

Research on Landscape Design of Urban Square from the Perspective of Regional Culture — A Case Study of Tianting Garden in Tai'an City

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Abstract: Urban squares occupy a pivotal position within the urban public space system. Residents gather here for daily relaxation and social communication, and these open grounds also carry the responsibility of displaying a city's unique charm and inherent regional cultural genes. Accelerated urban construction has brought about widespread homogenisation in numerous square developments. Planners frequently prioritise outward visual effects and practical functionality alone, leaving local historical contexts, folk customs and natural geographic features overlooked, which gradually erases the exclusive cultural imprint belonging to each city. Centered on local regional culture and grounded in the renovation project of Tianting Garden Square, this article looks into feasible ways to embed indigenous cultural elements into square landscape planning. The design pursuit targets a space rooted deeply in Tai'an's cultural traits, capable of accommodating varied user demands while balancing ecological benefits and humanistic charm, with applicable experience reserved for the landscape upgrading of other historic mountain cities.

Keywords: Regional culture; Urban square; Landscape design; Mount Tai Culture; Cultural translation

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1. Introduction

China's urban construction has entered a stage of quality improvement. The purpose of city squares has broadened from providing traffic management and sports activities to becoming a hub of culture and life for the people. Tai'an is an old city with many excellent cultural sites, such as the Mount Tai Cultural Area and Dawenkou Culture and Folk Art. Tianting Garden is close to the city entrance and near a transportation hub; it has old facilities, disordered traffic, poor ecology, and a weak sense of culture. At the centre of the research is the region's culture, and various types of local cultural resources have been tapped in Tai'an. It proposes practical design ideas for integrating the regional cultural features of the square organically into the construction of the square landscape, and aims to build a landmark urban gateway square with rich humanistic heritage and natural ecological charm.

2. Theoretical research foundation for regional culture and landscape design

2.1. Definition of regional culture

Regional culture takes shape amid distinct geographic environments, bearing exclusive cultural icons and indigenous traits. Faint local hallmarks embedded within it record the area's historical evolution and folk customs, forming an understated but indispensable clue to decoding its inherent human spirit[1].

2.2. Landscape design of urban squares

Urban squares serve as hubs for the construction of the ecological system and scenic areas in the city. With urban development, the public's demand for cultural experience in these spaces has become increasingly diverse and complex. The Square Design will never be confined to satisfying people's practical needs and inner desires. At the same time, the site should also be leveraged to boost the people's morale, culture and history.

2.3. Interconnection and coupling of regional culture and square landscape design

Coupling refers to the combined effect that arises from the interaction among several subjects, and it involves mutual support and deep integration of related parties [2]. Culture and Landscape are the objects of Design Studies. Cultural heritage aims to pass on and preserve the values of the community, and landscape design aims to meet all people's needs. The two are not separated either. They work together to enhance each other and create an effective, interactive combination in design practice [3].

The foundation of all design is culture and landscape. Cultural heritage carries inherent contextual values and maintains them in life and time. Landscape design is also concerned with meeting all kinds of people's needs in life and experience. The two are not independent objects of design. They work together to create a good combination and, together, produce reliable and well-founded Design results. Either dimension is ignored, and the Design work will be dull and uninspired. Without the excavation of culture or the allocation of site functions, the design will be shallow and unusable.

3. Site analysis

3.1. Site selection

The project sits right in central Tai'an, just north of the plaza outside Tai'an Railway Station. Bordered by Longtan Road to the west, Dongyue Avenue to the south and Zhanxi Street to the east, the site spans around 1.8 hectares and boasts an excellent geographic spot.

The site is located at the center of Tai'an's T-shaped urban structure, connects the centre of the old city with the new urban area, and is near the Economic and Technological Development Zone. Mount Tai in the north and the Pan River in the south are both beautiful scenery in the city and can thus be used as symbols for different occasions. Next to Taishan Railway Station is a good urban area that shows off the city's culture and urban style to visitors from other places^[4].



Figure 1. Site location analysis diagram.

3.2. Crowd analysis

Taishan Railway Station is next to Tianting Garden, and it is in the urban area of Tai'an. A large number of people are here now. Most of the visitors fall into the categories of tourists, local residents, and shopkeepers.

Most of the floating visitors are tourists who are here to see Mount Tai; they want a good waiting area and prefer a place with scenery and rich local urban life. The surrounding community residents are mainly older people, middle-aged people, and families; thus, this area is for walking around and socializing casually, and a soft and gentle green environment is desired. Shop and hostel staff living nearby only pass through the square for a brief break and do not live here.

Seasonal Fluctuation of Visitor Numbers. Holidays and tourist seasons bring in many outsiders and change the main purpose of the area from a temporary through-route, whereas on weekdays it is occupied by locals for daily life. With the combination of occasional tourists and permanent regular users, the design needs to coordinate cultural display for tourism and multi-functional leisure services for locals.

3.3. Current situation analysis

Most buildings on the site date back to the 1990s, lining surrounding roads with dilapidated appearances and outdated functions, inconsistent with the style of the newly built railway station square. High building density and disordered heights block sightlines to Mount Tai, disrupting the “north-facing Mount Tai, south-facing Pan River” landscape pattern. The interior is fragmented, lacking large open space and sufficient public openness. Adjacent to Mount Tai Railway Station, urban arterials and transit hubs, the site has heavy mixed traffic with unclear pedestrian-vehicle separation. Narrow entrances and poor internal circulation cause congestion during peak hours, while parking and slow-traffic facilities are inadequate, leading to chaotic traffic organization. The site suffers from a messy environment, garbage accumulation, unauthorized structures and damaged pavements. Greenery is fragmented and monotonous, lacking regional cultural expression and failing to align with Mount Tai culture and the “urban living room” positioning. Public facilities and signage are outdated, weakening service and rest functions. As an urban gateway, it inadequately showcases Mount Tai Culture and fails to create a distinct local impression. Low-end businesses, poor management and weak nighttime vitality limit its capacity to serve cultural tourism and urban consumption needs.

4. Culturally based perspective

Tai'an has a long-standing image of a stable country and peaceful people. Mount Tai has shaped and nurtured the city, and both have developed and flourished together. Endowed with rolling mountains, urban landscapes, and thousands of years of cultural accumulation, it has been designated a national historic and cultural city ^[5].

Mount Tai is one of the few sites in the world that has been inscribed as a UNESCO World Heritage site and also stands as an exemplar of Chinese civilization. It will provide the foundation for the local culture of Tai'an. According to the spirit of Dawenkou Culture, folk intangible cultural heritage, Confucian rites and ethics, the city has gradually built up a unique cultural system. Broad-minded view, harmony among all aspects, steady progress, and building on cultural inheritance and innovation.

4.1. Mount Tai Culture

The five major temples of the people are also known as Mount Tai. Over the past few centuries, imperial Fengshan ceremonies, scholar tours, and religious cultivation have accumulated rich cultural heritage in the area; thus, a miniature of Chinese history has emerged here, serving as an ideal model for the national spirit and providing an important source of culture for the urban temperament of Tai'an.

Fengshan rituals were a high-ranking system of ancient sacrifices for emperors to worship heaven and earth. Over the past two thousand years, the thirteen emperors from Qin Shi Huang to Qianlong have held relevant ceremonies on site. The rite aimed to inform heaven of the emperor's achievements and pray for the well-being of the people; Mount Tai served as the divine link between the emperor and heaven, thus consolidating imperial power and forming the cultural foundation of peace in Tai'an.

More than 6,000 existing cliff and tablet inscriptions have accumulated imperial documents, temple records, poems, and scenic couplets. These relics include calligraphy from the Qin seal script and Han clerical script, as well as Tang regular script and Song running script, and are known as a natural calligraphy museum. Elegant words merge with rocky landscapes to connect natural sights and historical changes, continually raising the artistic level of the area, and such stone-carved culture is worth giving top priority to in local landscape creation.

4.2. Dawenkou Culture

The Dawenkou culture is a type of early civilization in the Haidai Area. It is also one of the traditional origins of Tai'an's special regional culture. Born and developing in the alluvial plain of the Dawen River, this ancient civilization has gradually formed the distinct cultural features of the city; its natural environment has given rise to life here, and profound values of the Chinese people have bestowed a rich spiritual atmosphere on it.

A large number of artifacts have been found at the Dawenkou Site in Taian. Most of these relics are decorated with an eight-pointed star and geometric designs. These fine decorative details show that the ancient people worshipped the sun and totems, believed in the harmonious existence of man and nature, and were able to organise space in an orderly manner.

4.3. Intangible cultural heritage folk customs

Tai'an Shadow Puppetry was added to the UNESCO list of intangible cultural heritage in 2011 and is now regarded as a living fossil of Mount Tai culture. It has a special Shibuxian performance skill, where one person operates puppets, sings, and plays instruments all at once, and is quite rare across the country. Its

plays are based on the myths of Mount Tai, Shi Gandang legends and folk stories, and performed in a local dialect with characteristic vocal tunes. Keep up with the times and continuously innovate to spread the culture of Mount Tai.

Mount Tai Shi Gandang, another national intangible heritage, is a time-honored folk custom for blessings. Stones inscribed with its name were placed at lanes, residences and bridges to ward off evils and pray for safety. With well-developed legends, stone carvings and rituals, this folk culture has spread widely and become a typical symbol of the culture of peace.

5. Design strategies

5.1. Cultural refinement and translation strategy: Converting abstract cultural context into tangible landscape symbols

Symbol Extraction and Expression are to be used in the Design of the Landscape. Based on the particular circumstances at the construction site, some cultural resources of Tai'an have been chosen for the design. It uses the well-known symbolic pattern of the True Form Diagram of the Five Great Mountains, selects and elaborates the iconic decorative textures of Dawenkou cultural relics, and adds the fine hollow-carving artistic rhythm of local Taishan shadow puppetry. All of the above indigenous cultural elements have been categorized and integrated to construct an exclusive on-site cultural database for a solid foundation for morphological reconstruction of core cultural symbols. Migration, reorganization, and optimisation of the traditional morphological language have been used to reintroduce these cultural symbols in a new design way that is in line with modern aesthetics, and new artistic charm and timeliness have been given to local culture.

Tai'an Shadow Puppetry has shown special symbolic aesthetics that are worth studying. These inherent folk symbols are restructured and optimized to be applied to wayfinding signs in the public toilets of the park. The "Grand Views" for landscape vitality are rare. Instead, these delicate and elegant design details can be used to incorporate local folk culture into daily life and present Tai'an's long-standing folk heritage in an easy-to-approach manner for the public. The tactile quality and calligraphic charm of Taishan stone inscriptions can also be applied to the design of on-site science popularisation boards. Although these functional works of art serve the purpose of cultural transmission and popular education, they also revive the restrained humanistic spirit of classical mountain inscriptions and connect ancient cultural heritage with modern public spaces.

Traditional Dawenkou cultural patterns will also be used as decorative textures for the pavements and landscape lamps in the entire project area. Through a multi-level, function-oriented system for translating cultural symbols, the hidden regional culture of Tai'an has been turned into an all-encompassing and tangible space. Visitors can see, experience, and participate in these cultural scenes themselves. Finally, the project will be a one-of-a-kind cultural square in Tai'an that fully represents the distinctive features, rich cultural connotations, and refined modern style of the region.



Figure 2. Restroom signs with shadow puppetry cultural symbols.



Figure 3. True form diagram of Mount Tai.

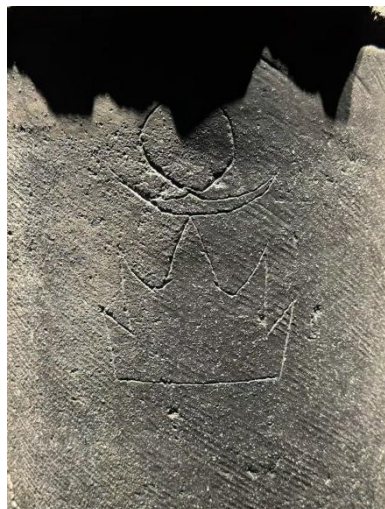


Figure 4. Dawenkou Culture pottery symbols.

5.2. Local ecological construction strategy: Unification of local ecology and regional style

The special charm of a place's scenery is the result of both cultural activities and the lives of the people living there, as well as, to some extent, the region's natural ecological conditions and distinct landforms. Tianting

Garden is situated at the foot of Mount Tai and is therefore a characteristic geomorphological formation of mountain foothill hills shaped by the special geographical environment of Mount Tai.

This design will be ecologically based, take into account the local environment, and resolve problems in the original form of landscape design. It does not have the problems of invasive alien species, uniform and formulaic scenic design, or fragmented integration of mountain and water landscapes. Based on the core idea of respecting the original ecological environment at the site, the design will build a localized and highly adaptive sustainable landscape system to reduce long-term maintenance costs significantly and promote the healthy development of the landscape.

Ecological restoration work is carried out within the limits of the site's natural carrying capacity. The design will keep the natural geomorphological features of the Mount Tai Area and preserve the original geological structure and ecology of this place. It will help promote the development of the native plant community in the area and create a beautiful and typical vegetative landscape for this place; This design logic avoids excessive artificial intervention and provides a reasonable foundation for mountain ecological remediation.

Whether localised plant collocation meets the conditions for both ecology and regional aesthetics is now unknown. A plant configuration system is developed that selects native plants suitable for the local climate and poor soil conditions, and they are low-maintenance. Based on the natural vertical vegetation of Mount Tai, the scheme will use Chinese pine (*Pinus tabulaeformis*) and oriental arborvitae (*Platycladus orientalis*) as the dominant tree species, along with indigenous ground cover and aquatic plants to create green areas, flowering borders, and water-of-life zones with ecological value and local characteristics.

5.3. All-age cultural experience strategy: Making cultural landscapes people-friendly and participatory

The traditional urban cultural plaza has limited displays and is not very inclusive of all people. The design will be relatively accessible and participatory. Build an all-ages cultural experience system that allows local culture to be absorbed effortlessly by the people living there.

Different age groups have different requirements; thus, the design is suitable for all and more people. Inspired by the culture of stone inscriptions on Mount Tai, shady corridors and open rest areas have been set aside for older people to rest and relax. Lightweight landscape facilities incorporating unique Tai'an cultural features are to be designed as interactive play areas for children to enhance their sense of culture. At the same time, characteristic cultural landscape spots are set up for young people to provide them with good places for leisure, socialisation, and deep cultural experience.

In addition to the traditional static decorations of landscape walls, the site has introduced three-dimensional and interactive landscape installations based on local culture, as well as popular science facilities. Maintain some open areas for folk performances and cultural promotion, etc. Thus, the change will enable visitors to be more involved and enjoy the culture of the place in an all-encompassing way.

5.4. Strategy for landscape narrative construction: Building sequential cultural tour routes

Regional Landscapes have narrative functions by reconstructing local historical memory and preserving the original cultural features of space. Based on Tai'an's thousand-year development, from mountain culture and ancient Fengshan rites to grassroots folk customs and modern urban upgrading, the design strings together a culturally themed path of time and space. Therefore, dull and static landscape areas are now living scenes with the story of the area's history.

This design avoids a cluttered space and, instead, creates an immersive four-stage story system

covering origin, ritual order, folk custom, and renewal to present the regional cultural connotations of Tai'an progressively. The Entrance Square has rocks and is relatively rough, so the ancient mountain-worship area of the city can be seen. As the nucleus of the entire site, this central area has adopted sculptures and stone landscapes to present the cultural connotations of Fengshan rituals and cliff carvings, as well as auspicious symbols from ancient royal ceremonies. Waterside Woodlands combines shadow puppetry and local folk elements to make the place less stuffy and show life in the community. Smart facilities in the commercial area are integrating traditional heritage with new technologies. The route of the integrated tour combines culture and nature and offers various public experiences. It tells a full-fledged and harmonious story of Tai'an, and solves the problem of fragmented cultural expression in traditional designs. Thus, the final scenery will have distinct regional features and a rich history, as well as a sound ecological environment and vibrant modernity.

6. Summary

Regional culture lies at the core of urban square design. To break away from rigid, homogenized design conventions, designers must fully explore local cultural heritage, respect the unique attributes of each site, and always take human needs as the core of design practice.

This study explores feasible design approaches for the public squares of Tai'an City. It also hopes to deliver valuable insights for public landscape design projects in other similar cities. Well-designed urban spaces can effectively retain unique regional cultural memories, and ultimately promote the integrated and sustainable development of cultural inheritance and urban construction.

Disclosure statement

The authors declare no conflict of interest.

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