

Urban Subway Space Public Art Design Exploration — Taking Luoyang Metro Line 1 as an Example

Jiaoyang Shang^{1, a, *}, Khairun Nisa Mustaffa Halabi^{1, b}

¹ City University Malaysia, No.8 Jalan 51A/223, 46100 Petaling Jaya

^{a, *} 18339076566@163.com, ^b khairun.mustaffa@city.edu.my

Abstract

Subway spaces have increasingly become a vital medium for showcasing urban culture, city image, and urban charm. The evolution of public art design in subway spaces has not only propelled the role of subways beyond that of mere transportation tools but also, through the long-term influence of art, has nurtured urban construction and development. This paper takes Luoyang Metro Line 1 as a case study, analyzes the current state of public art design in the subway space based on field investigations, and combines the results of these analyses for a systematic summary and in-depth reflection on the design of public art in subway spaces.

Keywords

Urban Subway; Public Art; Art Design; Luoyang; Metro Line 1.

1. Introduction

Since the construction of the world's first subway, the London Metropolitan Subway, in 1863, artists have turned their attention to subway spaces. From the early passive attempts to improve the visual environment in the cold and damp subway tunnels, alleviating the sense of fear associated with dull and monotonous spaces to provide the public with sufficient artistic and humanistic care, to the active creation using urban resource symbols and regional historical culture, subway spaces have become a vital medium for displaying urban culture, city image, and urban charm. The development of public art design in subway spaces has not only propelled the role of subways beyond that of mere transportation tools but also, through the long-term influence of art, has nurtured urban construction and development. As an important city in the Yellow River basin, a deputy central city of the Central Plains Urban Agglomeration, a national significant industrial base, a historical and cultural city, and a key node city of the "Belt and Road" initiative, since the beginning of the construction of Luoyang Metro Line 1 in 2017, Luoyang has clarified the construction philosophy of "building a subway is building a city, building a subway must have culture, building a subway must benefit the public, and building a subway must ensure safety." This has led to the formation of a distinctive subway space art pattern, playing a significant role in enhancing urban quality, showcasing the city's image, and inheriting and promoting urban culture. This paper will conduct field research and analysis on the public art design of Luoyang Metro Line 1, aiming to provide references and insights for the public art design of subway spaces in other cities.

2. Status of Luoyang Metro Line 1

Luoyang is the first non-provincial capital city in Western China to be approved for the construction of a subway and to complete the construction of a single subway line. In June 2017, the construction of Luoyang Metro Line 1, with an investment of 18 billion, commenced full-line construction and officially began operation in March 2021. Metro Line 1 starts at Hongshan Station in the west and ends at Yangwan Station in the east, with a total length of 25.342 kilometers, featuring 19 stations, including one elevated station (Hongshan Station) and eighteen underground stations (Gushui Station, Qinling Road Station, Wuhan Road Station, Chang'an Road Station, Shanghai Market Station, Peony Square Station, Qilihe Station, Wangcheng Park Station, Jiefang Road Station, Zhou Wangcheng Square Station, Yingtianmen Station, Lijingmen Station, Qingnian Palace Station, Jiamayaing Station, Qiming South Road Station, Ta Bay Station, Shijia Bay Station, Yangwan Station). The line passes through major passenger flow concentration points such as Henan University of Science and Technology, Peony Square, Wangcheng Park, Zhou Wangcheng Square, Yingtianmen, Lijingmen, and Qingnian Palace.



Figure 1: Schematic Diagram of Luoyang Metro Line 1 Route Plan

Figure 2 : Passenger Volume of Different Transportation Modes in Luoyang in 2023

After the completion of Luoyang Metro, it has made significant contributions to the development of Luoyang's transportation industry. In 2023, the total passenger traffic of Luoyang Metro reached 57.0515 million person-times, while the road passenger traffic was 33.923 million person-times, the airport passenger throughput was 1.207 million person-times, and the passenger traffic of the railway hub was close to 20 million person-times. The subway has become the most important public transportation tool for Luoyang citizens and tourists visiting Luoyang.

3. Investigation of Public Art Design on Luoyang Metro Line 1

Following preliminary field visits and surveys, the current public art design style of Luoyang Metro Line 1 is primarily segmented by thematic sections. The first section is themed around industrial civilization (from Hongshan Station to Shanghai Market Station), the second section focuses on peony culture (from Peony Square Station to Qilihe Station), the third section narrates the Stories of Eastern and Western Zhou Dynasty (from Wangcheng Park Station to Zhou Wangcheng Square Station), and the fourth section is dedicated to the culture of the Sui and Tang Dynasties (from Yingtianmen Station to Yangwan Station). Additionally, there is a

special style station, Qingnian Palace Station, interspersed within the fourth section, with a design theme centered on a youth-friendly city.

3.1. Industrial Civilization Section

The public space design of Luoyang Metro Line 1, spanning from Hongshan Station to Shanghai Market Station, is centered around the theme of industrial civilization. Following the establishment of the People's Republic of China, there was a nationwide surge in industrial construction to revive the nation's industries. During the "First Five-Year Plan" (1953-1957), Luoyang was designated as one of the eight key industrial cities for national development. Out of the 156 large-scale industrial projects aided by the Soviet Union, six significant projects were established in Luoyang. Additionally, 17 factories were relocated from cities like Shanghai and Guangzhou to Luoyang. By the 1970s, over a dozen "third front" enterprises had settled in Luoyang, turning it into a hub of industrial development in new China. This period saw the birth of several milestone achievements, including China's first high-speed diesel engine factory, the inaugural manufacturer of marine high-power diesel engines, and the first tracked tractor named "Dongfanghong." The era also left a legacy of material and intangible cultural heritages, such as Soviet-style architecture, and fostered an industrial spirit of perseverance and innovation, epitomized by the spirit of Jiao Yulu.

The creative inspiration for the public space design along this route is drawn from Luoyang's industrial culture. Red bricks are utilized as a stylistic element for pillars and decorations in all stations. At Wuhan Road Subway Station, the ceiling design incorporates industrial symbols like gears and bearings, along with a red-to-green gradient, blending industrial heritage with contemporary lighting to reflect a fusion of past and present. At Chang'an Road Subway Station, the mural "Eventful Years" culminates the section's artistic design, featuring the first tracked tractor "Dongfanghong," marine high-power diesel engines, Soviet-style building complexes, and mechanical gear instruments, which are emblematic of Luoyang's industrial legacy. This mural narrates the significant historical transition of Luoyang as it embraced modern industrial civilization and became a beacon of new China's industrial revolution.



Figure 11: Red Brick Design of Pillars at Hongshan Station to Shanghai Market Station

Figure 12: Industrial Culture Ceiling Design at Wuhan Road Metro Station

Figure 13: Mural Design with the Theme of "Glorious Years" at Chang'an Road Metro Station

3.2. Peony Culture Section

The thematic design of Luoyang Metro Line 1 from Peony Square Station to Qilihe Station celebrates peony culture. In 605 AD, during the Daye era of Emperor Yang of the Sui Dynasty, Luoyang, the Eastern Capital, was established, along with the Western Garden, which became

home to a variety of rare flora and fauna, including peonies. Situated in western Henan, Luoyang's geography, bordered by the Qinling Mountains, the Songshan Mountains, the Mangshan Mountains, and the Yi Gorge, with the Luo River and Yi River to its southeast and the Chan River and Jian River encircling it, creates a mild climate and fertile soil that are perfect for peony cultivation. Ouyang Xiu's Song Dynasty poem "Peony Map of Luoyang" notes, "Luoyang's soil is best for flowers, peonies are the most extraordinary in the world," earning the peony the nickname "Luoyang Flower." Li Gefei's "Records of Famous Gardens in Luoyang" links the city's prosperity to the fate of the nation, highlighting the peony's significance in Luoyang's cultural identity.

The public space design along this section of the metro is inspired by peony culture, with Peony Square Station as the epitome of this theme. The station's design features gold as the primary color, symbolizing wealth and grandeur, with a "hui" pattern for spatial arrangement. Peony branches are incorporated into the pattern design, representing prosperity, and ceiling murals depict peonies, offering a rich appreciation of their cultural significance.



Figure 14: Internal Design Structure of Peony Square Metro Station

Figure 15: Internal Design and Structure of the Metro Station at Mudan Square

Figure 16: Design of the Peony Ceiling Mural at Mudan Square Station

3.3. Western Zhou and Eastern Zhou Stories Section

The design theme from Wangcheng Park Station to Zhou Wangcheng Square Station on Luoyang Metro Line 1 is "Western Zhou and Eastern Zhou Stories." After the fall of the Shang Dynasty due to King Zhou's despotism, King Wu of Zhou defeated him and planned to place the Nine Tripods in Luoyang, symbolizing control over the Central Plains, but he died before achieving this. King Cheng of Zhou, with his brothers Duke Shao and Duke of Zhou, continued the legacy, establishing Wangcheng and Zhoucheng, initiating the two-capital system and the "separate governance of Shaanxi." This period marked the beginning of the Zhou Dynasty's 800-year rule and the "Chengkang Golden Age."

The station designs reflect the cultural elements of the Zhou dynasties, with black and white pillars representing yin and yang, influenced by the I Ching Bagua. The cloud thunder pattern, prevalent during the Shang and Zhou periods, decorates the pillars. The upper space design uses white and light yellow, symbolizing imperial power. Wangcheng Park Station's mural illustrates the history of Eastern Zhou Wangcheng through maps and archaeological insights, integrating military and cultural symbols, along with the Nine Tripods and bronze vessels, capturing 500 years of cultural heritage. Zhou Wangcheng Square Station's mural, "Zhou Gong's Rites and Music," features Duke of Zhou preaching rites, with bianzhong on either side, depicting scenes of ritual and music, enriched with ancient instruments and ritual elements. The composition, unified by sun, moon, wind, cloud, and ribbon motifs, vibrantly portrays

Duke of Zhou's rituals and music in a poetic rhythm.

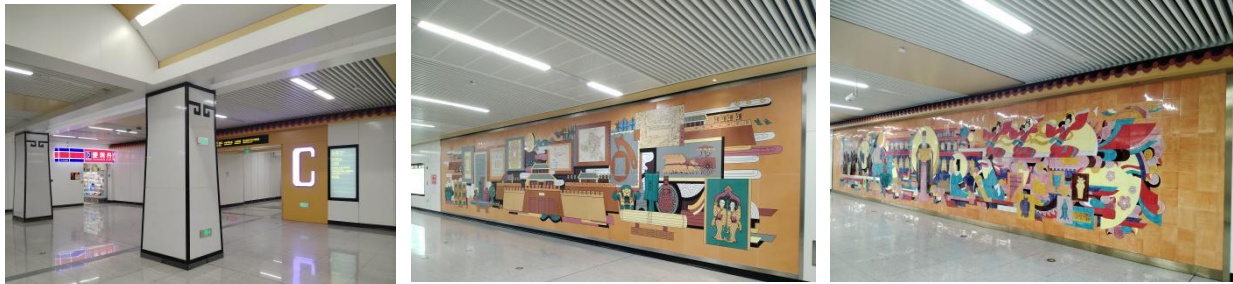


Figure 17: Interior Design of Wangcheng Park Station

Figure 18: Mural "Eastern Zhou Wangcheng" at Wangcheng Park Station

Figure 19: Mural "Zhou Gong's Rituals and Music" at Zhouwangcheng Square Station

3.4. Sui and Tang Cultural Section

The design theme from Yingtianmen Station to Yangwan Station on Luoyang Metro Line 1 is centered on the Sui and Tang dynasties, with elements from the Song, Yuan, Ming, and Qing periods. In 605 AD, during the Daye era of Emperor Yang of Sui, Luoyang was established as the Eastern Capital, and the Grand Canal was excavated, making it a hub for economic and cultural exchange. In 618 AD, with the founding of the Tang Dynasty, Luoyang reached its peak as one of the empire's two capitals. Wu Zetian, the only female emperor of China, elevated Luoyang to the status of the divine capital, attracting tributes from all directions, and this era saw the birth of cultural symbols such as Tang Sancai, the Sui and Tang Grand Canal, Tang poetry, Luoyang palace lanterns, and Luoyang snacks.

The stations from Yingtianmen to Yangwan are designed with imperial culture as the foundation, featuring a color scheme of golden yellow and beige. Pillars resemble the structures of the Tang Dynasty's Daming Palace, with a thick base and a layered top. The stations incorporate the multi-beam architecture of the Tang era, rich in aesthetic depth. The mural at Yingtianmen Station, "Prosperous Sui and Tang Luoyang City," is divided into three sections, depicting merchants, palace maids, and nobles, with a historical undercurrent of Buddhism's introduction. The background architecture revives the image of significant structures like Yingtianmen, incorporating Tang Sancai elements, reflecting Luoyang's open and vibrant Sui and Tang culture. At Lijingmen Station, the arched design and Tang-era patterns like grass, treasure phase, and algae well motifs highlight the inclusiveness of Tang culture. The theme mural, "Tang Style Poetry Rhyme," features verses about Luoyang, showcasing the famous line, "If you ask about the rise and fall of ancient and modern times, please only look at Luoyang City," capturing the city's timeless charm. The theme mural at Luoyi Ancient City Station, "Luoyang Old City," uses stone carving to vividly display ancient streets and alleys. Centered around Lijingmen and Youth Announcement, with the old city's drum tower and octagonal building flanking, it connects elements of traditional architecture, shops, famous foods, and street lights, featuring Luoyang specialties and dishes, depicting a dialogue between ancient and modern times. Jiamayaing Station's exhibition hall features the mural "The Source of the Grand Canal," which adopts a macro perspective centered on Luoyang, condensing the Sui and Tang Grand Canal from Beijing to Hangzhou in a unified layout. It incorporates four thematic introductions and links elements of the Sui and Tang era, such as dragon boats, bridges, wharfs, markets, peony flowers, and transport ships, showcasing the canal's prosperity and the development of Luoyang's Grand Canal.

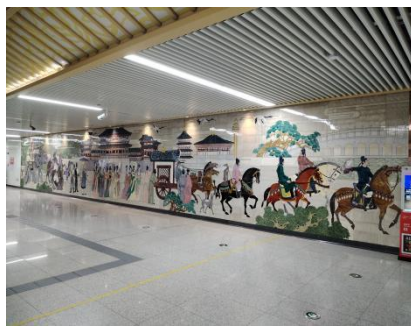


Figure 20: Interior Design of Yingtianmen Square Station

Figure 21: Mural "Prosperous Sui-Tang Luoyang City" at Yingtianmen Station

Figure 22: Interior Arch Design of Lijingmen Station

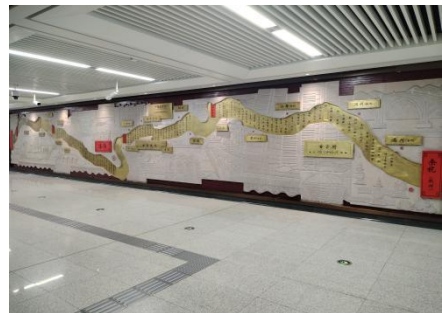
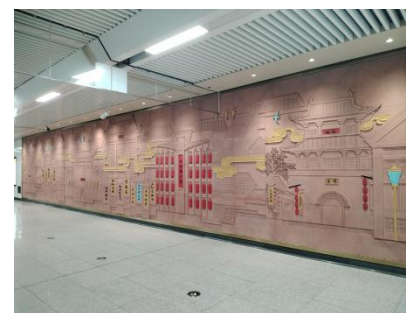


Figure 23: Thematic Mural "Tang Dynasty Poetry" at Lijingmen Station

Figure 24: Thematic Mural "Ancient City of Luoyang" at Luoyi Ancient City Theme Station

Figure 25: Thematic Mural "The Source of the Grand Canal" at Jiamaying Station

3.5. Youth Culture Section

At Qingnian Palace Station on Luoyang Metro Line 1, which is a characteristic station of the entire Luoyang Metro Line 1's theme design, the station is themed on a youth-friendly city. Young people gather because of the city, and the city prospers because of the young. In recent years, the municipal party committee and the municipal government have clearly proposed to build a youth-friendly city, paying more attention to the characteristics, needs, and experiences of young people, striving to improve the city's functional quality and the fit with young people, continuously creating a "strong magnetic field" for the talent ecosystem, enhancing the sense of belonging among young people, attracting talents to come and stay, and allowing more young people to grow and win the future with Luoyang. This makes Luoyang not only a city with a profound historical and cultural heritage but also a vibrant and youthful city full of vitality.

The station's design uses cyan as the primary color, symbolizing youth and vitality. In terms of pattern design, it incorporates more approachable and friendly cartoon images. While the artistic design elements are minimal, they are highly practical. Throughout the station, one can find the tourist map and the distribution of scenic spots in Luoyang City, along with affordable youth hostels provided by the local area, which significantly caters to the current needs of young people for "special forces" and check-in style tourism.



Figure 26: Suggestion Column for Youth Hostel at Qingniangong Metro Station

Figure 27: Mural Design at Qingniangong Metro Station

Figure 29: Photo-Op Spot at Qingniangong Metro Station

4. Insights and Reflections

4.1. Public Art Design in Subway Spaces Must Align with Urban Positioning

The planning and construction of urban rail transit should match the city's positioning, and the same applies to the public art design in subway spaces. The public art design of Luoyang Metro Line 1 is inseparable from the profound cultural heritage of Luoyang as an ancient capital of thirteen dynasties, one of China's top ten tourist cities, and one of the eight key industrial construction cities in new China. This enables the transformation from a passenger transport function of rail transit to a cultural corridor that encompasses its own industrial civilization, peony culture, culture of the two Zhou dynasties, and Sui and Tang culture. This is of great significance for cities with profound historical and cultural heritage and multiple resource endowments. However, this is not a prescribed template for public art design in subway spaces for all cities. Transportation hub cities or emerging cities should also design their subway public spaces based on their own resource endowments and functional positioning. For example, Shenzhen Metro Line 14's Shiya Ridge Station, which closely follows its positioning as a forefront area of technological innovation, is designed with the theme of "Technology Corridor," creating a multi-dimensional spatial experience and fulfilling the dream of a technological green corridor for city dwellers, with a vibrant technological style; Shanghai Metro Line 15's Wuzhong Road Station, which closely follows the positioning of an international modern metropolis, showcases the city's characteristic architecture in a concentrated display, allowing one to appreciate the urban splendor while within the station.



Figure 30: Shiya Ridge Station on Shenzhen Metro Line 14

Figure 31: Wuzhong Road Station on Shanghai Metro Line 15

4.2. Public Art Design in Subway Spaces Should Enhance Interactive Functions

Public art is an artistic behavior that takes human value as its core, with urban public spaces, environments, and facilities as its objects, and uses integrated media forms as carriers. It is a product of modern urban culture and urban life forms and must be combined with modern life, focusing on the public's participation and accessibility to the works, transforming the public from passive acceptance to active participation and involvement, thereby adding vitality and dynamism to public art. Looking at the public art design of Luoyang Metro Line 1, most stations have basically achieved interaction with people, such as some tourists choosing to take photos and check in here, but it is still limited to this and has not yet achieved the active participation and creation of a good artistic atmosphere by passengers. In contrast, a piano with the upper half as bright as the setting sun in orange-yellow and the lower half as pure as the sea in light blue, with white keys like a beach and black keys like reefs, was placed in a Shanghai subway station. Shortly after it was put into the station, Mozart's "Piano Sonata in C Major, First Movement" was played, attracting many passers-by to praise, and welcoming a large number of participants to the Shanghai Metro's "Good Night Night Owls" event.

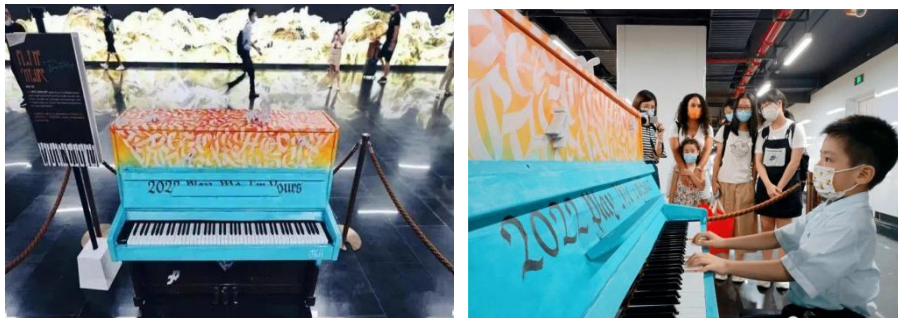


Figure 32: Colorful Piano in a Shanghai Subway Station

Figure 33: "Goodnight, Returnees" Event Performance in a Shanghai Subway Station

4.3. Public Art Design in Subway Spaces Must Keep Pace with Urban Development

Art is the trumpet of the times, the most representative of an era's style, and the most leading in an era's spirit. Art is a product of the times and a reflection of the times. We live in an era full of changes, with various new ideas and concepts emerging continuously, which require artists to create and reflect based on these to better reflect the times. It can be seen from the public art design of Luoyang Metro Line 1 that although Luoyang, as an ancient capital, has a profound historical and cultural heritage, it does not mean that it should rely solely on this and remain unchanged in style. The Qingnian Palace Station, although located in the Sui and Tang cultural section, did not continue a Sui and Tang style but took a different path, integrating the latest development concept of a youth-friendly city into its creation, resulting in a unique Qingnian Palace Station. Such examples are not rare. For instance, Xi'an Metro Line 14's Olympic Sports Center Station changed from the entire route's Tang-style design to a modern and simple overall space with the theme of "United as One, Creating Brilliance," reflecting the ancient city of Xi'an's acceleration of modern construction and the modern charm of recapturing Xi'an's glory. Dongguan Metro Line 2's Hongfu Road Station, adhering to the slogan of building a green and beautiful Dongguan, designed a mural of "Green Lingnan, Beautiful Water Town," featuring the city's green development style.



Figure 34: Unity of Purpose, Shared Glory Theme Design at Xi'an Metro Line 14's Olympic Center Station

Figure 35: "Green Lingnan, Beautiful Water Town" Mural at Dongguan Metro Line 2's Hongfu Road Station

5. Conclusion

In the past two decades, the rapid construction of China's subways has greatly eased the pressure of urban traffic, and the "urban illness" of many cities has been significantly alleviated. However, it has also brought about the crisis of subway space characteristics, such as the uniformity of station appearances and low recognizability. China is currently undergoing a transformation from functional subways to humanistic subways. Therefore, the necessity of public art intervention in subway spaces has also been paid attention to. Under this background, the design of public art in subway spaces must meet the public's needs for nature and human history, the public's need for subway space recognition, and the public's eternal pursuit of the beauty of subway spaces.

References

- [1] Cao Jun, Zhang Wei, Xu Wen: Strategic Study on the Design of Public Art in Subway Spaces(Urban Mass Transit Research,China 1998) , p.19-20.
- [2] Xu Feiyang: Application Research on the Design of Public Art in Subway Spaces from the Perspective of Aesthetic Education(Urban Mass Transit Research, China 2022), p.25-26.
- [3] Huang Kehua: Design Strategies for Interactive Subway Space Public Art(Urban Mass Transit Research, China 2024), p.29-30.
- [4] Chen Chuanqian: Transformation and Connection between Painting and Public Art Creation—Review of Yang Peng's Mural Work 'Dreaming of Elegance' (Art Observation, China 2023), p.34-35.
- [5] Li Tie and Zhou Yi: Beijing Subway Public Space Art Creation and Practice from a Cultural Perspective(Urban Rapid Rail Transit, China 2023), p.73-79.
- [6] Gao Shengli: Interpretation of the Central Plains Cultural Elements in Zhengzhou Subway Space Art Design(Urban Mass Transit Research, China 2023) , p.23-24.
- [7] Ye Shen: Inheritance and Expression of Regional Culture in Wuhan Subway Art Themes(Urban Mass Transit Research, China 2022), p.4.

- [8] Xia Yan: Overlap and Resonance—Discussion on the Creation of Wuhan Subway Mural 'City·Red',(Art Observation, China 2023), p.152-153.
- [9] Hu Hui, Xu Jing, and Peng Pin: Investigation of Strong Fluidity Public Spaces and Their Humanistic Nature,(Chinese Landscape Architecture, China 2024), p.140-144.
- [10] Sun Jing and Li Zhiguo: Analysis of Design Pathways for Public Art in Subway Spaces in the New Media Era(Urban Mass Transit Research, China 2024), p.12-14.