experience different visual, tactile, dynamic, and Jeche contrast feelings. Harvard Stonehenge's Taj Fountain (see Figure 8) was created by Peter Walker with Foggy Water, which not only visually highlights the mystical color of the fog in attracting many public contacts with it, but also adapts to the changes in the time dimension for thermal design to give a cool breath in the summer. The designer combined heating systems to add warmth to the campus during the cold winter months.

Figure 7: Fountain of Francois Mitterrand Square, France (Let Max Rocca, 2007)



Figure 8: Tyna Fountain, Harvard University
(<http://www.pwpla.com/projects/tanner-fountain-harvard-university#>)



4.4 Baking Place Spirit

In the public art overview, Wang (2016) said: "The specific environment produces specific works, specific works absorb the special significance of the environment, so as to obtain an independent spiritual air field."

The spiritual atmosphere here can be understood as the spirit of the place, in line with the spirit of the site in the Fountain works in the form of the expression in accordance with the site environment, atmosphere and emotion, to achieve the work, environment, human integration and harmony. Catherine Gustafson adhered to the design of the site history and connotation of the excavation to achieve the work and the spirit of the site of the key steps. Her artistic masterpiece Princess Diana Memorial Fountain (see Figure 9) is located in Hyde Park, an open British Royal Park. Unlike the traditional fountain, the fountain as a whole appears in the form of water media not to express the sad hyperthyroidism in a vertical direction, but in the horizontal direction to give people a breadth of the extended calmness and cordial feeling toward metaphorical Diana's calm and generous character, implicitly expressed in deep memorial feelings for the princess.

(https://en.wikipedia.org/wiki/Crown_Fountain)

Figure 9: Princess Diana Memorial Fountain Tang (photo)



5. Conclusion

For artists and designers, water is a green medium that nature gives them a variety of special physical and sensory properties, which can be combined with sculptures, installations, and the like to appeal to the emotional and artistic inspiration of the site. For the public, water has a variety of sensory stimuli, and has been the object of human dependence since ancient times. For the fountain works, they are endowed with the name "water sculpture" showing particularity of the water media material as the flowing language of the fountain.

The evolution of the use of water media in fountains is not simply a functional and formal change, it is necessary to constantly arouse the creator's deep thinking about the society and the attention to the public consciousness, so that the public can identify the meaning behind the works through the surface form. As known, postmodernism conveys the interpretation of works of art, not simply as mere metaphysics. Therefore, a full understanding of the cultural and social history in which water and people are rooted in it will lead the viewing public to appreciate the sound, color and different forms of water, sensory and aesthetic experience as thematically designed by fountain creators.

The fountain design varies to create multi-sensory comprehensive products with four-dimensional spatial changes and a variety of changeable forms of water media. Even though it is a western product, from an ancient art development to a new trend of public art creation and design in recent years, it has been culturally adapted in the eastern culture to suit particular landscapes in the orient. Eastern fountain creators may avoid the impact of western modern landscape design to suit their viewing spectators. Whatever design or theme they may take, fountain creators share a common goal on using water media to show aesthetic elements in harmony with the environment for appreciation and enjoyment of the public.

6. The Authors

The first author Zeng Liyun is a lecturer in the School of Civil Engineering & Architecture, Panzhuhua University, China. The other four co-authors are Nuttapon Jotikasthira, Ruihui Pu, Sun Jinkun, Changjiang Tang are lecturers at Rattanakosin International College of Creative Entrepreneurship, Rajamangala University of Technology Rattanakosin, Nakhon Pathom, Thailand. These authors have their specialization in tourism and hospitality management; their research interest lies in forefront cases, issues and innovations in creative entrepreneurship and management in the tourism and hospitality industry.

7. References

Baoshi Degree, Wang Huaifeng Beam. (2006). *Urban Public Art Landscape*. Beijing: China Architecture & Building Press, 11-30.

[DB/OL] <http://www.pwpla.com/projects/tanner-fountain-harvard-university#>, December 4, 2020.

[DB/OL] https://en.wikipedia.org/wiki/Crown_Fountain, December 4, 2020.

Delessaire, L. (2008). *Latest Waterscape Design*. Second edition. Hu Yico (translated). Beijing: China Architecture & Amp Building Press, 10.

Ding, Y. (2010). The design origin of urban public open space-exploration of public participatory design techniques. *Beijing Planning and Construction*, 2010, 3, 22-24.

[EB/OL] <http://www.gooood.hk/73328650.htm>, December 2, 2020.

[EB/OL] <https://howcreativeswork.com/category/design/>, December 7, 2020.

[EB/OL] <https://www.asla.org/2009awards/001.html>, December 2, 2020.

Jianggefeng, Z.Y. (2014). A study on the role and value of media in public art. *Art Review*, 2014, 6, 139-142.

Let Max Rocca and JML Office. (2007). *French Waterscape Design: Urban Water Elements*. Shenyang: Liaoning Science and Technology Press, 22.

Wang, N. (2016). Research on functionality and artistry in modern design. *Design*, 2016, 19, 68-69.

Zhang Tang Landscape. (2016). Waiting for the next 10 minutes-renovation of the plaza of the Beijing five crossing Yisheng building. *Landscape Design*, 2016, 12, 68-90.