Use and Spatial Patterns of newly developed Public Squares in Urban Villages in Shenzhen

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Abstract

This paper investigates the use and spatial patterns of newly developed public squares in urban villages in the City of Shenzhen, China. Given the lack of information about how this type of public space has been used by the Chinese, this paper provides insights that enable the development of more user friendly public space in China. The research is based on the fieldwork carried out in 2014 to examine public squares in four urban villages in Shenzhen. Direct observation and activity mapping have been used as major methodology for this research. The focus of this paper will be placed not only the formal aspects such as the design aspiration, scale and provision of public amenity, but also on the usage that includes types of users, there daily activity as well as their location preference.

The findings of this research address the failure of current design to meet the needs of the majority of users. Chinese public space users seem to have vastly different behaviour patterns compared with their Western counterparts, therefore many design guidelines emerged in the West can be misleading in China. As important, this paper identifies key issues related the design of public squares in urban villages and provides some hints to mitigate such issues. The paper concludes with design guidelines that reflect not only the cultural complexity of public spaces in China, but also how different scales can be mediated to generate a space that allows for a various activities to occur naturally.

Keywords: *public squares, Shenzhen, Use Patterns, spatial transformation, Chinese cities*

Introduction

Although Public Square is the quintessential type of public space in Western culture, it is still something very new in China. Those very first public squares were firstly built in the second half of the last century. Interestingly, over the last three decades, this type of public space has become the most popular one in many Chinese cities. The rapidly increasing number of public squares happens partly because it has been using as a central element of the redevelopment of many urban villages. Unlike Western cities, Chinese cities are often composed of hundreds of villages which have been transformed rapidly from rural to urban entities within a few decades. In Shenzhen alone, the number of such urban villages is nearly 250 (Zheng et al., 2009) and national wide, there are thousands of urban villages. Only a small percentage of these villages have been redeveloped recently, whereas the majority of them are already in the list of local government to rebuild in the near future.

This research paper takes the assumption that many of the remaining urban villages might follow a popular model originated in Shenzhen in which a Public Square is conceptualised as a central element of the whole new village. This model seems to gain more popularity as the model of conversing urban villages into high-raised housing tower communities has received much negative feedback from different perspectives. Considering the relevance and importance of the design of public squares in Chinese urban villages, we are interested in knowing how they have been used and whether the current design practice has addressed the daily needs of the actual users. This set of knowledge will certainly contribute to the making of more user friendly public squares in many urban villages in the years to come.

The lack of information about the use of the space

Given the fact that public space in general, and public squares in particular, have been introduced into China in a period when the country has undergone tremendous social, economic and political change, little attention has been paid to the use and the design of public space.

The majority of studies in China have approached the topic of public space from political and legal-economic perspective.[1] Many studies dating back to the 1990s

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[1] According to Neil (2010), there are three distinct perspectives in research of public space: political, legal-economic and social-spatial perspectives.

focused on the transformation of the development of the "public sphere" in China and the consequences on the use of public spaces as a disputed territory between the state and the society (Huang, 1993, Gu, 1999, Rowe, 1990, Wakeman, 1993, Rankin, 1993, Orum et al., 2009). In a similar vein, it is argued that newly developed public squares in China have been designed as a scene for the state to display its political power and achievement (Gaubatz, 2008, Padua, 2006, Hassenpflug, 2004, Pu, 2011), with much less attention being given to the people's daily needs. In addition, many studies report on the commercialisation and privatisation of public space in China that occurs due to an absence of institutional regulation which further compromises the rights of public space users (Chen, 2010, Pu, 2003, Pu, 2001, Broudehoux, 2004, Juan, 2010). These studies might provide information about some aspect of the use of public space; however, the quantitative information, which especially explains spatial behaviour in open spaces by the Chinese, is less evident.

Within a socio-spatial perspective, the majority of studies to date focus on the formal expression of design, embedded within a discussion of the development of Chinese modern identity versus the preference of Western models (Yang and Volkman, 2010, Hassenpflug, 2010, Yu and Padua, 2007, Bracken, 2009, Pu, 2011, Pu, 2001). These studies focused on the image and the identity of the space rather than how they have been used. For example, Pu Miao, a prominent public space researcher in China, often argued that the introduction of public squares into Chinese cities is not appropriate. According to him, the scale and design of Public Square is not matching with the fine grain of the urban fabric of Chinese cities. Therefore, he argued that it is better to develop many small connected courtyards instead of one or two large squares (Pu Miao 2011). In a similar vein, Yang and Volkmann suggest adopting the concept of the Chinese scholar garden, characterised by circuitous pathways and the provision of many small sub-spaces. However, it is worthwhile to note that these historical precedents were conceived as private spaces that were designed for the use of individuals. In contrast, public space in China now are widely used by large activity groups which need much more spacious settings than those offered by the Chinese traditional gardens.

In short, although the number of the studies of Chinese public space in general and public squares in particular has increased over the last two decades, the majority of them is failed to provide architects and urban designers knowledge about the use of the space including the demographics of users, their activities and their spatial preferences. In the rise of a more bottom-up approach to urban design, many authors would suggest

that the use of the space to be the main source of creativity (Carmona 2014; Gehl 2013; Marcus and Francis 1997; Whyte 1988) rather than any ideological preferences by architects and developers.

This research paper is extracted from a PhD at Victoria University of Wellington which aims to close this knowledge gap, providing concrete information about the daily use of public squares in urban villages in Shenzhen: what these daily use patterns are and whether current design practice has addressed the needs of the users. This paper is not interested in the historical development of the space as well as users' perception.

Methodology

This research paper is based on the quantitative analysis of direct observation and activity mapping of the central public square in Xiasha Village, a big urban village in the central areas of Shenzhen City.

The square was observed one weekday during January 2014 in six time periods from 7 am to 7 pm. The observation allowed us to map the use of the space by people according to the variables of gender, age groups, group-sizes and type of activities. The classification, see table 1, of the types of users is specialised for the Chinese context. School children and teenagers are nearly absent in public squares in a weekday, whereas there are plenty of the elderly and small children.

Figure 1: Classification of users

Demographics	Gender	Male	Female	Children
	Age	Old (50+)	Young (17-50)	Children
	Group Size	Big group (3+)	Couple	Individuals

Regarding the classification of activities, the Chinese context differs from Western counterpart given the popularity of group activity such as exercising, babysitting, singing and oftentimes sewing by women. In addition, sitting and standing will be also two main activities occurring during the day. In short, this set of data can provide information to answer the questions such as who the users are, what activities they do, when and where these activities are likely to occur.

In addition to activity mapping, the physical surveying of the site will provide concrete information about the provision of seats, the size of the space and other amenities that

might affect the use of the space. Along with the activity maps and observation notices, photos have been taken also for the investigation at later stages.

Figure 2: Example of an activity map
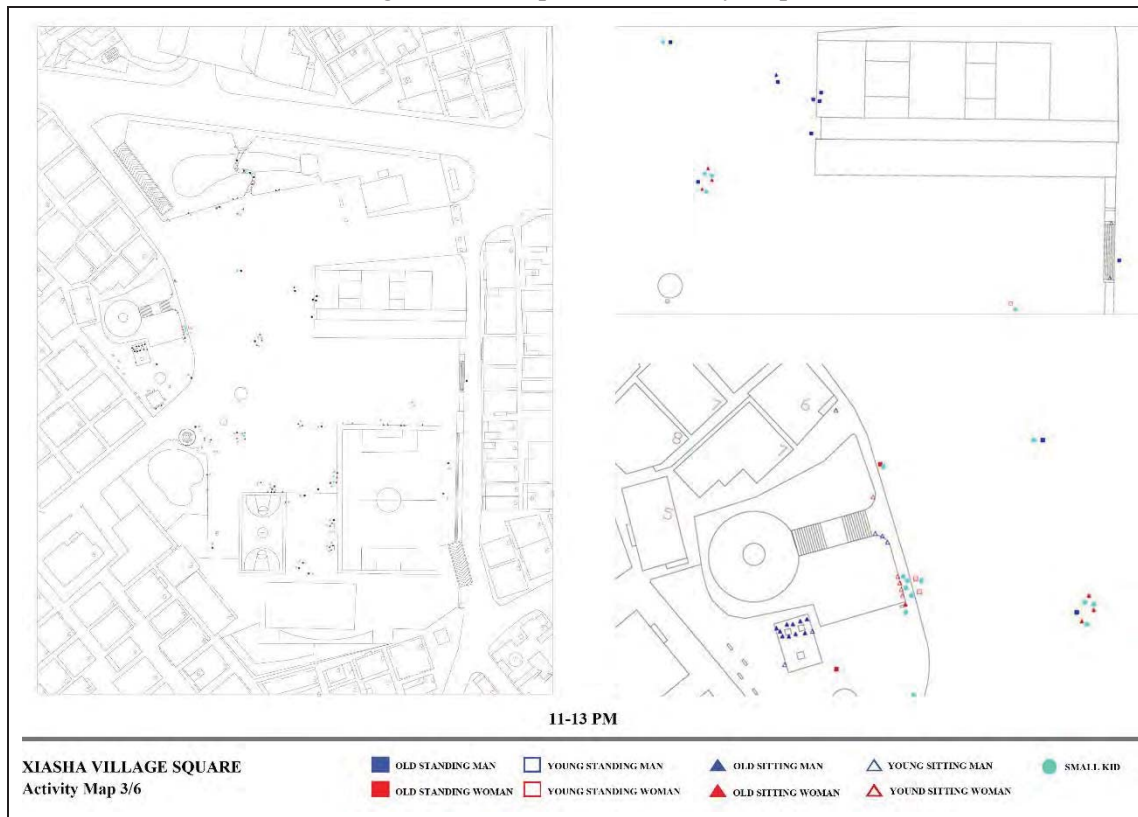
Introduction of case study: Xiasha Village and its central Square

Xiasha Village is located on the southwest of Futian District, a central District in the city of Shenzhen. The village is connected with three main transportation lines: Binhe Road, Shennan Road and the Guangzhou-Shenzhen Highway. Xiasha village is the home of nearly 60 thousand former villagers. Given its superior location and convenient transportation, Xiasha Village has attracted a large amount of working migrants which has brought an enormous amount source of income for former villagers as well as the local government of the village.

Figure 3: Location of Xiasha Village near Shenzhen CBD (right; source: P.Hao (2011), p6)
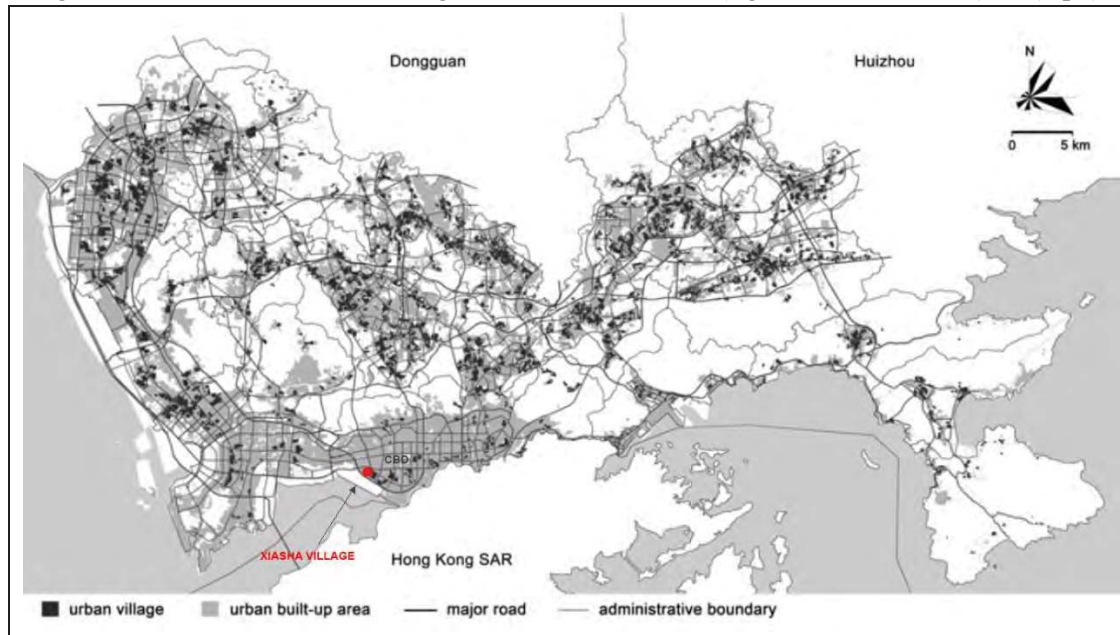

Similar to many other urban villages in Shenzhen, former villagers have lost their rice fields when the city expanded. Many of the former villagers have no skills or adequate education for the job market of a global city such as Shenzhen. Therefore, for many former villagers, the main income is generated from the right to rebuild their house to become low-budget renting apartment for migrant workers from the countryside. As the land ownership in urban villages is collective, many villages organise themselves as joint-stock enterprises which will be in charge for the redevelopment of public structure of the village. The location and structure of the village can be seen in figure 3 below.

The urban structure of the redeveloped urban village

Xiasha village has been transformed rapidly over the last three decades. Between 1995 and 2000s (Ma 2006), the old organic street network of the village and decaying houses were replaced by a new rationally planned structure. A central square was added at that time as well.

Figure 4: Location of Xiasha Village (left; source: Google); Current structure of the village (right; source: Ma Hang 2008, p198)
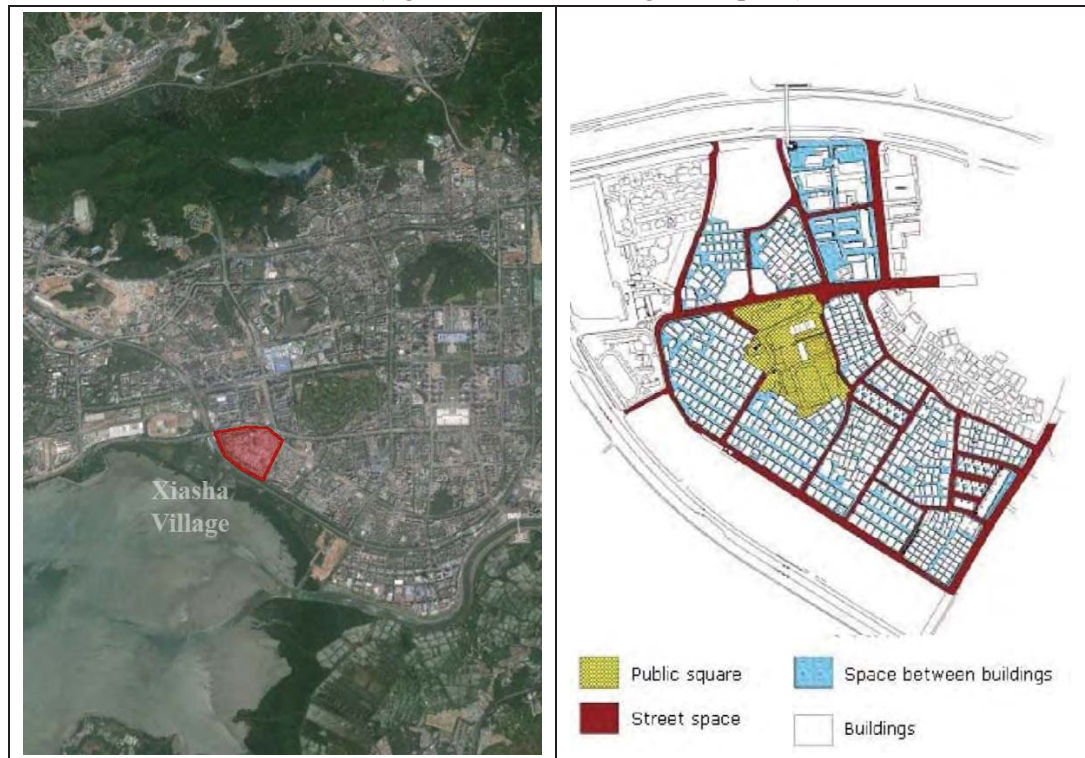
The newly developed urban structure of Xiasha village represents a typical pattern which can be seen in many other villages in this kind. A network of local streets divides the village into a dozen of blocks. In turn, each block will be divided into relatively equal-sized building plots. Each household of former villagers will have the right to build their house on one of the building plot whose size is roughly 100 square meter. Since renting becomes the main source of income for most of villagers, the underpinning logic behind the masterplan of the village is maximising the building areas. In order to achieve this, the public space such as local streets and alleys were kept to the minimum. Most of alleys within the village are less than two meter which cannot meet the requirement of basic sunlight and or ventilation (Ma and Wu, 2004), especially when most of the buildings have more than five floors.

Figure 5: Xiasha from above (left); Typical alley in Xiasha (right)

The focus on maximisation of renting areas as well as the equalisation of the land area for each household has generated a messy landscape of low-budget housing towers and unusable space between the buildings on the one hand. On the other, the local streets are often overcrowded of trading and small business activities that in turns also exacerbates the quality of street as public space in the village.

In this circumstances, the central public square should serve as the main open public area for leisure activity purposes for a large number of local inhabitants. The question is however whether the design of the space has fulfilled this expectation by addressing the daily needs of people.

The Central Square of Xiasha Village

The public square of Xiasha village is one of the largest squares in urban villages with a metric size of over three hectares. Xiasha village square contains some typical public facilities that can be seen also in other public squares of this kind such as an ancestral hall, an open stage, two religious temples, and a Village Gate. Being the only large public open space in the village, the square's design includes also two fenced sport fields and an underground public car park (see the map below). In addition, the ground of the square is mostly paved and carved with Chinese motifs, which give the space a strong sense of local culture.

Figure 6: Layout of the Square
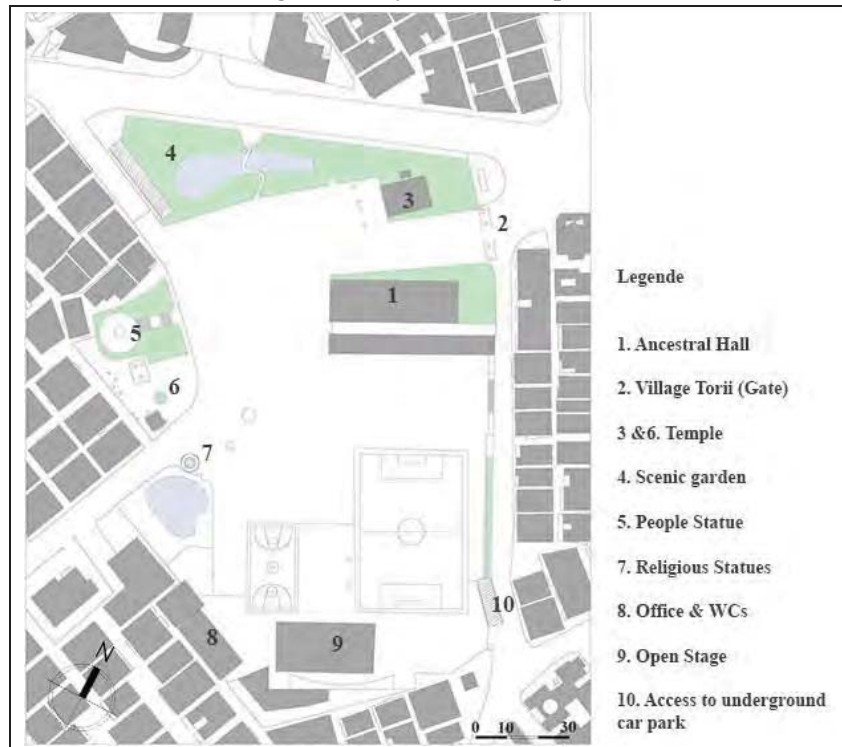
According to Chinese researchers, the design of the space is comprehensive and includes many unique characteristics that can hardly be seen in other 'villages' (Ma 2006). From my personal experience, the square has some interesting sub-spaces such as the scenic garden (figure 7 right), the space at the Gate and around a small temple (number six in the map figure 6).

Figure 7: The gate of Xiasha Village (left); A scenic garden at one side of the square (right)

However, despite the picturesque characteristics of the space, it is uncertain about how the space has been used and whether its design has addressed users' everyday needs. The following sections will attempt to answer these questions.

The Demographics of Public Space Users in Urban Villages

The demographics of the users is a crucial source of information for designer (Lynch and Hack, 1984). Designers should know who they design for. A public space is open for the general public, but given its location and the preference of users, a public space might attract one particular group of users over the others. For example, public squares in American city downtown are likely used by office workers than other groups. This demographic investigation should identify the majority of users of public squares in urban village and perhaps also providing information about the absence of particular groups. From informal observation, it is suggested to divide the demographics of users into three sub-categories: age groups, gender and group sizes.

Age Groups

The result of our observation in a weekday exposes a striking fact in Xiasha village is that nearly 60 percent of public space users are the elderly. This number is proportionately extremely high as according to the population census 2014 (Index-Mundi, 2014), the percentage of people older than 55 in China is about 20 percent of the whole population. Especially in Shenzhen, a young city where only 1.22 percent of the population are over 65, this figure suggests that public square is much needed by the elderly.

Figure 8: Age groups of public space users

PERCENTAGE OF USERS AFTER AGE

0.29

0.57

0.14

■ OLD PEOPLE   ■ WORKING PEOPLE   ■ KID
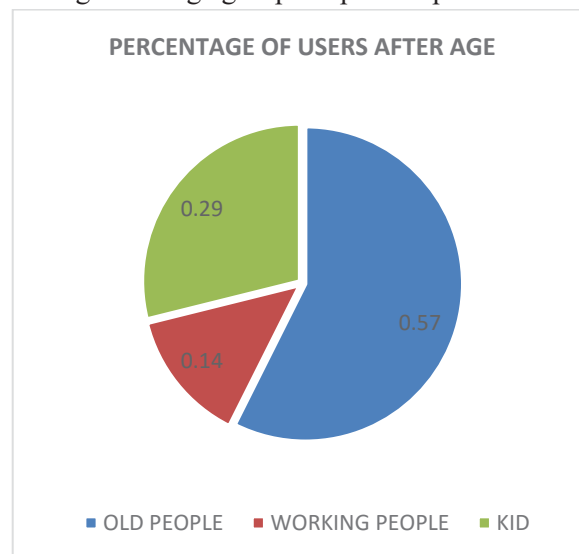
By contrast, the amount of working people with age of roughly between 18 and 55 is proportionately low, contributing less than 15% of the whole. The number of working people is less than half of the number of small children observed in the space.

Gender of Public Space Users

The ratio between male and female users of public space often reflects the local culture and society. A famous historical painting of a Chinese city (see figure 9) shows that mainly men were present in traditional paintings of urban public spaces. Indeed, prior to the Communist Revolution in 1949, the presence of women in public was highly restricted due to the patriarchal nature of the Confucian ideology which had institutionalised a strict separation of the spheres, associating women with the inner sphere and men with the outer sphere (Bray, 1997, Leung, 2003, Cheng, 2000).

Figure 9: Famous Painting from the Qing Dynasty: only men found in public space
(Wu, 1997)

The Communist ideology however has equalised the role of women in the Chinese modern society, and it might entail certain positive impacts on the presence of women in public space (Jin, 2011). In the post-Maoist era, although the influence of the Confucian ideology is still present, a different image of public spaces was found in China.

In fact, our data suggests that the number of women found in Xiasha village square is slightly higher than that of men. The mean percentage of women is about 38 percent, whereas that of men is 33 percent (see figure 10) which is only slightly more than the number of children.

Figure 10: Gender of public space users
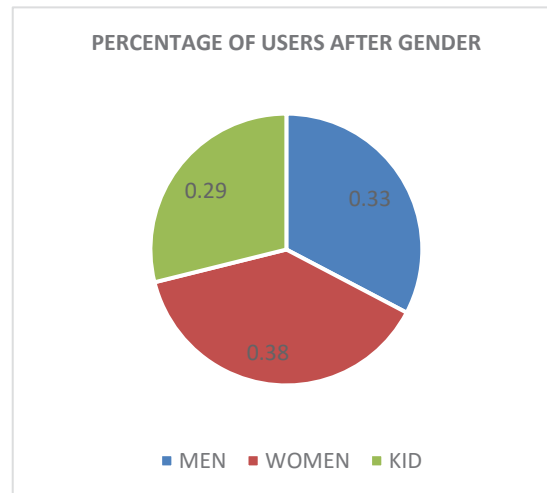
Group Sizes

The size of the group might affect the preference of location in open public space. People in groups often select to situate at where they can have a face-to-face conversation. At the other end, individual users often select location with ability to see others but not to be highly exposed. The information of the size of the groups, therefore, also provide useful insight for designer in the development of user friendly public space.

Another significant finding is that the majority of public space users were found in groups of more than three people. On average, nearly two-thirds (65 percent) of total users belong to one of the big groups. The concrete number of people in big groups varies to a large degree. While the typical size of big groups is about five to seven people, larger groups can be up to forty or more people. In contrast, the percentage of users, as individuals, is relatively low with a mean value of 13 percent.

Figure 11: Group sizes of public space users

PERCENTAGE OF USERS AFTER GROUP SIZE

0.13
0.22
0.65

■ INDIVIDUALS ■ PAIR ■ GROUP 3+
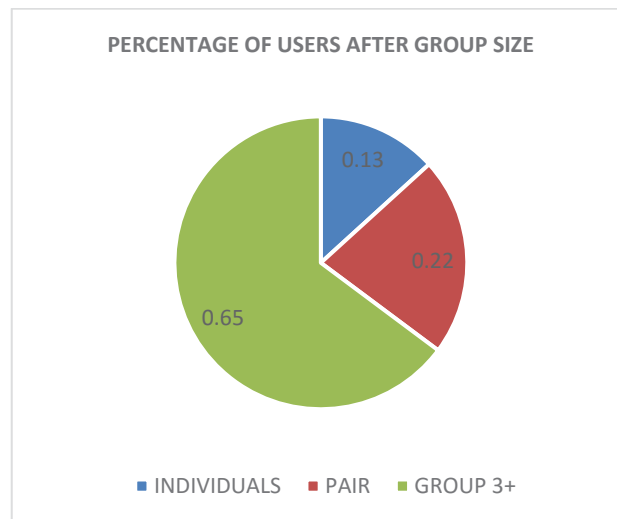
In the case of Xiasha village, the central public square is used more collectively rather than a place for individuals to rest and to escape from the crowded metropolis.

Levels of Usage and Temporal Patterns

A general critique of the use of public squares in Western cities is that they are heavily used by lunch time, but are often empty during the day. In other words, the temporal patterns of those public squares are aligned with those of office workers. These patterns might not be seen in Xiasha as the majority of users are the elderly and small children.

Located in a densely populated urban village, the public square in Xiasha village attracts a high number of users on a weekday. The mean number of users observed from 7am to 7pm is nearly 140 people. However, the actual number varies during the day. Number of users increases rapidly from 7 am to reach the peak of the day by 10 am with the maximum number of nearly 190 people.

Figure 12: Temporal Use Pattern of Xiasha Village

Temporal Use Pattern
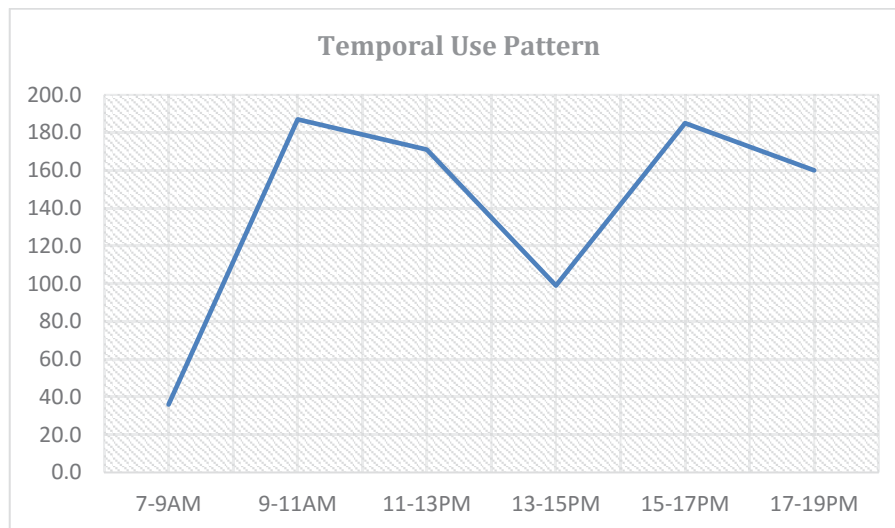
Interestingly, this number drops to nearly half during lunchtime, before it increases again to the second peak of the day occurred at 4 or 5 pm. It would appear that the temporal use patterns of the central square in Xiasha village is dominated by the elderly who use the space as a part of their daily routine.

However, the number of users does not necessarily reflect the efficiency of use or the atmosphere of the space. Given the vastness of the square, it appears often empty as shown in figure 13. This feeling of emptiness is also given by the design of the square which lacks a clear centre and therefore people are scattered to the edges where they could find places to sit.

Figure 13: The emptiness of the space given its scale (photo taken 2014)

Types of Activities

Beside the demographics of users, this investigation also looks at what Chinese people do in public squares on daily basis. With office workers as the majority of users, public squares in Northern American and European cities are dominantly occupied by those activities of this specific group. They come to have lunch, sit or read a paper. Most popular activity is said to be watching other people (Whyte, 1980, Gehl, 1987). By contrast, the main user groups in China might be the elderly and small children in big groups. The collective behaviour and the cultural difference might lead to the vastly different types of activities in open public spaces.

Indeed, it appears that some activities that occur frequently in the West, rarely appear in China such as eating lunch or reading. However, a wide range of other activities which is rarely seen in other context is highly popular here such as singing in groups, playing chess/card, exercising and babysitting.

Regarding the body posture, 53 percent of users are recorded when sitting, whereas the percentage of standing and exercising people are 33% and 14% respectively. The high figure of sitting people is understandable given the majority of users are the elderly and people with small children. They are those who need a place to sit when staying for duration.

Figure 14: Three primary activities

THREE PRIMARY ACTIVITIES

0.14

0.33

0.53

■ SITTING   ■ STANDING   ■ EXCERCISING
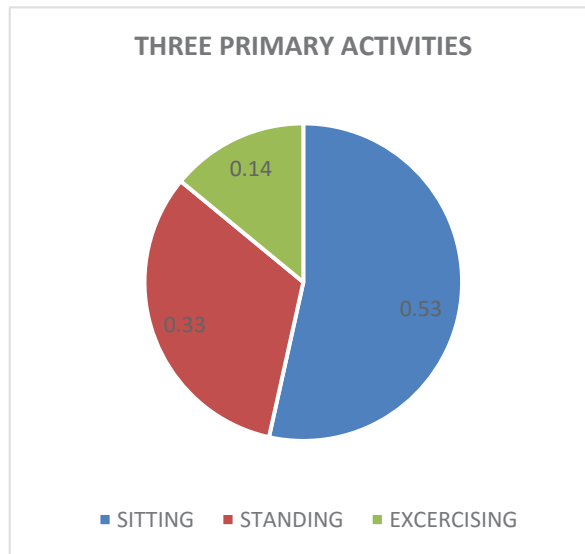
In Xiasha village square, and perhaps also other places, 'exercising' and 'babysitting' activity often generate big crowds. These group activities are not only include a large number of member, but also attract a good amount of audience who simply want to observe. 'Babysitting' alone contributed to nearly 60 percent of all activities, and together with 'exercising' they make nearly third fourth of the total level of usage.

Figure 15: Other activities

PERCENTAGE OF OTHER ACTIVITIES

0.08

0.34

0.58

■ CHESS/CARD   ■ BABYSITTING   ■ OTHER ACTIVITIES
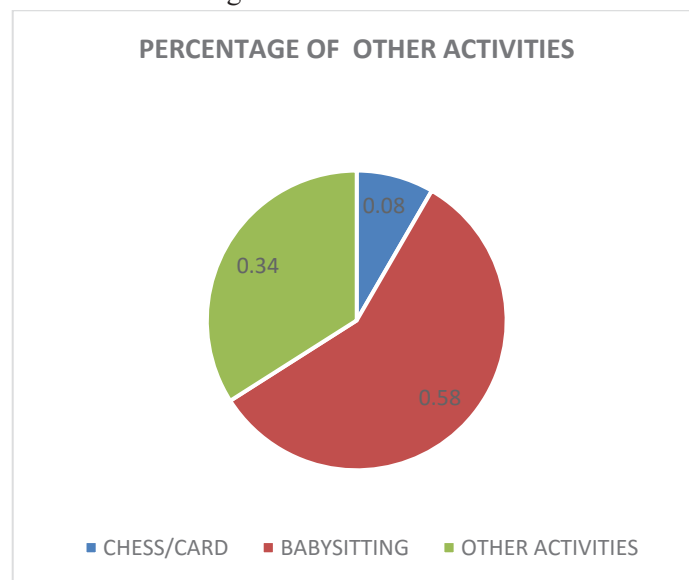
The data suggests that the majority of activities in public squares in China is active instead of being passive as their Western counterparts. People who simply come to a square to sit and watch other people passing by exist too, but they contribute to only a small amount of public space users in China.

If the two sections above provide information about the demographics of the users and their activities, the following section looks at physical aspects of the space, and their relation to the use.

Physical Aspects of Xiasha Village Square

As introduced earlier, Xiasha village square obtains plenty decoration elements such as religious statues, a grand Gate, a large scenic garden that remind viewers of a long tradition of Chinese garden design. Those elements certainly contribute largely to the image of the space. Nevertheless, this section concerns more about other physical aspects including the accessibility, the provision of seats as well as the issue of the scale of the space.

Accessibility

Western public squares often have clear geometric shapes, many of which have a rectangle form that is the size of one or two urban blocks (Siksna, 1990). In many historical cases, the shape of public squares was in fact generated through routes of movement (French, 1958, Siksna, 1990). Therefore, they are easy to access from their intermediate surroundings both visually and physically. Accessibility become the most crucial fact for the success of public squares in the West (Carmona, 2014, Gehl, 2010).

Figure 16: Existence of fence and a zig-zag boundary

However, the central square of Xiasha village showcases that public squares in China might have irregular shapes with zig-zag boundary lines that seldom provide continuous walking routes around these spaces (see figure 16 left). The irregular shape of this central square might be caused as the redevelopment of the village was building centred and this public space was simply a leftover piece of land.

In addition, the square is fenced with a limited number of entrances to the space. This implies that even for people living close to the square, they might need to follow a detour to enter to space.

Another characteristic that might decreases the accessibility of the space is the concentration of public facilities including several temples, a Chinese mini garden, two sport fields, and an open stage. This partly decreases the overall visual accessibility of the square from within. Users might find it hard to navigate as many entrances or gates of the squares are often hidden by these facilities. Furthermore, these facilities often hinder the formation of direct routes crossing the square.

In terms of accessibility, the central public square of Xiasha village appears to be a 'gated' park with a paved ground. This investigation suspects instead of articulating local movement, the central square in this context functions as a hole by limiting the opportunities to use the square as shortcuts.

Provision of Seats

Beside the accessibility, the square offers a high level of cleanliness as well as a public restroom. The only major concern regarding public amenity is the extreme poor provision of sitting places in general and group-sitting places in particular.

Regarding the provision of seats, the Project for Public Space (PPS) has suggested that a good public square in a busy city centre should have more than one seat for any 6 m^2 paved area (Miles et al., 1978). This ratio one seat per 6m2 might be used as a benchmark in Western cities, however might not be adequate for the Chinese context given the much higher population density there.

The actual ratio of Xiasha village square is about one seat per 64 m2 paved area which is more than ten times less than the proposed ratio by the PPS. As a result of this poor provision of seats, many people were found sitting and leaning uncomfortably on the ground or the fences of the two sport fields (see figure 17).

Figure 17: Lack of sitting places (photo taken in 2014)

Many users, especially people with small children, bring their own movable chairs to the square as they often stay for duration. In a peak period (by 10 am and 4pm), the percentage of users recorded when sitting informally on the ground or using their own chairs is nearly half of the total sitting people (43 %).

As important, while the percentage of users in big groups in this case study is nearly two half of the total number, however, the percentage of group-seats is only 10 percent which is much less than what needed. The majority of sitting places are linear arranged which is perhaps suitable for individuals and couples, but they are less preferred by big groups as they do not encourage group conversation.

Discussion

The findings in this research paper provide the very first set of information about how public squares in urban villages in Chinese cities have been designed and used on the one hand. Some of these findings are significant and thus invite further discussion, namely the dominance of the elderly and people with small children and the collective use patterns.

Firstly, through the case of Xiasha Village Square, it would appear that public squares in urban villages in China attract significantly different types of users than its Western counterparts. Our survey of a weekday suggests that about 60 percent of users are the elderly and also nearly 60 percent of all activities are composed by babysitting or playing with small children. The absence of office workers, the most dominant type of public square users in Western context. Our observation of other public squares in other urban areas also confirm the fact that public squares in China somehow are failed to attract young users.

Although the square is heavily used by the elderly and people with small children, this does not necessarily means the design of the space has addressed well the needs of these people. By contrast, there is an extreme lack of basic amenity such as places to sit and saved playgrounds. It would appear that these two specific groups of users have to use the space because they do not have other option. Given the fact that only 2% of the elderly in Chinese cities have access to indoor recreation institutions (Yiqian, 2014), public spaces seem to be an undeniable alternative. Similarly, in urban villages, children of migrant workers have restricted or no access to public educational system including kindergarten and primary school, therefore, for many of them, the central public square of the village function as a substitute for these institutions. In this sense, the development of open public squares in urban villages might solve some current social problems within the Chinese context. Nevertheless, there might be a danger that public spaces can become places for those unprivileged citizens socialising, and this might also the reason for the absence of other groups of people. However, this statement needs further in-depth investigation.

Another interesting fact about the use of public squares in China is the dominance of collective use and group activities. This might lead to a vastly different way of using and thus designing open spaces. Many studies in the West suggest to provide sufficient linear sitting places which is favoured by individuals and couples as they are the majority of public square users there. This line of recommendation might not work in China given the majority of Chinese public space users are found in big groups. Our investigation of the Xiasha village square observed an extremely lack of sitting places arranged in group.

Furthermore, people in group behave spatially differently than individuals. The theory of 'prospect and refugee' by Appleton suggest that people tend to avoid highly exposed location and prefer 'secluded' areas in open spaces (Appleton, 1975). This theory might explain the preference of the edges of public space in the West (Alexander et al., 1977, Whyte, 1988) as they provide a certain degree of visual protection but at the same time allow users to have a good view of the surrounding.

This observation might be correct for those passive users who enjoin watching other people when sitting. However, if the majority of public square users involve in playing with children or exercising, the above line of logic might be no more relevant. Our observation found the contrast to Appleton's theory. Namely, group users, especially

those who are engaged in active activities, prefer highly visually exposed areas. People with a group wants to keep a strong visual connection to other members, therefore they together tend to prioritise spacious and thus exposed location. In addition, when in a big group, the fear of the 'public gaze' which is the reason that make people away from the exposed areas might be declined largely. The observation of Xiasha village square might not be sufficient for any general statement, but it is suggested that further investigation into this aspect will useful not only theoretically but also practically.

Concluding Remarks

Given the lack of information about the use and design of public squares in urban villages in China, this research paper is set out to fill the gap through the case study of Xiasha village in Shenzhen. Unlike elsewhere, public squares in China are used dominantly by the elderly and people with small children. The majority of users were engaged in group activity that prefers spacious and highly exposed locations within the square. This collective behaviour is vastly contrasting a widely accepted assumption emerged in the West that public space users tend to prefer secluded locations over the highly exposed areas. In this sense, this paper suggests that the context of China is a fruitful ground to examine further the collective behaviour of public space users.

Although the design of the square contains plenty decoration elements, it seems to overlook the basic daily needs of daily users. While the majority of users are the elderly and people with small children who are highly demand on sitting places, the current provision of seats only serve a small percentage of these people. Despite the high level of usage, it is worth to note that the majority of users are those elderly who have limited access to indoor recreational centres and migrant workers' children whose access to public educational system is restricted. In this sense, while Xiasha public square is well used, it might be a sign of social segregation rather than a place for people from different background coming and sharing. The observation in this paper might not be sufficient to fully support this statement, however the absence of other user groups including teenagers and office workers might be crucial evidence for our suspicion.

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