

Spatial Character Analysis of Streets as Commons

-Case Studies of Play Streets in Bunkyo Ward, Tokyo-

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Globally, streets are increasingly recognized as commons that could be possessed, shaped and actively used by the citizens. While bottom-up initiatives have been making differences in the way streets are used and managed, in Japan, it is oftentimes the government which has introduced various approaches to turn streets into a space for people to gather and interact. In contrast, 'play streets' in Japan are one of those very rare cases in which citizens take the initiative to use and manage the streets. This paper will specifically focus on play streets in Bunkyo Ward, Tokyo, a unique area in Japan where streets are actively and creatively used by private individuals. The study aims to identify successful management methods by conducting on-site interviews and spatial conditions that are necessary for such citizen-led activity to take place by employing a spatial character analysis. Results of the interviews indicate that citizens' active participation in management of play street is essential to keep the play street active. Moreover, results of the spatial analysis show that spatial conditions are an important factor that affects the sustainability of play streets. Street width and length and the types of roadways and sidewalks have a significant influence on the type of activities that take place. Building uses were found to affect the type of people the street attracts.

Keywords: *Play Street, Pedestrian Street, Commons, Public Space, Citizen-Led Activity, Bunkyo Ward*

1. Introduction

1.1 Background

For decades, streets have been used as a space for traffic. However, streets are increasingly recognized as a space where people can linger and interact. Government planners are discovering new potential for urban streets and bottom-up initiatives have shown creative approaches to street planning and designing. For example, New York City officials have successfully converted Times Square into a pedestrian plaza by closing Broadway to traffic¹⁾. In San Francisco, citizen-led initiatives have led to the creation of parklets which redefined the spatial conditions of the streets and impacted the social activity of the residents²⁾. In contrast, Japan has had a strong history of government-led initiatives that have revitalized streets by transforming them into viable public spaces. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has been trying to increase on-street activities. Amendments made to the Act of Special Measures Concerning Urban Renaissance in 2011, have introduced exceptions to road occupancy regulations³⁾. This has opened up new ways to use spaces for communal events and social interaction. The "open café project", for example, is a major initiative which has been introduced in various areas such as Tokyo and Sapporo. Recently, the "exclusive road usage project" was launched and measures are being implemented to relax the criteria for road occupancy permits to allow more on-street activities. Specific areas such as the Marunouchi district or the Green Odori Street in Ikebukuro, as well as areas around Osaka Station have been approved to hold events on the streets. Projects such as the "Parklet Project" are being tested in these areas and results show that these events are

attracting more people to the streets⁴⁾. At times, these public renewal plans have succeeded because local civic groups have contributed to the effort.

Such cases, where citizens have transformed streets into "active" spaces without a lot of government involvement, are very exceptional. Pedestrian streets in Japan are one of those rare cases where citizens possess, shape and actively use streets as a space of social interaction. These pedestrian streets are categorized based on their purpose such as commuting, shopping and playing. In contrast to pedestrian streets which are categorized as commuting or shopping streets, pedestrian streets that are categorized as playing streets (commonly referred to as 'play streets') are subjected to less regulations. Even though the number of play streets have declined over the past decades, there are certain play streets in Japan where civic activism still flourishes such as the Aisome Odori in Nezu, Bunkyo Ward. In the past, local residents have turned the street into a children's playground, movie theatre and flea market where adults also gather. Citizens are taking the initiative to transform the streets into a space where various members of the community connect.

1.2 Research Objective

This study aims to identify the management methods and spatial conditions that are necessary to maintain a street as commons. The paper will specifically focus on play streets in Japan and investigate how these streets have been used over the years and the role they have played in the community. Furthermore, management methods and physical characteristics of the streets and their surrounding environment will be investigated to identify successful management methods and necessary spatial conditions to sustainably use streets as commons.

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2. Literature Review

Vary few researches have been conducted on play streets. The majority of these have focused on play streets as a recreational space for children. D’Haese et al.⁵⁾, for instance, investigated the effect of play streets on children’s physical activity and sedentary time. Abo⁶⁾ aimed to understand how play streets in Japan were being managed and presented ways play streets could function as a short-term replacement for children’s parks and playgrounds, which were lacking at the time, by calculating the number of play streets necessary in a specific area.

While most research has looked at play streets as a way of providing recreational space for children, some studies have conducted an extended investigation on the impact play streets have on the whole community. Kageyama⁷⁾, for example, studied the potential ways to use and manage play streets as a public space that could bring children and the community closer.

It has been shown in past studies that play streets have a positive impact on children’s activity and how it can become an effective medium between the children and the community. However, the main users of play streets do not necessarily have to be the children, especially in Japan where the population of children is shrinking. Also, the main focus of many of the research was on the management of the play streets and not many studies have investigated the relationship between spatial conditions and play streets. This research aims to investigate the management methods and the spatial conditions which are necessary to utilize play streets as commons open to every member of the community.

3. Research Overview

3.1 History of the Play Street in Japan

Due to a lack of historical research on this subject matter, this paper has retraced the history of play streets in Japan by using newspaper articles as shown below.

Table 1. History of the Play Streets in Japan

Date	Source	Content
1958/8/3	Asahi Newspaper (1958/8/4) ⁸⁾	“Children’s play street” was implemented in Taito Ward.
1960	Yomiuri Newspaper (1960/4/16) ⁹⁾	The National Police Agency requested the implementation of play streets to the town council leader. (46 play streets in Tokyo)
1966	Science Council of Japan ¹⁰⁾	Tokyo Metropolitan Government set up the “Tokyo Headquarters of Playground Usage Measure”. This led to the introduction of a plan to open up Tokyo’s metropolitan land.
1968		The Ministry of Construction developed an emergency measure to protect children from traffic.
1970/4/27	Ministry of Education, Culture, Sports, Science and Technology ¹¹⁾	The National Headquarter of Traffic notified implemented measures to secure children’s play space, which led to an increase of play streets.
1970/7/8	Mainichi Newspaper (1970/7/9) ¹²⁾	The National Police Agency decided to designate 400 streets as play streets in Tokyo during the summer break (July 21 -August 31).

Date	Source	Content
1972/7/17	Yomiuri Newspaper (1972/7/18) ¹³⁾	The traffic department of the National Police Agency increased the number of play streets from 550 in 1971 to 1135 in 1972 in Tokyo to minimize traffic accidents and mitigate exhaust gas emissions.
1973	Asahi Newspaper (1998/8/22) ¹⁴⁾	In Saitama Prefecture, play street were introduced for the very first time, but soon after streets were filled with parked cars due to the lack of proper traffic regulations.
1998	Yomiuri Newspaper (1998/11/5) ¹⁵⁾	Oota ward discontinued all the play streets. The ward stated that the children were no longer playing on the play streets.
2001	Asahi Newspaper (2001/2/1) ¹⁶⁾	The diminishing population of children is raised as the reason for the discontinuation of play streets.
2016	Asahi Newspaper (2016/8/19) ¹⁷⁾	As of August 19, 2016, there are 877 play streets in Tokyo. Only adults use the play streets to enjoy their daily exercise.

3.2 Research Methodology

The study will examine two types of play streets - streets that used to be actively used and streets that are still actively used today – in order to ascertain why only certain streets were successfully maintained as commons. The streets were carefully selected by conducting interviews with local residents and town council members, and through on-site investigation.

The streets were analyzed and compared in terms of two aspects: management method and the spatial characteristics. Specifically, the following factors were considered for the spatial characteristics: the street widths and lengths, types of sidewalks and roadways, the building use and the surrounding environment.

Based on the above factors, the two types of play streets were compared to identify the specific conditions necessary for play streets to be actively used.

3.3 Research Area

In Bunkyo Ward, there are 176 pedestrian streets and 39 of them are categorized as play streets [as of September 28, 2017]. Following earlier on-site investigation, 9 play streets were selected (Fig. 1)



Fig. 1. Play streets selected for case studies

4. Play Streets in Bunkyo Ward

4.1 Basic Information of Selected Play Streets

Play streets were closed to traffic during specific days and times. The details of the 9 chosen play streets are shown on the Table 2.

4.2 On-Street Activity

Details of the activity were obtained through on-site observations and interviews with the local residents and town council members. The activities were categorized into daily activities and events.

Daily activities were only observed on streets A, B and C. Main activities included, children riding bicycles and playing ball games. Streets seemed to be used mainly because streets were better suited than parks to enjoy these activities or because the streets were closer to their home.

All streets, except for street K, were used for local festivals. On street A, B and H, stages were set up for dance performances and booths were installed. Yearly town council events like mochi-pounding, emergency drills and flea markets were also held at some of the streets. Unlike other streets, on street A, organizers other than town council members such as non-profit organizations held events for children with activities on the streets.



Fig. 2. Observed Activities on the Play Street

4.3 Management Methods

Play streets were closed to traffic during specific times on Sundays and holidays. However, on all play streets which were investigated, cars were driving through freely, unless signboards were placed on the street. Official traffic signs placed by the police did not seem to be very effective in stopping cars from entering. Some signboards were provided by the police but generally, the police do not support the usage of play streets in any other way. The play streets were entirely managed by the town council members or the local residents. On all streets, signboards were placed to close the street to traffic. There was, however, no supervision on the streets. For all streets except A, signboards were placed on Sundays and holidays. On street A, signboards were placed only on Sundays to lessen the burden on drivers. When ever the signboards were not used, they were placed by the street or tied to a pole.

Interestingly, signboards were placed by various individuals. On streets A-H, members of the Parent Teacher Association (PTA) or town council took turns to place the signboard, lessening the burden on each member in managing the play streets. On the other hand, on street I, one individual was responsible for placing the signboards every week. But while managing a play street as a group can help distribute the burden, it seems difficult to keep the group active for a long period of time. One reason for this is because less and less children are playing on the play streets and as a result, less parents are willing to manage the play streets. To overcome this situation, the town council supported the PTA group in setting up the signboards. In the case of some streets, however, there was only a small number of town council members and since it was too much of a burden for some of the aged members, the town council stopped placing

Table 1. Information of the Play Streets

	Street	A	B	C	D	E	F	G	H	I
Basic	Area	Nezu 2chome	Koishikawa 2chome	Koishikawa 4chome	Koishikawa 1chome	Suidou 2chome	Suidou 2chome	Kohinata 4chome	Koishikawa 1chome	Hakusan 2chome
	Starting Year	1972	1976	1989	1973	1974	1974	1974	1974	1976
	Hours	9-17	9-18	10-17	10-16	9-17	9-17	9-17	10-17	10-17
	Daily / Event	Both	Both	Both	Event	Event	Event	Event	Event	None
Management	Signboard	Used	Used	Used	Used	Found	Found	Found	Found	Found
	Volunteer	Town Council	Town Council	Town Council	Car Dealer	Town Council	Town Council	Town Council	Town Council	Individual
	Length (m)	90	100	120	170	230	120	90	120	140
Spatial	Width (m)	10.64	9.04	11.78	8.66	8.04	7.33	6.27	6.32	6.23
	Lane	2	2	2	1	2	2	2	2	1
	Sidewalk	Both Sides	None	Both Sides	One Side	Both Sides	None	None	None	One Side
	Play Space Area (m ²) [r<250m]	1227	379	8717	1406	282	630	7831	1772	0
	Zoning ^[1*]	C / NC	Quasi-I	2 R	Quasi-I	NC / Quasi-I	NC	1 R / 1 Mid-High R	C	1 Low R / Quasi-I

[1*] Abbreviation of the Zoning: C=Commercial, NC=Neighborhood Commercial, R=Residential, I=Industrial, Mid-High R=Mid/High Rise Oriented Residential, Low R = Exclusively Low-Rise Residential Zone, 1=Category 1, 2=Category 2

the signboards. In other words, even if the play streets are managed as a group, the street cannot be maintained unless new volunteers appear consistently. Therefore, it is important for local residents to take initiative to systematically manage the streets and support the town council members like in the case of street C to maintain the activeness of play streets.

4.4 Reasons for Discontinuation

There were various reasons why play streets get discontinued. On street H, the signboards were no longer placed and the street is not actively used because the residents who were managing the play street moved away due to a redevelopment project that started in the area. On street I, it became too much of a burden for a single individual to set up the signboard every week and to take care of all the complaints from the nearby neighbors and drivers. Importantly, the diminishing population of children (Fig. 3) seemed to be a significant factor as well. On streets E, F and G, the town council members stopped placing the signboards because the street was no longer used by children.

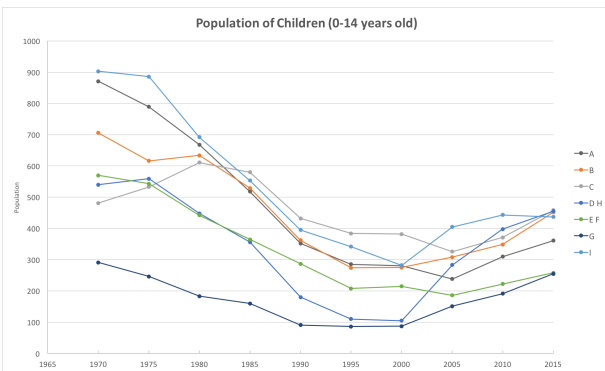


Fig. 3. Population of children between 0-14 years old in each district from 1970 to 2015¹⁸⁾ [2*]

[2*] Population of 0-14 years old for each town in 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015 were collected. Population is based on the town, not the street, so the population curve may not represent the precise population around the play streets.

5. Spatial Analysis of the Play Streets

The necessary spatial conditions for actively used play streets were analyzed based on the relationship between on-street activities and spatial factors. In this regard, specific attention was given to the street width and length, the types of sidewalk and roadway, the building use, and the surrounding environment.

5.1 Street Width and Length

The street width was calculated by averaging the road widths on the road inventory map obtained from the Bunkyo Ward¹⁹⁾; the data for street length is an approximate length of the street obtained from the National Public Safety Commission²⁰⁾. Table 1 shows that streets A, B and C, which are still currently actively used are all above 9 meters and have the largest width out of all 9 streets. Their street width is also above the average road width of the top 20 play streets in Bunkyo Ward, which was 8.06 meters. It is evident that large road width is a crucial factor that influences the activeness of the

play street. On the other hand, more activities were observed on streets with shorter length. The three streets that are still actively used (A-C) and the three streets that were active until recent (D, H-I) all have street lengths within the range of 90-150 meters, which is a lot shorter than streets that are currently inactive such as street E. It is highly probable that longer streets have more impact on the nearby traffic situation and are more likely to get complaints and consequently get discontinued. At the same time, it is important to keep in mind that shorter streets can also have a negative impact on the nearby traffic situation if there are not many alternative paths, like Street I.

5.2 Types of Sidewalk and Roadway

The relationship between the “degree of separation between the roadway and sidewalk” and “number of traffic lanes and sidewalks” was investigated as shown in Table 2. The degree of separation was judged based on the existence of guardrails, sidewalk pole, curbs and road surface markings, and categorized into high, medium and low as shown in Figure 4.

Table 2. Relationship between the degree of separation and types of roadways and sidewalks

	1 Lane 1 Sidewalk	2 Lanes No Sidewalk	2 Lanes 2 Sidewalks
High	I		A / C / E
Medium	D		
Low		B / F / G / H	



road surface marking [low] guardrails/poles [medium] curbs and guardrails [high]

Fig. 4. Degrees of Separation

The results show that play streets with two traffic lanes and two sidewalks which have, furthermore, a high degree of separation, are most actively used. This is, of course, because streets with two sidewalks and two traffic lanes that are generally wider and thus allow more space for various daily activities and events.

A high degree of separation was observed in the case of Street A. The clear separation allows the play street to function both as a pathway and an open space where people can freely enjoy their activities on the street without disturbing the pedestrians (Fig. 5a). Also, the guardrails between the roadway and sidewalk guarantee each store to have enough storefront space to display their goods or for customers to lineup (Fig. 5b).



(a)

(b)

Fig. 5. Separation zone in Street A

Although street A is considered “high” in terms of the degree of separation, there are certain locations where streets are not clearly separated by guardrails (Fig. 6).

At times these gaps can be effective. To give an example, places such as cafés with outside seating can use the available space in a very effective way as it provides more room for the customers and creates an inviting atmosphere.



Fig. 6. Outside Seating

However, play streets do not necessarily have to have a sidewalk or a high degree of separation in order to be actively used. Results show that in a residential street, play streets without sidewalks, and thus a low degree of separation, were also actively used. On streets with many residential buildings, there does not seem to be much need to have a clear separation between the roadway and sidewalk as the gates or doors of these residential buildings act as a wall between the private and public realm. Some multiunit housings have enough setback to control access and encroachment within adjacent areas. Unlike in the case of a street with many stores, there is not much need to create an inviting atmosphere in front of houses. Indeed, the fact that no guardrails or poles are placed actually helps to provide a continuous space for various activities.

5.3 Building Use

5.3.1 Changes in Building Use

People go to streets for various reason, from simply walking through to playing on the streets. Some people also come to the street to visit different stores or restaurants or even to work. The buildings on the street are a crucial factor which impact the types of people the street attracts. Changes in the building use for the play streets that survived during 1988-1998 (A-C, H-I) and the play streets that were discontinued during 1988-1998 (D-G) were compared to determine whether the change in building use was a factor which led to the discontinuation of play streets and also to verify the type of building uses that allow the play streets to be more actively used.

Residential map of 1973²¹⁾ for Street A, D-H and 1977²²⁾ for Street B was used to analyze the buildings and people’s activity at the time the streets first became play streets. Furthermore, streets D-G became inactive around 20 to 30 years ago, according to the town council leaders. Therefore, residential maps from 1988²³⁾, 1993²⁴⁾ and 1998²⁵⁾ were chosen to analyze the changes the streets have gone through.

Past residential maps suggest that play streets in areas where the the types of building use have not changed dramatically are more actively used. It may be that the people who have lived in the area for a long period of time have been very understanding about the street getting closed to traffic on certain days. This result is

supported by the case in street H where the play streets became inactive because the residents who were managing the play streets moved away due to a redevelopment project of the buildings on that street.

Further analysis was carried out by categorizing the streets based on the ratio of the building use and by analyzing the changes they have gone through (Fig. 7).

Results show that play streets with diverse building use and a high concentration of residential buildings are more sustainable. Streets A-C and H-I that have survived during the time many other play streets got discontinued generally have at least two major building uses. This leads to the observation that play streets with diverse building use are more likely to be recognized by the members of the community as they attract various types of users to the streets. More importantly, the majority of the streets which survived (A-C, I) have a high residential concentration. Especially in the case of streets A, B and C, the ratio of residential buildings increased from 1988-1993, in contrast to streets E and F where the number of residential buildings decreased from 1988-1993. This may be attributed to the fact that residents living on the street are oftentimes the main group of people who are managing and using the play streets. However, it can also be seen in the case of street G that the play street may not function very well if the street is covered entirely with residential buildings. This may be because in such areas, local residents are the only type of visitors and the street does not attract enough users.

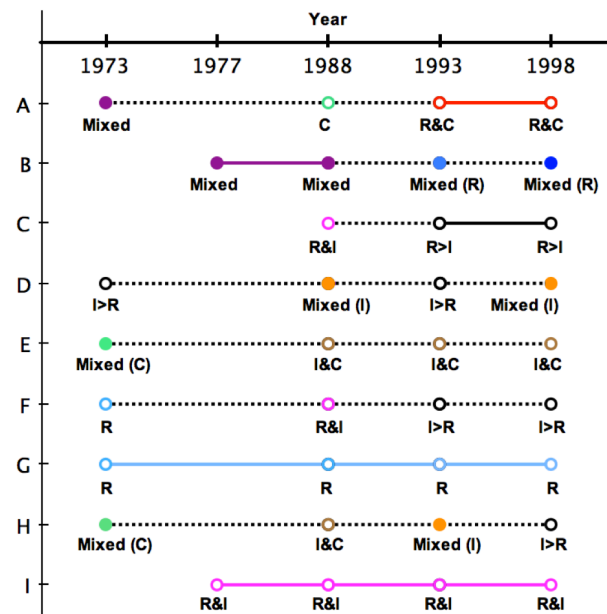


Fig. 7. Change in building use over time

“Mixed” with a fairly balanced number of industrial, commercial and residential buildings; “Mixed use with one highly concentrated building use” [ex. Mixed(C)]; “Two highly concentrated building uses” [ex. R&I]; “Two highly concentrated building uses which one is significantly higher than the other” [ex. R>I]; “one highly concentrated building use” denoted simply as R, C or I.^[1*]

5.3.2 Specific Building Use

Street A, unlike other streets, had organizers outside of the community organize events on the play streets. The rental space on street A allowed groups of people

other than town council members to manage the play streets. The rental space gets utilized as a hub during events where people from different districts who do not own a place near a street gather. Similarly, on street B, a community center on the street has become a hub for event organizers. Such temporary spaces were seen to be effective in becoming a meeting area for between the members within and out of the community.

5.4 Surrounding Environment

Play streets were initially introduced in areas where play areas for children, such as parks and playgrounds, were lacking. Thus, the initial aim behind play streets was to provide an alternative space for children to play. Therefore, the relationship between the total area of nearby play areas and the activities on play streets was investigated to analyze whether play streets surrounded by more play areas are less active or not.

According to Oba et al.²⁵⁾, locations within 0 to 250 meter radius from home were most frequently used as children's play areas. Therefore, this paper investigated the number and total area of play areas within 0 to 250 meter radius from each play streets as shown in Table 2. The study focused on all types of play areas in Bunkyo Ward which are the Bunkyo Ward's parks, recreation grounds and playgrounds, and the Tokyo Metropolitan Parks.

The results suggest that play areas such as parks and recreation grounds are not necessarily functioning as a substitute for play streets. Play streets that are currently active (A-C) generally have more play areas nearby compared to other play streets that are currently inactive but still attract many other users. For instance, street C has a lot more play areas nearby compared to street E, but it is more actively used. The activeness of play streets does not seem to depend on the availability of the surrounding play areas. One significant reason may be that streets that are active are used by adults as well and are not entirely dependent on the children.

6. Conclusion

Play streets in Bunkyo Ward that are still actively used were streets which not only attracted children, but also successfully attracted various other local citizens. Such play streets acted as commons which played a significant role in strengthening the connection within the community.

The way play streets get used seems to depend greatly on the active participation of the local citizens. More on-street activities were observed on a daily basis and during events in areas where play streets were properly managed and signboards were placed consistently. However, the findings of the spatial character analysis of the play streets have shown that physical characteristics of the play streets also have a significant impact on the on-street activities and the types of users it attracts.

Interestingly, while the street width was found to be a necessary spatial condition for all play streets, the effectiveness of several other factors such as the types

of sidewalk and road as well as the building use seemed to depend on the building use of the district. Therefore, a careful assessment of play streets based on their spatial conditions is necessary to determine the potential ways the play streets can be used. Based on such an assessment, the target usage of the play streets should be determined and presented clearly so that the local residents can have a better idea of how they should manage and utilize the play streets.

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