

Explorations on the Activation Route of Gated Community Boundary Space based on Community Micro-Renovation——A case study of Shanghai

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Abstract: Gated communities, as a typical residential morphology, are common in Chinese cities nowadays. Their features mainly include the planning and development of large plots and blocks and the use of gated fences to define the boundary of property rights. As a consequence, it is convenient for communities to achieve daily access control. However, the gated communities objectively produce an important number of negative community boundary spaces, which go against the vitality of urban streets. Since the causes of gated communities originate from deep social, economic, and cultural factors, the "open community" requirements proposed at the Chinese national level are difficult to implement effectively. The concept of "urban micro-invasive surgery" aims to create gradual, organic and small-scale interventions of renovation at the level of the community. On the premise of ensuring the rights and interests of the community residents, the community micro-renovation process activates the community boundary space and integrates potential social capital. Moreover, it enhances the daily vitality of the community. Based on a community micro-renovation project conducted in Pudong New Area (Shanghai, China) and a sample survey of residents' satisfaction and willingness, this paper explores the possibility of transforming negative community boundary spaces into public spaces for residents' daily social interaction activities.

Keywords: community micro-renovation, gated community, boundary space activation, social capital

Introduction

As the process of urbanization accelerates in China, gated communities, as the most significant form of housing developing, are gaining momentum in the city. In gated communities, walls or fences are frequently used as the community boundaries for daily management based on entrance guarding. Despite the fact that it meets people's requirement for privacy and security protection of the community, it ignores the interaction between community and public space. Most of the gated community is characterized with the layout of dead-end road and puts emphasis on clear land division, causing the separation with the surrounding land and "producing" a lot of negative boundary space of the community. All these problem are detrimental to the cultivation of the vitality of urban public space and constrain the daily social activities, as a result of which the social network and social



capital are "wiped out". All that is harmful to the cultivation of residents' sense of community belonging and awareness of settlement (Yang Guiqing, 2017).

The improvement of spatial environment quality and the connotation-oriented development are gradually emphasized by the urban construction. In urban planning theory and practice, the promotion of small scale block and the opening of gated communities have become a new heated topic. In 2016, the advice of "promoting block-based system, and gradually opening the large scale gated community" of the party central committee and the state council has sparked heated debate across the country. The doubt of whether the demolition of the fence will violate the rights of the residents of the community results in the difficulty of implementing the proposal of "open community" nationwide.

Community micro-renovation, as the urban "micro-invasive surgery", provides a new path for the activation of the boundary space of the gated community. Different subjects could be guided to participate in community construction and governance through community micro-renovation. On the premise of guaranteeing the interests of residents' property rights, the boundary space of gated community can be enlarged through gradual and micro organic renovation, so as to enhance the daily vitality of communities and integrate potential social capitals.

Then the question is how to have a deep understanding of the gated community boundary space? How to "activate" it through community micro-renovation? What is the relationship between the activation of boundary space and social capital? What is the will of the residents? How to implement the activation of boundary space? How to solve the possible problems that may be caused by this? This paper, combined with the investigation and observation of Weifang Community Renovation Project included in "Colorful Community Plan" in Pudong New Area of Shanghai, will further explain the above problems.

Concept Definition

The definition of the following key words is given in order to make our discussion go smoothly.

The first one is the "gated community boundary space". In this paper, "gated community" is defined as "the residential functional area whose most of the boundaries are surrounded by walls, railings or green belts, etc., and where the entrance guarding measures are adopted at the entrance of the community to limit the access of residents or vehicles outside the community". "The boundary space of the community" is defined as the physical form of the boundary line of the community land, the interface between the public and private field of the property rights, specifically referring to "the wall, fences, shrubs, door or other separated objects surrounding the gated community, including part of the buildings and semi-public spaces within the boundary, as well as the urban public space like part of streets and green belt outside the boundary".

The second one is "community micro-renovation". Compared with the renovation of the extensive cities featured by demolition and construction on a large scale, "community micro-renovation" is characterized with micro renovation object, micro implementation of practice and micro guiding entry point" (Shan Ruiqi, 2017). It is designed for recreational use and social interaction, which has adopted the opinions and interests of different stakeholders (Yang Guiqing etc., 2017). Through the micro planning and construction, the community will be renovated and transformed gradually.



The third one is "social capital". In this paper, the "social capital" refers to a kind of social resources that exist in the social structure of residents and are mainly represented by trust, mutual benefit and harmony. Residents can utilize or activate such social resources through activities with strong purpose. In that case, social capital has important significance for enhancing cohesion of the community and encouraging the joint participation of community construction (Zhai Binqing etc., 2016).

Literature Review

Gated Community Boundary Space and Its Influence

The early studies on the boundary space and its influence of gated communities could be found in many classical literatures. For example, Jane Jacobs proposed the concept of "Street Eyes" (Jane Jacobs, 1961) in *the Death and Life of Great American Cities*. She argues that when the street was frequently used, its surrounding residents in the buildings could clearly see the activities happening on the street, in which case the street would be considered safer. Oscar Newman's (1973) also mentioned in *Defensible Space* that residents' constant observation of the community public space is one of the most effective measures to ensure security. The Congress for the New Urbanism (1996) also strongly opposed the large-scale community in single function, advocated the mixed use of functions, and focus on the design of the boundary space of the community. For example, the street should not be too wide, so that it will be convenient for the pedestrians to cross.

Many scholars have studied the classification of the gated community boundaries from the perspective of its elements, permeability and function as seen in Table 1. We can see that whether the boundary is clearly visible, whether the entrance guarding is strict, whether the vegetation is attached, whether the public function is achieved will affect the the gated degree of the boundary space.

Table 1 the classification of gated community boundaries

Scholar	Classification	
Jill Grant etc., (2004)	Fence	Visually opaque fences, visually transparent fences, electrified or barbed fences, low fences or bollards, etc
	Door	Revolving door, fence barrier gate, sliding gate, etc
	Sign	Signs of pavement and deceleration of speed, pavement texture or color changes, security guards platform, glass gatehouse, "private domain" or "no parking"
	Security	Fixed time security, all-day security, patrol guard, card or password access system, automatic access system, surveillance camera, armed security personnel, residential burglar alarm, etc
	Landscape	Green hedgerows, land form changes, water landscape, sand and stone landscape, etc
Liu Xiaomin (2007)	Wall	Common wall, hollow-out wall, decorated wall, greening outside the wall
	Fence	Common fence, greening inside fence, greening on fence, greening outside fence, comprehensive greening of fence
Zhang Shaosen (2009)	Soft	The boundary space formed by a combination of fences, walls, or hedges
	Hard	The boundary space directly separated by the building
Xu Miao etc., (2015)	Architecture	Residential buildings with ground floor business, commercial or public buildings without residential functions
	Fence	Fences without being decorated by vegetation; the fence decorated with some vegetation
	Landscape	Natural landscape, fort

Source: summarized and arranged by the author according to the literature.

The gated community boundary space has both positive and negative influences as seen in Table 2. On the one hand, it has a positive impact on the residents inside the community, in terms of security, privacy, identity symbol, sense of belonging, and ensuring the quality of service facilities of the community. On the other hand, for the public space outside the community, the boundary of the gated community turned the public space into the private space, which is unidirectional and irreversible. The negative influences caused by it mainly include the reduction of the number of urban public space and the diversity of urban landscape resources, privatization of the urban landscape, decreased efficiency of urban road system, unsystematic network of walking, difficult maintenance of street life and intensified social isolation and so on.

Table 2 Positive and negative influences of the gated community boundary space

Type of effects	Scholar	Detailed description
Positive Effect	Jill Grant etc., (2004)	Protect the residents and its property security in the aspects of material, keep privacy in the visual and spatial aspects Improve the value of land and protect the internal public service facilities Restrict the access of others outside the community Displays the rights and creates the identity symbol of the community
	Xu Miao (2015)	Provide a necessary comfortable and safe environment to form a common sense of belonging Promote social exchanges and form the social relations among the community Residential separation between the rich and poor will be good to the social harmony limitation of the number of users to ensure the existing environmental quality
Negative effects	Moughtin etc., (1999)	Reduces the activity on the street, which makes people acquiesce to the illegal behavior outside the boundary space of the community
	Qin Ruiying (2008)	Increases the social distance between different social groups Impose psychological burden on residents inside and outside the walls Reduce contact and communication between residents of different social groups, which aggravates the social isolation
	Li Pei (2008)	The privatization of urban landscape resources reduces the public recreational space
	Li Yin etc., (2009)	The separation of private roads inside the community from the urban public road system decreases the accessibility and efficiency of residents to the open spaces and public places.
	Australia”Design Quality Manual” (2012)	The fact that motor vehicle drivers are more likely to accelerate as they cross the gated boundary increases the risk of safety problems
Karim (2015)	The planning of such gated communities can only be considered as "large-scale housing production", instead of "the community for life"	

Source: summarized and arranged by the author according to the literature.

Community Micro-renovation and Cultivation of Social Capitals

Cities are the outcome of gradual progress rather than the result of a sudden change. Henri Lefebvre (1974) proposed in *The Production of Space* that space is not only a product, but also a process of recombination of social relations and practical construction of social order. Edward Soja (1983) argues that life is to join the social production of space, to shape the constantly evolving space and be reshaped by it.

Then the question is, how can the "community micro-renovation" of the gated community boundary space achieve the goal of increasing the everyday vitality of communities and integrating the potential social capitals? Louis Wirth (1938) proposed in *Urbanism as a way of life* that population density, land value, rent, distance, health, reputation, aesthetic taste, noise, smoke and other public harms, make different parts of the city suitable for people of different social groups to live. However, the numerous population in cities leads to the individual variability, relative shortage of intimate relationships, and fragmentary relationships characterized by anonymity, superficiality, transience and correlation. In that case, although people of the same social status and the same needs are living in the same area, but the lack of emotional exchanges between individuals still makes them tend to be insulated from each other. Therefore, "community micro-renovation" can serve as a catalyst to provide opportunities and space for residents to communicate, raise their sense of identity and belonging, which will finally contribute to the increase of social capital.

Generally speaking, large-scale urban renovation projects seldom listen to the opinions and suggestions of local residents. On the one hand, it is partly because that the larger number of participants will delay the time and increase the cost of the project. On the other hand, it is due to that the interests of residents sometimes violate the vested interests of developers and local governments (Zhai Binqing, 2010). On the contrast, "community micro-renovation" often starts from the practical problems, which focus much on the quality improvement of the abandoned public space and the renovation of the functions in community, such as the community entrance, small square, small park, etc., to realize the perfection of the micro function with a small amount of basic investment, which will ensure a lower entry threshold for the practice itself, and realize a variety of cooperation forms at the same time (Shan Ruiqi, 2017). Therefore, community micro-renovation can be used as a constant attempt of residents' habits of cooperation, which will contribute to the cultivation of social capital.

The gated community boundary space, on the other hand, is considered as one of the focuses of community micro-renovation. With regard to the activation mode of boundary space, Xu Miao etc., (2015) holds that it can start from the enclosure scale of area, boundary effect, shared service and the control of facility and other aspects. Qin Ruiying (2008) believes that the the limitation of the height and materials of walls, fences or plant for coverage in gated communities will do a favor for the road lighting to get rid of the bad effect on residents' sight and for the formation of visible walls. The limitation of the developing scale will ensure the street connectivity. What's more, through the practice of "Breaking Down Walls", community cohesion can be enhanced.

Summary of the Progress of Study

In conclusion, the negative impact of gated community boundary space on urban public space has received wider attention in academic fields. The study on the activation path of boundary space in gated communities is constantly deepened from the perspective of material level. However, it can also be found from the relevant study progress that few scholars have ever associated the activation of

gated community boundary space with community micro-renovation, and the study on the relationship between community micro-renovation and social capital is still inadequate. Therefore, the exploration on the basis of micro-renovation of community of activation path of gated community boundary space will help to guide and promote the practice of "Breaking the Wall" of the gated community, to promote the good effect of the network society and to well implement the "renovation work" of the city. At the same time, it will also contribute to the enrichment of the theories of the existing community planning and construction of our country.

Theoretical Cognition

Historical Causes of the Gated Community Boundary

It can be found from the evolution of living style that the traditional gated living form of China has experienced a long history, and the tradition of the consciousness of urban space boundary has been continued and inherited as a living habit with a profound social, economic and cultural factors.

In the feudal era, the rulers, in order to consolidate the monarchy and facilitate management, adopted the management and regulation modes of "Lifang" and "Fangxiang" System to organize and manage the residents in city (Wang Zhuoyuan etc., 2013). This gated residential boundary is more obvious in the traditional Chinese big family-based social group, which helps to prevent theft through higher walls and strengthen the family rule and ideological confinement (Yuan Ye 2010). In modern times, the emergence of "Lilong" enriches the types of community boundaries. Taking Shanghai as an example, in order to save land, most of the "Lilong" residential buildings are located close to the street, and a relatively open boundary is formed through the buildings arranged along the street.

After the founding of the People's Republic of China, the socialist planned economy system was implemented by China. In the field of housing construction, the mode uniformly invested, constructed and distributed as a kind of welfare by the country was basically adopted, and the government took on all the responsibilities of investment, planning, construction, distribution and maintenance. The community planning at this era was mainly affected by the planning theories of "Neighborhood Unit" and "Residential Community", and emphasized the internal function, organization and living environment of the community, as a result of which a large number of communities with gated boundaries were produced.

As the policy of reform and opening up, China has entered the period of commercial residence. The rental model of large blocks of land gave rise to the emergence of large number of gated community buildings. What's more, the community property management system also led to the emergence of large scale gated community boundary to some extent. As the gated property management mode was featured with scale-based effect, the larger the community area was, the lower the average cost per person or per square meter would be. In that case, property companies tended to apply gated fences and walls as boundaries for community management. The introduction of the *Property Law* made it clear that owners had legal rights to public service facilities and roads inside the community (Xu Miao, 2010), as a result of which the private property rights were strengthened, but the contributions of community boundaries to public space were failed to be defined, thus failing to guarantee the property rights of public space. And, the guidance on the design of public boundaries in the relevant



regulations of building distance for setting the boundary and the road traffic design is also inadequate, causing the low spatial quality of gated communities.

The Sociality of the Gated Community Boundary

The gated community boundary is not only the fence on the material basis, but also characterized with its corresponding social attributes. The sociality of the gated community boundary is related to the social groups inside and outside the boundary space, including the subjects inside the boundary, such as residents, property companies, developers, and other residents outside the boundary as seen in Table 3. While the gated community boundary are the result of social interactions inside and outside the boundary. At present, the physical form of the gated community boundary mainly reflects the requirements of the consumption and the construction management inside the boundary, but fails to show the consideration of the urban image and traffic environment outside the boundary, which means it fails to make a positive contribution to the urban public space. This lack of urban public space will transform people's behavior to a certain extent. The exclusivity of space makes people more indifferent to each other, which will finally aggravate social isolation.

Table 3 The sociality of the gated community boundary space

Sociality	Relevant Social groups		Requirements for the gated community boundary
Inside the boundary	Consumption	Residents	Protecting the security and privacy, ensuring the normal use of the public service facilities inside the community, limiting the entry of people outside the community, reflecting the symbol of identity and status
	Construction and management	Developer	The maximum developing interest and cultivating a sound environment inside the community
		Property right management	Intensive and convenient property right management inside the community
Outside the boundary	City image cognition	City images of roads and street	Forming the unique and recognizable city image
	Traffic environment cognition	Walking environment	Safe, comfortable and convenient walking environment
		Driving environment	Convenient traffic environment

Source: Drawn by the author

Theoretical Cognition of Boundary Space Activation

The gated community boundary space should not be treated as a simple problem, but as an opportunity to improve the exchanges among people in metropolises. The vitality of urban public space of the boundary space is mainly influenced through the aspects of perimeter and interface, with perimeter influencing the connectivity of public space, and interface influencing the quality of space as seen in Table 4. The activation of boundary space can also start from the two aspects of narrowing the perimeter and opening the interface.

Activation of the boundary space should be targeted at enhancing the quality of public space, and promoting social interaction, providing convenience for residents. First of all, it should decide which boundary space of which gated community needs to activate, which should be combined with the surrounding public service facilities of the community, such as schools, shopping malls, the layout of the traffic station, and determine which gated community caused a larger block of travelling residents, what boundary space has the largest flow of people and other situations that worth transforming and upgrading according to the traffic situation of boundary space. Secondly, the activation mode of narrowing the perimeter means opening a new entrance, so it is necessary to determine whether it is open only to pedestrians or to both pedestrians and the vehicles, and determine the opening times of the day. At the same time, it is necessary to solve the problems caused by opening new entrances and exits, including how to guarantee the safety and property rights of community residents, whether public services and commercial service facilities such as kindergartens, vegetable farms, sports centers and parking lots are open for business, and whether security systems of the building need to be enhanced. Thirdly, the activation mode of opening interface means to increase the function of the interface and promote the openness of the interface. It is necessary to decide whether to add small commercial or outdoor activity facilities, whether to open the line of sight, and whether to enrich the details of buildings and walls by means of wall reconstruction and graffiti. When the sidewalk outside the boundary is too narrow, it is also needed to consider the community land area inside the boundaries; if the community land area is abundant, it should consider whether the fences or walls could be withdrawn a little back from the land border to extend the width of the sidewalk outside the boundary. It means that the land inside the community will be used as a public space. In that case, it is also necessary to consider how to encourage the main body of the community, such as the residents and property company. For example, when the width of open public space should be more than 6 meters and the area should be more than 150 square meters, and the main body inside the community can obtain additional commercial building area, etc.

Table 4 Ways of affecting urban public space by gated community boundaries

Elements of the gated boundary	Ways of influencing the public space	The affecting measures
Perimeter	<p>The perimeter of the community boundary is related to the size and scale of the community. High connectivity means more short connections of the transportation network, more intersections and fewer end roads, which allows people to have more choices of route and avoids community isolation.</p>	<p>(1) the average boundary circumference ≤ 1500 feet (457.2 meters);</p> <p>(2) $500 (152.4 \text{ m}) \leq$ interval of recommended road intersections ≤ 600 feet (182.9 m), maximum intersections intervals ≤ 800 feet (243.8 m);</p> <p>Internal connectivity (the number of open road intersections per square mile (259 hectares)) is at least 140 per square mile</p>
Interface	<p>When the gated community boundary adopts different interface forms, the comfort, image and space quality of the boundary space will change greatly, which will also affect the frequency of people to use the space and the occurrence of activities. Apart from the basic commuting activities, the active interface will also encourage residents to generate extended activities and some occasional activities.</p>	<p>(1) function of the interface: whether there are commercial or outdoor activities</p> <p>(2) the openness of the interface: completely open: (the line of sight is transparent and can pass freely, or can imply the pedestrians no entering for private space only through the green fence or other barriers that can be crossed; Semi-open (can't pass freely, but the line of sight is transparent, or the details of buildings and walls are clear with the focus of the line of sight); Completely closed (not visible with no free access)</p> <p>(3) Entrance and exit of the interface: completely open (no restrictions or only time-sharing restrictions on vehicles and pedestrians outside the community); Semi-open (no restrictions on pedestrians, strict restrictions on vehicles outside the community); Completely closed (strict restrictions on pedestrians and vehicles outside the community; could only be permitted with the access card, inspection permit, or security verification by the security guard)</p>

Source: Drawn by the author

Case Study

Overview of the renovation of Weifang Community of Shanghai "Colorful Community Plan"

In 2016, the "Colorful Community (Inner City) Renovation Plan and Pilot Action Plan of Pudong New Area " (hereinafter referred to as "Colorful Community Plan") was carried out in Shanghai, which was led by the multiple main body involved in the whole process such as the government of Pudong New Area, the relevant functional departments, design alliance, experts and representatives of local residents and the media. It aims at the daily 15-minute life circle of the residents to improve the function of renovation and quality of the community.

This paper mainly analyzes Weifang Community involved in the "Colorful Community Plan". Weifang Community is used mainly for residence with mixed old and new residential areas and diverse types as seen in Figure 1. Among them, the gated communities of multi-storey public housing prevail, mainly located along the two side of North Nanquan Road. Commercial housing gated communities were mainly built after 2000, mainly along the side of Bin River on the West Pucheng Road.



Figure 1 Distribution and area of different gated communities in Weifang

Source: Drawn by the author

The average land area of the gated communities in Weifang Community is 11.7 hectares. Through the calculation of community connectivity as seen in Table 5 and Figure 2, it is found that the average perimeter of gated community boundary of Weifang Community is 1385m, which is much higher than the value of 457m recommended by LEED-ND. The average interval of community intersections is 362m, which is also higher than the recommended value of planning. The community connectivity is 32 intersections per square mile, which is far less than the 140 per square mile recommended by the plan. Therefore, it can be seen that the overall size of the community is large and the connectivity is general.

Table 5 Connectivity analysis of gated communities of Weifang

Average perimeter of community boundaries	Average intervals of community intersections	Community connectivity
1385m (The total perimeter of the 18 land is 24930m)	362m (The maximum length is 626 m)	32 intersections per square mile (the total area of the land is 243.5ha, or 0.96 square miles, which is the total area of the 18 mainly residential land.)
Compared to the planning requirements of LEED-ND (2009)		
≤457m	152m to 183m is appropriate, and the longest intersections are not more than 800m apart	At least 140 per square mile

Source: Drawn by the author



Figure 2 Intersection distance and connectivity of gated communities in Weifang

Source: Drawn by the author

Six types are involved with regard to the boundary of gated community of Weifang Community , including underground floor business, gated building facade and walls, vertical greening of the fence, greening on both sides of the fence and the fence itself as seen in Table 6. Only 34% of the boundaries are commercial, mainly formed by "Breaking Down Walls to Open Stores" in gated communities of public housing. And 65% of the boundary is block, including 22% fence, 17% wall, and 25% greening on both sides of the fence, which provides some greening space for the sidewalk. Besides, only a few borders are gated building facades and vertical greening fences. It can be seen that the boundary

function of gated communities in Weifang Community is relatively single, which is not conducive to the shaping of boundary space vitality.

Table 6 interface function and proportion of the boundary of Weifang

Interface function of the boundary		Length (m)	Proportion (%)	
Taking the building as the boundary	ground floor business	5668	34	35
	gated building facade	117	1	
Taking the block as the boundary	walls	2811	17	65
	vertical greening of the fence	193	1	
	greening on both sides of the fence	4277	25	
	fence	3744	22	
Total		16810	100	

*There are a total of 18 residential blocks with a total perimeter of 24930m, of which 67.4% are residential

Source: Drawn by the author

The evaluation of the vitality of the gated community boundary is divided into three grades: active, medium and poor as seen in Figure 3, 4 and Table 7. Generally speaking, the gated community boundary of public housing with commercial function is more active, while the gated community boundary of commercial housing is less active.



Level A: Active

Level B: Medium

Level C: Poor

Figure 3 Different levels of vitality of gated boundaries of Weifang Community

Source: Drawn by the author



Figure 4 The vitality analysis of gated community boundary in the Weifang

Source: Drawn by the author

Table 7 Boundary vitality evaluation of gated community of Weifang

Vitality of the boundary	Mixed function situation	Spacial form of the boundary	Numbers of the entrance and exit	Activities of the pedestrian
A Active	Commercial activities and outdoor activities caused by breaking down wall to open shop or commercial group house	The boundary space form is semi-open or completely open, the pedestrian line of sight is transparent, or the details of buildings and walls are clear and rich, with the focus of the line of sight and the diversified boundary space	Many: 10-20 Entrance and exit/100m	Apart from the commuting activities, there are other extended activities such as shopping, eating, having outdoor coffee, chatting, dancing, playing, exercising and others.
B Medium	Part of the commercial or outdoor activities	Only a small amount of boundary space is of the open form, and the boundary space is monotonous and lack of details	Medium 10-20 Entrance:/ 100m	Apart from the commuting activities, there are other occasional activities such as stopping to rest, obtaining information, observing, communicating, running and taking photos
C Poor	No commercial or outdoor activities	The boundary space form is closed, mainly taking the form of gated wall or fence with no ornamental details	Few 0-5 Entrance / 100 m	Pedestrian activities are mainly based on necessary actions concerning passing by.

Source: Drawn by the author

Questionnaire survey and analysis

In order to understand residents' attitudes and opinions on the gated community boundary space, a questionnaire survey was conducted on residents of Weifang Community. A total of 150 questionnaires were issued and 146 valid questionnaires were recollected.

According to the questionnaire survey, most residents hope that the action of "Breaking the Wall" will start from the water front space Community and the school playground as seen in Figure 5. Only 17 percent of residents think the walls of enterprises need to be opened, and 11 percent think the walls of residential communities need to be opened. What's more, as seen in Figure 6, 29 percent of residents said they did not think any of the walls needed to be opened. For the question that "are you willing to open the community by removing the wall?", 74% of residents say they are not willing to remove the walls to achieve an open community, only 14% are willing to, and another 12% say they don't care.



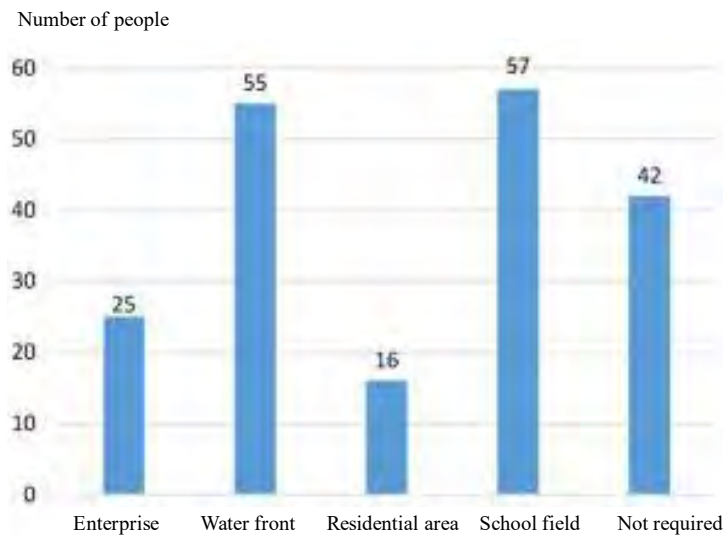


Figure 5 The number of residents that agree to open the wall

Source: Drawn by the author

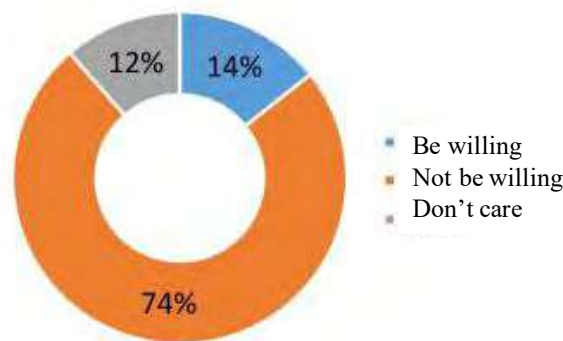


Figure 6 Residents' attitude towards the demolition of the wall to achieve an open community

Source: Drawn by the author

For the question that "what is your biggest concern if the walls are removed as seen in Figure 7? (multiple choices, up to 3 choices)" 76% of the residents think that removing the walls of the residential area will increase the risks of security as people with no household responsibilities could enter or leave the residential area at will. The second problem is the problem parking. 49% of residents are worried that vehicles outside the community will occupy the parking spaces in the community, causing parking difficulties for residents. Besides, 42 percent of residents think that the demolition of the wall will cause noise problems to the community. 40% of the residents think that the sanitary and the environment of the residential area would become worse after the demolition of the wall, and the difficulty of governance would increase. However, 26% of the residents think that after the demolition of the wall, the public service facilities inside the community will be shared with residents outside the community, which will affect the normal use for residents inside the community. Finally, only 4 percent of residents hold that "the community is private territory and cannot be violated".

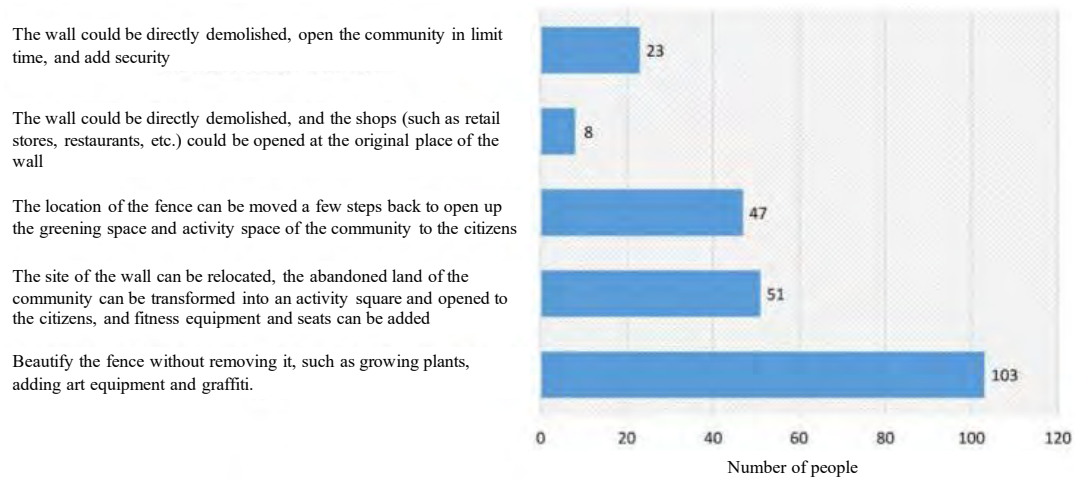


Figure 7 Questionnaire result : What is your biggest concern if the walls are removed
 Source: Drawn by the author

According to the attitude of residents, it can be found that the main reason why residents are not willing to demolish the wall of the community wall is that they are worried about a series of problems of safety, environment, parking problem, noise and others caused by the opening of the community. If we want to open the community by removing the walls, we must get rid of the concerns of the residents from the above aspects, especially the aspect of safety.

For the question that "if the wall of the community needs to be renovated, which way do you prefer?" as seen in Figure 8, 72% of the residents want to beautify the fence without removing it, such as growing plants, adding art equipment and graffiti. 35% of the residents think that the site of the wall can be relocated, the abandoned vacant land of the community can be transformed into an activity square and opened to the citizens, and fitness equipment and seats can be added. 33% of the residents think that the location of the fence can be moved a few steps back to open up the greening space and activity space of the community to the citizens. 16% of residents say that the wall could be directly demolished, and the shops (such as retail stores, restaurants, etc.) could be opened at the original place of the wall.

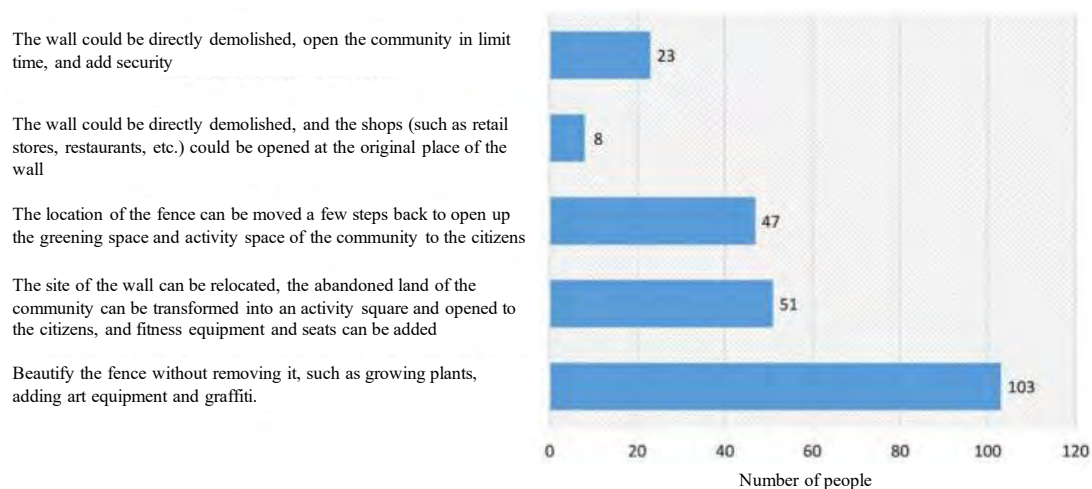


Figure 8 Questionnaire result: if the wall of the community needs to be renovated, which way do you prefer Source: Drawn by the author

Generally speaking, most residents prefer to carry out appropriate transformation on the basis of preserving the fence, while only a few residents choose to demolish the fence. It can be seen that residents have formed a traditional consciousness and living habit for the gated community boundary space. Therefore, the renovation of the wall should be gradually implemented, starting with the beautification of the gated wall, and then opening the space inside the community, which will gradually help to weaken the sense of separation of the wall, and finally form an open and shared community space.

Introduction of Specific Implementation of the Projects

The micro-renovation of Weifang Community activates the gated community boundary space mainly from two aspects: reducing the perimeter and opening interface of gated communities as seen in Table 8.

Table 8 List of projects of colorful community of Weifang in Pudong New Area

Activation mode of the gated communities boundary space	Specific project	Project progress
Decreasing the perimeter	Action of breaking down the wall	Planning period
	Transformation of the surrounding area of Zhuyuan Ring Road	Completed
Opening the interface	Wall painting of the surrounding area of Weifang No.1 Village/Zhuyuan Kindergarten	Completed
	North Zhangjiapang Road Pocket Park	Under construction
	Improvement of the public space of Weifang No. 10 Village	Publicity of the collected plans
	Improvement of public space of Weifang Head Lane of NO. 6 and No.7 Village	Publicity of the collected plans
	Micro renovation of Weifang No. 4 Village	Planning period
	Micro renovation of Weifang Jiejiao Street	Planning period
	Micro renovation of Jiejiao street of Pudian Road	Planning period

Source: Drawn by the author

From the aspect of reducing the perimeter of gated communities and improve the overall connectivity of public spaces, in order to enhance the overall connectivity of the public space, land conditions and the under-construction projects are considered as seen in Figure 9. Binjiang Green Road of the Huangpu River, the Zhangjiapang River and the Zhuyuan Green Space are determined as the main point of interest for public activities of the area surrounding the city streets, and YuanShen Sports Center, deputy center of the flowers and trees and the city-level Babaiban Business Zone are considered as the important public service facilities surrounding the community. These three public service facilities are taken as the connectivity point o to guide the network optimization. In combination with the current situation of each gated community, the author tries to improve the spatial

accessibility, reduce the long and continuous gated boundary and connect the whole road network of the community by partially breaking the boundary wall of the gated community boundary space, excavating the potential ways, and transforming and widening some existing ways to improve spatial accessibility, reduce long and continuous gated boundaries, and connect the whole road network of the community. As most residents prefer to preserve the community wall, the action of breaking down the wall is still in the planning stage and has not been included in the library of key projects.



(1) Analysis of important public service facilities around (2) Public channels formed by planning proposals



(3) Gated community boundaries broken by planning proposals (4) Public space networks after breaking gated community boundaries

Figure 9 The design strategy for narrowing the perimeter of gated community boundaries and improving the overall connectivity of public spaces.

Source: Shanghai Urban Planning and Design Institute ,2017, Pudong New Area Colorful Community Action Plan in Weifang Community Planning.

From the aspect of improving the gated community boundary space interface and enhance the vitality of public space. Since most residents are in favor of preserving the fence while improving the interface, the micro-renovation project with the open interface as the planning strategy progresses is put into quick implementation. Two implementation projects are selected for brief introduction.

The first implementation project is the reconstruction of the area around the Zhuyuan Ring Road as seen in Figure 10. The surrounding area of Zhuyuan Ring Road is commercial houses built after 2000, most of which are occupied by parking, and residents have limited space for walking. The existing walls are old and badly damaged, and the greening landscape is monotonous. Therefore, it is necessary to plan and transform the road section, increase the pedestrian exclusive road and repair the current situation of temporary parking disorder. Besides, it is needed to improve and update the dilapidated

walls, enhance the overall openness of the space, and enhance the integration of activity facilities and environment.



Figure 10 Community micro-renovation of the surrounding area of Zhuyuan Ring Road

Source: Pudong New Area Planning and Land Administration, 2018, Collections of Achievement of colorful community construction in Pudong New Area.

The second implementation project is wall painting surrounding Weifang No.1 Village/Zhuyuan Kindergarten as seen in Figure11 and 12. In Weifang No.1 Village, the original shops along the street were demolished due to illegal construction, and a concrete wall was erected after the demolition, becoming a "scar" in the community. The community micro renovation calls for the over 20 children from the kindergarten and primary school to paint and graffiti the walls together with their parents under the guidance of professional painters. There are two water tanks near Zhuyuan Kindergarten. The wall of the water tank falls off and a lot of construction waste is piled up around the tank, which affects the overall aesthetics of the community. On the basis of the community micro-renovation platform, teachers and students of Shanghai Visual Arts College were invited to Weifang Community to transform it, and to select the graffiti painting scheme according to the votes of community residents. These community micro-renovation implementation projects all stimulate community vitality and cultivate social capital while improving community boundaries.



Figure 11 Weifang Yicun wall painting micro update

Source: Photo by the author



Figure 12: Water tank micro-update near Zhuyuan Kindergarten in Pudong New Area

Source: Photo by the author

Conclusion

Currently, the fact that the design of gated community boundary only focus on the division of land-use and property rights in management has led to problems such as the decline of people's communication and social isolation. This is detrimental to the face-to-face communication between people in internet period, which means the good neighbor spirit is restricted. This paper hopes to take the gated community boundary as an opportunity to promote the daily vitality of communities and integrate potential social capital through community micro-renovation. Two ways are proposed to activate the gated community boundary space: breaking part of the boundary space and improving the boundary space interface. At present, Shanghai, Beijing and other cities are carrying out the campaign of "demolishing illegal street shops". Although this has a positive effect on the regulation of illegal constructions, it is not conducive to the good neighbor spirit, social network, social capital and diverse communities. From this point of view, the current urban renovation and development of community boundaries should be investigated and analyzed carefully.

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