

IMAGES OF CHANGING URBAN FORM: A CASE STUDY OF BEIJING

Yan, X. and Marans, R.W.
The University of Michigan, Department of Architecture
Michigan, Illinois
USA

INTRODUCTION

Since the early 1950's, extensive reconstruction has taken place in Beijing, China. As a result, the city of today differs from its past in several respects: size and scale, street layout, land use patterns, architectural style, and type of housing. Taken together, these changes have altered the city's form and have given rise to questions about the impact of these changes on the image of the city among its inhabitants.

An image of a city or other physical environment is a mental representation of the outside physical reality as it appears to each individual. This representation is determined by both the physical environment and the meanings and values associated with it. A city like Beijing that experiences extensive change in its physical form as well as changes in the meanings and values associated with various city elements inevitably experiences a change in its image. By tearing down the old or erecting new buildings and places, what changes is not only the physical reality but also the meanings and values associated with that reality. In other instances, a city element may remain physically untouched, such as a historical building, but its functions, and thus its meaning and value, may be different from those that existed at the time the building was built.

In this paper, images of the changing form of Beijing are considered. It does so by examining people's reactions to change in several key elements of the city. The paper draws on a larger study of imageability and environmental quality (Yan, 1990) and addresses two key questions: 1) What are people's images of Beijing as it has changed over time? 2) What factors contribute to these images?

The study takes Lynch's work (1960) as a point of departure and asserts that city images are composed of five key elements: paths, nodes, districts, edges, and landmarks, and that change in any of the five elements can significantly affect the public's image of the city. It also is based on the premise that elements comprising a city's image are those that have strong meanings and values to the public.

LITERATURE REVIEW

Since Lynch's pioneering work in 1960, several efforts have been made to expand upon his classification of the city, according to the five elements noted above. In one effort, Appleyard suggested that cities can be understood and structured by elements in either a sequential or spatial manner. That is, people's images are made up of elements linked together along paths or elements clustered together to form districts (Appleyard, 1976).

Other writers have explored the issue of why some buildings and places contribute significantly to a city's image while others do not, and how and why only a few of the many elements of a city are selected to form its image. For example, why are certain districts known better than others; why do some buildings become landmarks while others do not; and why are certain paths remembered while others are forgotten. These questions are central to Lynch's concept of city imageability (1960).

Rapoport (1977) has suggested that the uniqueness of design of elements (i.e., the noticeable difference in their physical appearance) contributes significantly to the imageability of a city while the meanings associated with the elements make those elements noticeable. Similarly, Appleyard (1976) has suggested that the distinctiveness of form is a key indicator of imageability. In his study of Ciudad, Guayana he concluded that the uniqueness of buildings and the extent to which they are visible, used, and symbolically significant helped residents structure their images of the city.

What is symbolically significant to the public, however, is not necessarily significant to design professionals. Several empirical studies have reported strong disagreement between environmental design professionals and the public in their preferences, evaluations, and images of the environment (e.g., Lansing and Marans, 1989; Zube, 1974). It was found, for example, that designers usually prefer higher levels of complexity and ambiguity in the environment than the public (Rapoport, 1977). In another study, Milgram and Jodelet (1977) found that architects' mental maps of Paris were significantly different from the maps of resident Parisians. The former were more spatially oriented in the sense that they looked like tourist maps, while the latter mental maps were composed of both places and the activities associated with those spaces.

RESEARCH METHOD AND APPROACH

The study from which this paper is drawn was carried out between 1987 and 1989. The data were obtained mainly through survey questionnaires administered to samples of city residents and design professionals and through face-to-face interviews with sub-samples of both groups of respondents. A review of reconstruction documents and local newspapers and on-site observations provided supplemental information.

The surveys produced data used for descriptive purposes and in examining hypothesized relationships. Richer and more detailed information, obtained from the personal interviews, was helpful in interpreting relationships found when analyzing the survey data. The reconstruction documents and newspapers were used to understand the context within which change in the physical form of the city took place, while observations contributed to an understanding of people's behaviors in public places.

significado del medio construido. Madrid: Tecnos.

GIMBLETT, H.R.; ITAMI, R.M. y FITZGIBBON, J.E. (1985), Mystery in a information processing model of landscape preference. *Landscape J.*, 4, 87-95.

GONZALEZ-BERNALDEZ, F. (1985) *Invitación a la ecología humana. La adaptación afectiva al entorno.* Madrid: Tecnos.

KAPLAN, s. (1983) A model of person-environment compatibility. *Environment and Behavior*, 15, 311-332.

KAPLAN, S. (1987), Aesthetics, affect and cognition. *Environment and Behavior*, 19, 3-32.

KAPLAN, S. y KAPLAN, R. (1982) *Cognition and environment. Functioning in a uncertain world.* N. York: Praeger.

HERZOG, T.R. (1987), A cognitive analysis of preference for natural environments: mountains, canyons and deserts. *Landscape*, 6 140-152.

HERZOG, T.R. y SMITH, G.A. (1988), Danger, mystery and environmental preference. *Environment and Behavior*, 20, 320- 344.

LYNCH, K. (1960), *The image of the city.* Cambridge: MIT Press.

RUSSELL, J. y WARD, L.M. (1982) Environmental Psychology. *Annual Review of Psychology*, 13, 651-668.

WOHLWILL, J. F. (1976), Environmental aesthetics. En: I. Altman y J.F. Wohlwill (Eds.), *Human behavior and the Environment.* N. York: Plenum.

Figure 1 Beijing During the Qing Dynasty (Liu, 1980)

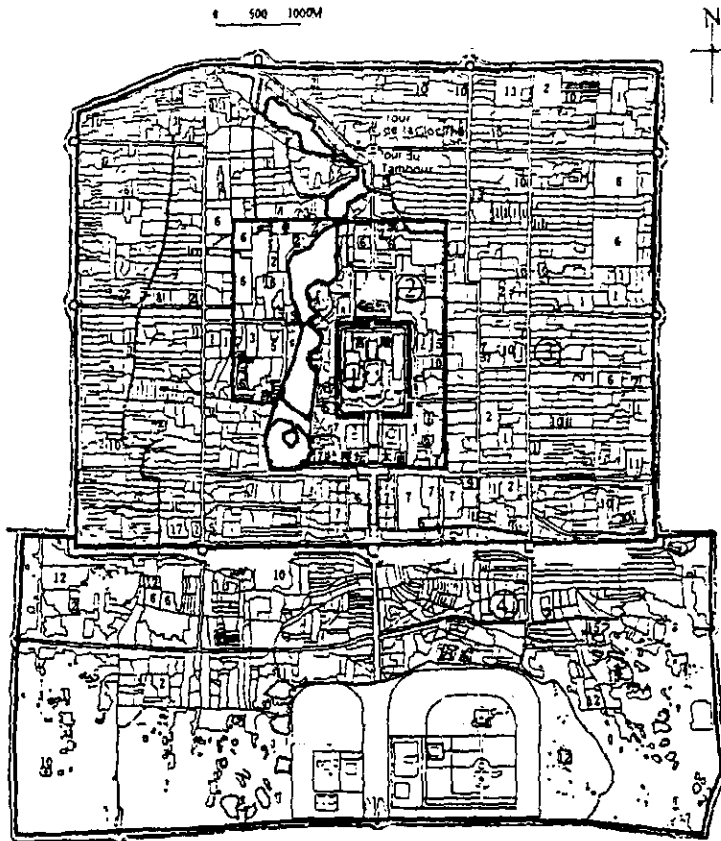
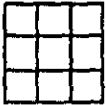
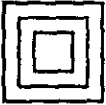
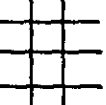



Table 1 Geometrical Diagrams Representing Old Beijing (Percentage Distribution)¹

				
	A	B	C	D
Residents	19.5 (59)	59.9 (181)	4.6 (14)	15.9 (48)
Professionals	56.3 (27)	35.4 (17)	2.1 (1)	6.3 (3)

¹Numbers in the parentheses indicate the number of respondents.

Most residents picked Diagram B indicating that their images of Beijing as it existed in the past were significantly influenced by the three enclosing walls: the Forbidden City, the Imperial City, and the Inner City. In fact, this was confirmed in interviews with residents who referred to the three walls when describing places where events had taken place in the old city. Phrases such as "inside/outside the Inner City wall," and "to the east (west, south, or north) of the Imperial City" were frequently mentioned. The gates that once existed as having controlled city life by opening during the day and closing at night, and the gate towers, were frequently noted by elderly respondents. Even the younger respondents referred to the gates even though they no longer exist.

The checkerboard pattern of streets, represented by Diagram A, was less important to the residents than to professionals in forming their images of old Beijing. Only one in five residents selected this pattern to represent their image of the old city, as opposed to more than half of the design professionals.

In Lynch's study of cities where mobility was important, paths (i.e., streets, highways) were the most important of the five elements used to define the city image (1980). In this study, the edges, represented by city walls, were the most important elements in forming the public's image of old Beijing. The walls were seen as physically dominant and their influence on city life was considered to be strong. The walls were also dominant because the main streets in old Beijing were rarely used, since city life was localized.

It is interesting to note that, although the Imperial Axis is highly significant to the form of the old city in the professional literature (Boyd, 1962; Bacon, 1978; Lynch, 1983), only 6% of the professionals selected Diagram D depicting its dominant role. Similarly, less than 20% of the residents selected Diagram D. Although the Imperial Axis might have been important in imperial times for ceremonial activities, its limited use by the general public in the past contributed to its insignificance in the minds of both sets of respondents.

A similar question using diagrams asked about the the image of contemporary Beijing (see Figure 2). Among the four diagrams (see Table 2) presented in the questionnaire, Diagram A represented an image whose structure is influenced by the Inner City at the center and the outward expansion of satellite towns. Diagram B shows a centralized image that is determined by a central core and two round paths--the Second Ring and Third Ring highways. Diagram C reflects a city with a checkerboard street layout, and Diagram D symbolizes another centralized image emphasizing the city's new street system--round plus radiate highways.

As shown in Table 2, an overwhelming majority of the residents and professional groups selected either Diagram B or Diagram D, which have much in common. By selecting these diagrams, the respondents indicated that their image of the new city was influenced by major paths--the Second Ring and Third Ring roads. In addition, the selection of Diagrams B and D presents further evidence that the image of the city today is still very much a centralized one within a well defined central "node."

Figure 2 Main City Street Pattern

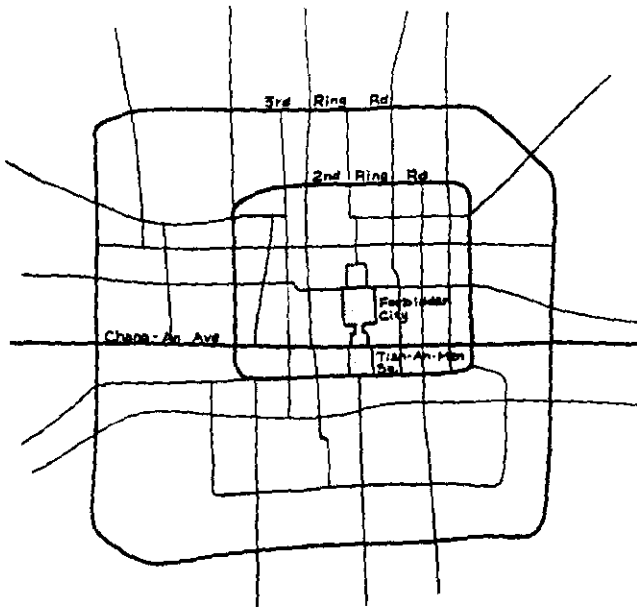
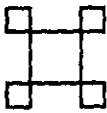

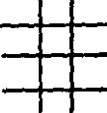
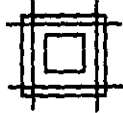


Table 2 Geometrical Diagrams Representing the New City (Percentage Distribution)¹

				
	A	B	C	D
Residents	11.4 (34)	43.5 (130)	3.3 (10)	41.8 (125)
Professionals	-	38.6 (17)	4.5 (2)	56.8 (25)

¹Numbers in the parentheses indicate the number of respondents.

The important role of the city's ring highways in determining the image of contemporary Beijing is due to three related factors. First, the highways are modern-looking and their physical size is impressive to the residents. Being the most important paths of the city, they were designed to present-day engineering standards. In talking about the city's reconstruction, several people cited the two highways as the major achievement of the city's reconstruction. More than forty residents stated that some of the vertical intersection bridges along the highways were among their most liked new city structures. Second, the extensive use of the highways contributes to their prominence in people's minds. The highways are the busiest roads in the city. Third, the significance of the Second Ring highway is because of its association with the demolished city walls; it was built on the site of the demolished old city walls.

Central Node--Forbidden City and Tian-An-Men Square

In the 1950's, Tian-An-Men Square was extended to a large open plaza which is capable of hosting thousands of people. The square sits in front of the Forbidden City, which was the Emperor's palace and now is a museum of imperial architecture and life. The extension of Tian-An-Men Square was one of the most significant reconstruction projects since the 1950's. The extension was intended to shift the symbolic center of the city from the Forbidden City to the square. The extended square and the Forbidden City together form a complex and make up the most important part of the city--the central area. Is the extended square perceived by the public as the heart of the city? How does the whole complex of the square and the Forbidden City influence the image of the new city?

In order to answer these questions, questionnaire data, the interviews, and old newspapers were analyzed. The square was definitely perceived as the center of the city. As discussed above, the public's image of contemporary Beijing is still that of a centralized city. In talking about the city, respondents had little difficulty recognizing the square as the center. Many people began their description of the city by mentioning the square. In fact, when discussing the square, respondents often said "the center of Beijing," "the symbol of the capitol city," and "the most prestigious part of the city." In addition, when asked to list six places that were most worthwhile for visitors to see, the square was identified by more than 90% of the residents.

What qualities of the square contribute to its prominence in people's minds? The dominant architectural character of the buildings surrounding the square contributes to its prominence. While the historical Tian-An-Men Rostrum on the north and Zheng-Yang-Men Gate Tower on the south have a distinct aesthetic quality, the Great People's Hall on the west and the Museum of History on the east have their own grand style. Both are in harmony architecturally with the Rostrum and the gate tower. In fact, these two new buildings were among the ten most liked buildings in the city mentioned by residents. In observing activities in the square, it was found that all these surrounding buildings were photographed by thousands of people daily, suggesting that people were impressed by their unique features. As in the case of the buildings surrounding the square, the unique architectural quality of the Forbidden City contributed to its prominence in people's minds. When discussing it, it was clear that the residents of the city were very proud of its architectural achievements.

In addition to its physical attributes, the social and cultural meanings associated with the square contribute to its prominence and centrality in people's minds. When describing the square and its surroundings, respondents often mentioned political events such as the parades, mass

political meetings and the late Mao's reception of the Red Guards during the cultural revolution. The functions that took place in the Great People's Hall (i.e., China's legislature) and at the mausoleum of the late Mao were also mentioned as being politically significant. In the public's mind, the meaning and social value of these events was an integral part of the square.

The history of the Tian-An-Men Square and the Forbidden City complex also contributed to the public's image of the area as the center of an ideal capitol city. The square and the Forbidden City are visited by tens of thousands of people daily. Many go there to see the imperial architecture and exhibition of imperial life. When asked to list six of the most interesting sightseeing places in the city, nearly all respondents (95%) named the Forbidden City as one of them. In fact, the influence of the whole complex on the image of the city can be best summarized by one respondent's comments: "The Forbidden City is the symbol of the historical capitol, while the Tian-An-Men Square symbolizes the center of the new city." The two elements taken together represent a major historical node.

Architectural Style and City Image

Since the 1950's, many buildings have been built in the city. In fact, the number of buildings constructed since the 1950's is four times greater than that which existed in the old city at the end of the 1940's (Reconstruction, 1985). Since buildings are doubtlessly important elements of a city's physical form and its public image, it is important to know what specific kinds of buildings contribute to the image of the city and why.

As part of the questionnaire, respondents were asked to name ten buildings in Beijing they most liked. Surprisingly, the same seven buildings were selected by both professionals and residents: Great People's Hall, Great Wall Hotel, Palace of Nationals, New Beijing Library, China Gallery, Beijing Exhibition Hall, and International Hotel. Three additional buildings selected by residents were the Museum of History, the Military Museum, and the Beijing Railway Station. The World Exhibition Center, Fragrant Hotel, and Jian-Guo Hotel were mentioned by the professionals.

For both residents and professionals, the new buildings of the monolithic "international style" were less favored than those of the neo-classical style that adopted a traditional architectural vocabulary, even though the former are more prevalent in the city than the latter. Among the ten buildings selected by the residents, only two, the Great Wall Hotel and International Hotel, can be characterized as having an "international style." The eight remaining buildings are all designed with traditional architectural symbols, such as roof lines, column forms, and facade materials. For the design professionals, the buildings selected reflect a positive attitude towards the neo-classical style. Among the buildings chosen that were new, seven of ten used traditional architectural symbols.

Why were these buildings liked and deemed valuable by the public? The data from the study suggest several reasons why the above-mentioned buildings were singled out. First, visual character seems to be a significant factor in the public's preference of buildings. All the selected buildings are prominent and unique in their aesthetic quality. In the context of the city, they stand out in size, shape, contour, and decorative details. The Great Wall Hotel, although having a plain shape and facade, was mentioned by the public and appreciated for its unique wall materials. It is the only building in Beijing to use silver reflection glass curtain walls, and is considered very attractive by the general public (*People's Daily*:

7/22/88). In making the comparison, some residents indicated that they felt the buildings of the neo-classical style, such as the Palace of the Nationals, "had much more to see" than new buildings having a simple geometrical shape. They particularly liked the traditional curvilinear of glazed tiled roofs.

The importance of the visual character of buildings can be further supported by another factor. It was found that the public's preference for buildings was independent of their use. The thirteen buildings selected by respondents, including the Forbidden City and Altar of Heaven, were seldom used by the general public. For instance, more than 95% of the respondents indicated that they very rarely visited the Forbidden City. The hotels mentioned have little business with the ordinary residents, while the Great People's Hall is mainly visited by tourists. Even the new Beijing Library, which had only been open for a month at the time of the survey, was favored by the public. In short, the visual character of buildings, and not their use, was a major factor contributing to their prominence in the public's mind.

Second, the extent to which buildings are visible influences how much they are known by the public. That is, building visibility is an important factor influencing its selection by respondents as one that is liked. To the general public, building visibility is a function of its location. Buildings in downtown are most visible compared to those located in the suburbs. For instance, the Fragrant Hotel, located outside the downtown and designed by I.M. Pei, was preferred by 40% of the professionals and only 9% of the residents. Very likely, the difference between the two groups is due to the building's locational disadvantage. The hotel is located far away from the city center in a remote, hilly area. Similarly, the Beijing-Holiday Inn and Beijing-Shangrela Hotel, both located in a suburb area, were mentioned by only 2% and 3% of the residents, respectively. The Beijing-Holiday Inn was highly appreciated by design professionals.

Third, the media (i.e., TV and newspapers) is becoming an important vehicle through which city elements become known by the public. TV and newspapers are a visual linkage between environments and people. In the questionnaire, nine out of ten respondents indicated that TV was an important means through which they knew what happened to the city, and three-fourths of the respondents mentioned newspapers. In the interviews, some residents indicated they knew about the city's reconstruction through TV. For example, the opening of the new Beijing Library was reported on TV about a month before the survey. Other respondents said the renovation of the Tian-An-Men Rostrum was reported on TV; many had never visited the site. In fact, a young boy drew the Rostrum with reasonable accuracy, even though he had visited it only twice. His exposure to it was mainly from Chinese Central Television which uses it to introduce the evening news program.

Finally, the historical, social, or cultural meanings of buildings reinforce their prominence and identify in people's minds. In talking about buildings, respondents frequently mentioned their social, cultural, and historical associations. For example, the Great People's Hall in Tian-An-Men Square was identified with the nation's legislature. The Tian-An-Men Rostrum was associated with major political events. The Forbidden City, though now a museum, was still remembered as the Imperial Palace. In fact, among the ten most liked buildings, five were museums depicting the history and culture of the city.

SUMMARY

In sum, the study reveals several themes about the images of change in the form of Beijing. The three wall enclosures, as "edges" influence the public's image of Beijing as it existed prior to 1950. The checkerboard street pattern (i.e., paths), though highly cited in literature about the old city, was only significant to professionals and not to residents. The pattern of streets, however, is important to the image of contemporary Beijing among both groups. Streets are the predominant elements that structure the city's image and they are important because of their physical characteristics and their use.

Despite urban growth and suburbanization, the image of Beijing as a central city has not changed. Tian-An-Men Square and the Forbidden City, as the major "node," is key to the image of old and new Beijing as a highly centralized city. Their architectural character and their social and cultural meanings to residents and professionals contribute to their predominance in the public's image of the city.

Finally, buildings of the neo-classical style were more favored over those of the international style. In large part, they were better known and preferred because of their strong visual character, an important factor affecting the city's overall image.

As illustrated by the case of Beijing, the visual character of city elements, the meanings and values associated with them, and their uses are the key determinants of the city image. Further change in any of these conditions will undoubtedly alter the form of the city and, consequently, its public image.

REFERENCES

1. Appleyard, D. (1976) *Planning a Pluralist City: Conflicting Realities in Ciudad Guayana*. Cambridge, Massachusetts: The MIT Press.
2. Bacon, E. (1978) *Design of Cities*, revised edition. New York: Penguin Books.
3. Boyd, A. (1962) *Chinese Architecture and Town Planning: 1500 B.C. - 1911*. Chicago: University of Chicago Press.
4. Lansing, J. and Marans, R. (May 1969) Evaluation of Neighborhood Quality, *American Institute of Planners Journal*, Vol. 35(3).
5. Liu, D. (1980) *History of Ancient Chinese Architecture*. Beijing: China Building Industry Press.
6. Lynch, K. (1981) *Good City Form*. Cambridge, Massachusetts: The MIT Press.
7. Lynch, K. (1960) *The Image of the City*. Cambridge, Massachusetts: The MIT Press.
8. Milgram, S. and Jodelet, D. (November 1977) The Way Parisians See Paris, *New Society*, No. 3.

9. Rapoport, A. (1977) *Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban Form Design*. New York: Pergamon Press, Inc.

10. Reconstruction (1985) *Beijing Since the People's Republic of China*. Report edited by Editorial Board of Beijing Reconstruction History Series.

11. Zube, E. (1974) Cross-Disciplinary and Inter-mode Agreement on the Description and Evaluation of Landscape Resources. *Environment and Behavior*, Vol. 6.

12. Yan, X. (1990) *Human Impacts of Changing City Form: A Case Study of Beijing*. Unpublished doctoral dissertation. Ann Arbor: The University of Michigan.