

The Spatial Evolution and Geographical Structure of Educational Places in Xi'an(1900-1949)

Haoxuan Peng

Shaanxi Normal University, Xi'an, Shaanxi, 710062, China

ABSTRACT

This paper examines the profound spatial transformation of educational establishments in Xi'an from the late Qing Dynasty (c. 1900) to the end of the Republican period (1949). This half-century witnessed an unprecedented shift in the hierarchical system and geographical distribution of schools, driven by educational modernization, political upheaval, and urban expansion. By employing a multi-temporal spatial analysis focused on the urban core and its immediate periphery at four critical junctures—1911, 1931, 1939, and 1949—this study meticulously traces the evolving distribution patterns and geographical structures. It argues that the evolution of educational space was a complex process characterized by the inheritance of traditional urban patterns, innovation spurred by new policies, disruption caused by warfare, and reconfiguration influenced by demographic and economic changes. The findings illuminate the intricate relationship between educational development, urban space, and broader socio-political forces in the modernization of a major Chinese city.

KEYWORDS

Xi'an; Historical geography; Educational space; Spatial evolution; Late Qing dynasty; Republican China; Urban morphology

1 Introduction

The late Qing and Republican periods constituted a pivotal epoch in China's modern history, marked by the collapse of the imperial system and the arduous journey of nation-building. Central to this socio-cultural transformation was the fundamental restructuring of the education system, transitioning from a millennia-old, examination-oriented paradigm towards a modern, Western-inspired school system. This study focuses on Xi'an, a key northwestern city whose educational spatial evolution offers a significant lens through which to understand broader processes of urban and social change during this tumultuous era. Over this 50-year period, the proliferation of modern schools, with their new demands on land area and location, led to the development of a distinctive spatial layout and geographical structure within the city. This paper selects the city limits of Xi'an at four key junctures—1911 (the end of the Qing Dynasty), 1931 (the early Republican period before Xi'an's designation as the accompanying capital), 1939 (the wartime period following Japanese bombing), and 1949 (On the eve of the founding of the People's Republic of China)—to profile the distribution of educational sites within the Old City and its immediate outskirts (Chengguan). The first section details the distribution patterns at each point in time, while the second analyses the underlying geographical structures. The conclusion summarizes the spatial evolution and its driving forces, highlighting the overall characteristics and influencing factors behind the formation, development, and change of this spatial pattern.

2 The distribution pattern of educational establishments in Xi'an (1911-1949)

2.1 The initial formation in 1911: legacy of tradition

In 1911, the spatial distribution of educational establishments within Xi'an's old city exhibited significant regional variability, heavily influenced by the city's traditional functional zoning. The city, divided into four quadrants by the central crossroads, showed a clear concentration of resources in the northwest and southeast corners.

The northwest quadrant was the most densely populated with 42 schools, forming an educational cluster closely linked to its status as the political centre. Schools were densely distributed around important administrative institutions like the Governor's Yamen, particularly along the axis from the Bell Tower (Zhonglou) to Beiyuanmen. This area hosted a complete educational complex, including vocational schools, higher schools, middle schools, and various primary schools (government, private, and elementary).

The southeast quadrant, with 15 schools, was a traditional cultural and educational district. Schools were concentrated around Shuyuanmen, many converted from former academies (Shuyuan) and the examination hall (Kaoyuan). Spatially, they showed a contiguous distribution, reflecting the historical origins of the area. The types of educational facilities here were relatively homogeneous, dominated by higher and secondary school academies.

In contrast, the northeast quadrant (Mancheng area) had only five schools, primarily government-run establishments clustered around the General's Yamen, forming a distinct military education zone. The southwest quadrant's nine schools

were more scattered, often distributed in a band along the inner side of the city wall, particularly concentrated on both sides of north-south streets, a pattern related to the area's accessibility and mixed administrative-commercial function.

Outside the city gates, distribution was highly uneven. Dongguan (East Gate) had 9 schools, benefiting from its role as a traditional trade hub, a deep cultural and educational tradition in Changle Square, and early exposure to Western influence, which facilitated the establishment of church schools. Xiguan had 4, while Nanguan (South Gate) and Beiguan (North Gate) had only 1 each.

The spatial evolution began with the comprehensive reconstruction of traditional educational facilities after the late Qing education reforms. Official schools, academies, and examination institutions were converted into new-style schools. For instance, the Guanzhong Academy was converted into a teacher training college in 1903, and the Luzhai Academy in Dongguan was converted into a county two-grade primary school. These alterations often maintained the original location advantages but acquired new functional positioning, thereby preserving the spatial pattern of traditional cultural districts.

2.2 Reorganisation and diversification in 1931

By 1931, the overall distribution pattern remained within the old city and city gates, inheriting the late Qing framework. However, microscopic changes occurred following the 1912 decree converting academies into schools. The types and nature of schools diversified, with the emergence of universities with modern educational connotations, and the construction of educational establishments was no longer dominated by the government, with the emergence of privately or privately-run secondary and primary schools.

Despite constraints from successive years of disasters and warlordism, which led to a contraction of schools within the city, the distribution showed a clear tendency to cluster around government institutions and commercial districts. The northwest corner (16 schools) and northeast corner (7 schools) formed educational agglomerations centred on provincial administrative bodies like the Provincial Education Department and the Sui Jing Office.

Commercial areas around the Bell Tower and Dongguan's Changle Square also saw school clustering, primarily primary schools, reflecting the demand in densely populated commercial zones. Church schools, such as the Ledao School (founded 1912) and Zunde Girls' School (founded 1915), became spatially significant in Dongguan and Xiguan, forming a symbiosis between foreign religious schools and local education.

2.3 Wartime upheaval and evacuation in 1939

The Japanese bombing of Xi'an in 1938 triggered a significant spatial evacuation of educational facilities. The total number of schools within the city dropped from 33 in 1931 to 24 in 1939, a decrease of nearly 30%. Higher-ranking institutions like universities and high schools moved out en masse.

The northwest corner's school density plummeted from 16 to 8, and the southeast corner, the traditional cultural district, was severely affected, shrinking from 4 schools to 1. Conversely, the southwest corner and Beiguan saw slight increases. The remaining schools were predominantly located at the edge of the city wall or deep in the alleys, showing obvious characteristics of risk aversion site selection. This evacuation reshaped the educational hierarchy into a spatial pattern dominated by primary schools, with secondary schools as a supplement. This change reflects the reconfiguration of educational resources during the wartime and provides important clues for understanding the continuity and rupture of modern educational development in Xi'an.

2.4 Post-war reorganisation and expansion in 1949

On the eve of liberation in 1949, Xi'an's educational space underwent a complete reorganisation. The total number of schools in the old city reached 55, but the distribution pattern shifted markedly. The northeast corner emerged as a major educational cluster with 22 schools, many distributed around provincial government institutions. The northwest corner also had 22 schools, but with a greater concentration of professional schools, such as the Provincial Pharmacy College within Guangren Hospital.

A key feature was the expansion beyond the city walls, driven by urban growth. Development stretched northward near the railway station, southward with new university campuses (e.g., National Northwestern University), and eastward along the line from Longqu Fort to Changlefang. This created new educational zones catering to industrial workers and a growing population. The period also saw the formation of a networked distribution of Central National Schools (中心国民学校). By 1949, Xi'an city had 30 central national schools, and Chang'an County had 97, plus 602 Bao-level national schools, forming a comprehensive rural education network, often set up in public buildings like township offices and ancestral temples.

3 The geographical structure of educational places

3.1 Influence of the original urban pattern and point-axis distribution

The geographical structure of educational venues was profoundly influenced by the continuity of Xi'an's original urban pattern. The old city, with the Bell Tower at its centre and the four main streets radiating outward, remained the core. The city's original political, economic, cultural, and educational functional areas were inherited to varying degrees during urban spatial transformation.

Educational spaces exhibited a distinct point-axis distribution, evolving from a single centre to a multi-centre network. Initially, the Bell Tower crossroads formed the earliest axis. The opening of the Longhai Railway created a new north-south development axis, driving the clustering of educational facilities around the railway station. By the 1930s, with urban functional zoning, the point-axis distribution became polycentric and networked, with new axes extending eastward (centred on Changle Square), southward (university town), westward (along Xiguan), and northward (new town). Educational places on each axis had functional divisions, with universities at intersections/ends, secondary education in the middle, and basic education forming a networked service system within the axis coverage.

3.2 Inheritance and transformation of literary and educational functional areas

The continuity of traditional cultural and educational areas was remarkable. The southeast corner, centred on the Guanzhong Academy, remained a core educational district. Sites were continuously repurposed: e. g., Guanzhong Academy -> Shaanxi Normal School (1903) -> Provincial Normal School -> Xi'an Provincial Normal School (1945), and now Xi'an College of Arts and Sciences. Similarly, the Shaanxi University Hall (1902, Donghuangmen) -> Northwest University (1912) -> Shaanxi Law and Politics College -> National Northwest University (1924) -> Xi'an Sun Yat-sen College -> Provincial Xi'an Higher Secondary School. This demonstrates strong path dependency. The transformation of religious buildings (e.g., mosques in Hui communities establishing modern schools like Jingyi Primary School in 1922) presents another paradigm of geographical continuity.

3.3 Clustering in political functional areas

A clear geographical characteristic was the clustering of educational establishments around political organs. During the late Qing New Policy period, the Patrol School, the School of Law and Politics, and the School of Magistrates were clustered near political organs around the Bell Tower. In the early Republic, this continued: the First Shaanxi Provincial High School (1913) was adjacent to the Provincial Education Department; private Chengde High School (1917) was near the Pacification Administration Office; Xi'an No.1 Girls' Vocational School (1928) was adjacent to the former Salt Law Office. In the 1940s, schools for railway employees were built next to the Railway Administration office. This clustering reflected the improvement of the educational administrative system and facilitated unified management and resource integration.

4 The spatial evolution of various types of schools and driving forces

4.1 Spatial evolution by school type

Universities: Evolved from being located in repurposed academies and government schools within the southeast corner to a dispersed pattern in the early Republic (e.g., National Northwestern University's faculties were distributed across different density areas in 1912). Eventually, they moved outwards, with the new campus of National Northwest University established south of the city in 1946, reflecting a demand for open space and marking a departure from the traditional urban core.

Secondary Schools: In 1911, four secondary schools were scattered. By 1931, 14 schools showed clear agglomeration, forming high-density zones in the northwest corner and medium-density zones in Dongguan. The war caused severe dispersal in 1939 (only 2 remained). By 1949, a reorganisation occurred, with new clusters in the northeast corner and renewed density in the northwest, alongside expansion to the northern suburbs.

Primary Schools: Showed a clear dichotomy inside/outside the city walls at the end of the Qing. Inside were higher-level schools; outside were numerous elementary schools. Over time, they spread throughout the city. The most significant development was the massive expansion of the National School system, creating a hierarchical network (30 central national schools in Xi'an city, 97 in Chang'an County in 1949) that achieved widespread basic education coverage.

Vocational Schools: Initially clustered around political sites in the late Qing. Early Republican development was limited, mainly in the northwest and Xiguan. During the municipal construction period (post-1940), they improved and formed a concentrated distribution belt north of the provincial government in the northeast corner, closely linked to industries and

administration.

4.2 Driving by population structure and education demand

Demographic changes profoundly impacted school distribution. The concentration of the Hui population in the northwest corner led to the establishment of specific Hui schools around mosques in areas like Huajue Lane and Dapiyuan from the early Republic of China onwards. Furthermore, the influx of industrial and commercial workers, particularly around the railway station in the northeast (Xincheng District), created a demand met by schools like Rotary Middle School (1937) and schools established by trade associations (e.g., Rickshaw Association Children's School, 1945). This directly linked educational spatial expansion to demographic shifts and economic development, enriching the urban industrial and commercial sphere.

5 Conclusion

The spatial evolution of educational places in Xi'an from the late Qing to 1949 reveals a dynamic interplay between tradition and modernity, continuity and rupture. The development progressed through distinct stages: initial transition and inheritance (late Qing), systemic reorganisation amidst constraints (early Republic), wartime disruption and evacuation (1930s), and post-war reconstruction, functional improvement, and spatial expansion (1940s). Spatially, the pattern evolved from a structure heavily dependent on the traditional urban core and its functional zones to a more complex, polycentric, and expanding layout. This was characterised by a point-axis distribution radiating from the Bell Tower and later incorporating new axes like the railway, and by distinct regional agglomeration (political SE, cultural NW, industrial NE). The hierarchical system matured from a three-tier school system to a multi-level one, and functional zoning became more specialised.

The evolution was driven by a combination of factors: the enduring influence of the original urban structure and historical-cultural path dependency; the direct impact of government policies and administrative clustering; the disruptive force of warfare; the constraints and opportunities presented by the natural environment; and the changing demands of a shifting population structure (indigenous groups, educational migrants, industrial workers). The case of Xi'an demonstrates that the modernization of educational space was not a simple overlay of new models but a complex process of reconfiguring existing urban space, deeply embedded in the broader historical, political, and geographical context of the time. These findings are significant for understanding the law of education development in modern cities and have implications for contemporary educational space planning.

About the Author

Haoxuan Peng, Master, research interests: historical urban geography and educational geography.

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