Role and Utilization of public space in social context A case study of footpath in Bangkok

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***Abstract*— Footpath is the most common type of public space of the city that connects points of origin and destination. The role and utilization of footpath however are diverse. It reflects the complexity of the social comprehension of the citizens towards the publicness of city's public facilities. This research aims to determine the role and utilization of footpath as one type of city's public space by examining behavioral response of footpath users and to improve the pedestrian condition on footpath in Victory Monument, Bangkok. This research was an empirical examination of behavioral responses and perceptions of people to the role and utilization of footpath in Victory Monument. It used methods involving pedestrian counts to examine the walking performance of the pedestrians, the behavioral observation to study the social characteristic of footpath activities, and in-depth interview with group of footpath users. The result of the studies shows that the physical setting of the footpath in the study area is efficient to accommodate the walking pedestrians. The change in footpath utilization during evening hours however significantly reduced the efficiency of footpath for walking. The increase of pedestrian unit flow rates and the sustained and stationary activities on footpath in the evening reduce the walking space per pedestrians. The optional walking route at the Skywalk footpath becomes the main access with the largest amount of pedestrian flow while the footpath utilization changes at Phayathai Island footpath below. It proves that the pedestrians prefer to access without alternative activities on intermodal site footpath. The social interaction among footpath users is minimal regardless of vibrant activities on footpath. However, the number of events for the individual pedestrians performing sustained and stationary activities such as window shopping and waiting is a significant factor in the predominant change of footpath's role and utilization. The rebalancing of role and utilization of footpath that prioritized pedestrian and social interaction requires the shift from generalized legal definition of footpath to specific control, authority, users and scope of publicness. The participatory process from all groups of user is required in redefining the role of footpath space. The activities and utilization of footpath space should be rebalanced to prioritize the pedestrians. Policy maker should initiate a functional legislation act on the use public space especially footpath that benefits pedestrians of the metropolitan city.**

Keywords: footpath space, footpath culture, role and utilization of footpath, stationary and sustained pedestrian

I. INTRODUCTION

Footpath is the simplest forms of public space of every city. It is the public ground that connects points of origin and destination [1]. It is the area locates between roadways and buildings. It is the public path for pedestrian to travel from one point to another. [9] Footpath is a part of the street and urban life. Footpath is also a domain of street merchant and vendors. It is a place to provide public leisure and gathering. Footpath is a home for homeless. It is a space held for voicing out the political activities [1]. Footpath provides the space for many public services that are necessary for city well operation such as water supply, drainage system, electrical poles, telephone lines, street lighting and public telephone booths. Bangkok Metropolitan's footpath is indifferent. It is the transit station for public transport ranges from motorcycle taxi, public van and public buses. It is the fast food restaurants, convenient stores and the place to pick up the latest fashion trends. The terminology of footpath carries many other different meanings besides the public space. The mixture of several activities on the public footpath space causes the insufficient amount of footpath space to serve all purposes of the pedestrian in the city during different time of the day. However, the rich diversity in the use of footpath space marks the uniqueness of the footpath culture in Bangkok Metropolitan. It is the undeniably fact that the informal economy of street vendors and temporary stalls are the heart of Bangkokian's everyday lifestyle. The conveniences in transferring from one type of transportation to the next provide the flexibility in everyday's busyness of Bangkok Metropolitan. Footpath space becomes the place where social encounters of the people of the city take place. The social vibrancy of footpath culture provides the opportunity to be flexible as well as marking the unique identity of the city.

The review of literature categorized the role and utilization of footpath into three perspectives of public space [2] which gives the structure in defining and managing public space of the city. This research will explore the legal-

economical perspective that provides fundamental definition and institutional groundwork involves in footpath as public space and the social-spatial perspective on the social application of footpath as public space.

Such role and utilization of footpath is examined by pedestrian count method on the current walking behavior. The framework for pedestrian facility evaluation [3] is applied to determine the condition of existing footpath space in various context of the study area. The study is conducted together with behavioral mapping survey method on the human activities classification of the pedestrians on footpath space to identify other social aspects occurring in the study area. Victory Monument is chosen as a study area of this research as it is one of the major intermodal sites for public transportation routing to almost every part of Bangkok and nearby provinces.

II. Objectives

The main objective of this study aims to examine the role and utilization of Bangkok's footpath as a public space by identifying the behavioral patterns of pedestrian, walking performance and social activities in a dynamic footpath context at Victory Monument, Bangkok.

III. Review of Literature

A. *Footpath as a fundamental public space of the city*

Footpath is a basic infrastructure of the city [9] that connects pedestrians from destination A to B prioritized commuting method on foot. The obstruction of any kinds is prohibited by law. Clean and Order City Act B.E 2535[10] section 4 gives the definition of the public space as the public facility belongs to the state including road and waterway. Footpath is categorized as one type of road which is considered as a public space and it should be accessible for all. In section 17 prohibits any activities that damage the footpath (1) including vehicle parking, motorcycle parking, and trolley parking on footpath except for the temporarily permitted area allowed by the district officers. Section 20 prohibits any cooking activities and selling product including movable trolley on roads and footpaths except for the temporarily permitted area and time allowed by the district officers. In Land Traffic Act B.E.2522 section 109 [11] provided the rule and utilization of footpath space that No person shall commit any act on a footpath or any other way provided for pedestrians in any manner that obstructs other persons without sufficient cause. Section 110 No person shall buy or sell goods, distribute materials or solicit contributions in a roadway or in the middle of a way without sufficient cause or that obstructs the traffic. The role of footpath is the same as road which is to accommodate commuting traffic and it is as equally significant as the road for vehicles [12]. The fundamental role of footpath space is therefore a very significant public space of the city that facilitates the commuting activities by foot of the pedestrians. It is the most vital organs [4]. However, there are many overlapping utilization of footpath space. Footpath is also a home of many other public facilities of the city such as electrical poles, wire-way, fresh water system, drainage system and telecommunication facilities. It is also a point of contact between the pedestrians and other mode of transportation such as bus, van, and motor cycle taxi.

B. *Footpath is the space for social activities*

Many literatures revealed that footpath is also a social space for contact among all type of footpath users. Its social role is equally significant. Jacobs stated that "Sociability is a large part of why cities exist and streets are a major, if not the only public space for that sociability to develop" [4]. Sidewalks (Footpath) were active site of socialization and pleasure. Social interaction kept neighborhoods safe and controlled [4]. Sidewalks (Footpath) are the space of movement that facilitate the social encounter among strangers and expose sidewalk (Footpath) users to a public gaze. A public interaction helps construct and displace individual identities [1] Therefore, the social contact among footpath users plays major role in keeping the existence of the city. The social role of footpath space as public space of the city coexists with the fundamental role as a walking space. It is cohering and keeping the effective social environment of the city.

The overlapping purposes of footpath are inevitable. Many sidewalk users have overlapping purposes, and this variety creates diversity and draw people to the street [1]. Sidewalks (Footpath) support public activities and public relationship but they also allow people to fulfill personal needs through economic exchanges, social encounters and at time basic survival [1]. Footpath represents the paradoxical purposes of public facilities that serve private needs of each individual. The conflicts over the role of footpath as a public space of the city often occur. The balance of such role is being questioned.

C. *Activities on Footpath*

Human activities are specific behavioral manifestations of man's response to the environment and hence are affected by cultural, social, economical and climatic factors [5], [6] Human activities are the key to identify the cultural uniqueness of role and utilization of footpath space in different context. It is also the factor to determine the characteristic of the place [7].Walking and footpath space brings people together and causes diverse social activities [9]. The social characteristic of footpath is being represented though activities on footpath space.

The role and utilization of footpath space is being examined by studying the type of activities on footpath space. Gehl has classified the type of activities in public space into three categories ranging from the low to high level of social contact namely necessary activities, optional activities and social activities [7]. Footpath space serves the fundamental activity that is necessary to the city which is

walking. It also serves optional activities that people chose to do for clear or unclear purposes such as walking for leisure, sitting in the street furniture to enjoy life. It depends upon the environment condition of such footpath space. If the footpath is high quality of space it will attract people to do more than just walking through. Social activities according to Gehl include physical contact and passive contact. Physical contact includes the direct activities between one another such as talking, selling and buying goods on footpath space. Passive contacts is simply seeing or healing other people.

Mehta categorizes human activities in public space according to the features of the activities as followed [8]:

- Stationary and Sustained activities includes any kind of activities that remain in one place for more than 15 seconds such as standing, sitting, lying down.
- Lingering activities includes a person moves around in the outdoors within the length of 50-60 foot street for more than 15 seconds.
- Social activities includes type of activities that involve two or more persons engaging in stationary and sustained or lingering activities and interacting with each other actively or passively.

The pedestrians walking performance is examined at the footpath where other activities are allowed on temporarily permitted area to determine the effectiveness of the fundamental role of footpath space as a walking space. The walking performance of the pedestrian is analyzed according factors from LOS of Highway Capacity Manual 2000 where speed (m/s), space (m²/person), unit flow rate (person/minute/meter) of the pedestrians and the volume to capacity of each area of the selected footpath space are observed. The data were analyzed at 1 minute interval for 120 minutes each period. This pedestrian count on their walking performance is recorded at three different locations of footpath in the study area where two locations are at ground level and another one on the crossing bridge over the road. The behavioral mapping is later performed at two footpath locations where there are other activities occurring on footpath to determine the type of human activities and social interaction on particular footpath space.

IV. RESEARCH METHODOLOGY

Pedestrian count method was employed as the main tool to identify the pedestrian routine and walking condition of the study area over the course of the day according to the framework by Highway Capacity Manual 2000. Three locations of footpath space with various contexts are selected to represent the overall footpath characteristic of the study area. Pedestrian observations and recorded video were utilized as the main data collection for this study. The data were collected at the peak hours of the morning (7am-9am), noon (12pm-2pm) and evening (5pm-7pm) period for 2 hours each for 3 weekdays and Saturday. The collected data were analyzed to identify average speed (m/s), space (m²/person), unit flow rate (person/minute/meter) of the pedestrians and the volume to capacity ration of the selected footpath space. The pedestrian count was conducted to examine the walking pattern of the pedestrians and the capacity of the footpath space to accommodate pedestrians walking behavior.

The other activities and social behavior of footpath users were examined by behavioral mapping observation according to Human Activities Classification [8].The behavioral mapping observation was employed by a recorded video on people's stationary and sustained activities including their locations and postures. The video was recorded over the 3 hours peak period in the evening from 5pm to 8 pm when most activities occurred on footpath space on 3 weekdays and Saturday. The data were recorded on the two footpath locations that carried most conflicted activities on footpath space. The behavioral mapping observation on stationary and sustained activities of the pedestrian would identify the social interaction of the footpath users and how it is affecting the walking performance of the overall pedestrians.

The study area

Victory Monument is one of the earliest public spaces in Bangkok that carries very significant meaning of Thailand's democratic revolution in 1932. The monument was constructed in June 1941 to commemorate the Thai victory in the Franco-Thai War regarding the French colonial authorities in Indo-China by Field Marshal Plaek Phibunsongkhram, the 3rd Prime Minister of Thailand. It is completed and opened on 24th June 1942 and marked its location as Kilometer Zero (Kilometer 0.00) of Thailand. The Victory Monument is the beginning of Phahonyothin Road, Thailand Route 1 which is one of the four major highways of Thailand developed after the democratic revolution and the new constitution.

The significance of Thailand Kilometer Zero site is still strongly recognized today in the modern urban context of Bangkok metropolitan. Victory Monument today is one of the most significant intermodal sites for public transportations routing to almost every part of Bangkok and even nearby provinces. The BTS sky train station locates to the south of the Monument. There are many Bangkok BMTA public bus lines stop around the Monument's traffic circle. The exit of the Bangkok Expressway is near to the North of the monument. There are the private commuter van lines that use the area around the monument as a terminal. The motorcycle taxi terminuses locate around the roundabout at several locations of the junction. All of the intermodal modes of public transportation are interconnecting by footpath at ground level and skywalk at upper ground level at the eastern part of the monument. The public transportations locate their terminuses on footpath space. Victory Monument area is also the home of other significant buildings and

facilities such as RachaWithi Hospital, Phra Mongkutkloa Hospital, Phra Mongkutkloa medical College, Children Hospital and Institute of Dermatology. There are many shopping malls of the area with Fashion Mall, Center One and Century Plaza selling fashion clothing and accessories.

Due to the specific location of Victory Monument that performs as the major traffic intersection and public transportation hub of Bangkok Metropolitan. The Victory monument's footpath is crowded with people who visit and transit for various different purposes. The heavy pedestrian traffic encourage Victory monument to become one of significant site socially, politically and economically. Many times it is held as the political ground to many political movement of Thailand and at the same time it is the everyday transit station of Bangkokian who commutes in and out of the city. Permanent, semi-permanent and temporary stalls and vendors locate at the prime location to conveniently serve the pedestrian with everyday common goods, food and many services. It is the pronounced reflection of Bangkokian's everydayness and the city. How Bangkokian is used to the rich vibrancy of the space and how they are part of it to make the unique setting of Bangkok Metropolitan.

Pedestrian count was recorded at four locations of footpath space are selected as a representation of overall characteristic of footpath in Victory Monument.

A. Location 1: Footpath space at Phayathai Island

The area situates on the south eastern area of the monument connecting to Phayathai Road. It is the area connecting to Center One Shopping Mall. There are many permanent, semi-permanent and temporary stalls and vendors selling mainly fashion and clothing goods. The number of temporary stalls and vendors increase after 6 o'clock in the evening and run through until midnight. The size of unobstructed walking space of footpath width varies from 2.6 meter during the day and 0.9 meter after 6 pm onwards.

B. Location 2: Skywalk over Phayathai Island

It is an alternative pathway for the pedestrians over Phayathai Island from and to the skytrain station. The location is chosen to compare the walking performance of the footpath space at this upper level to the footpath space down at ground level (Location1). It provides the walking path and crossing bridge for the pedestrians without any interference from the vehicle traffic below. The size of unobstructed walking space of footpath width on the skywalk is at 3 meters.

C. Location 3: Footpath space at Phahonyothin Island

The footpath locates on the north western area of the monument adjacent to Phahonyothin Road. It is the center of public buses routing to the northern area of Bangkok. There are permanent terminal offices for BMTA (Bangkok Mass Transit Authority) situated by the bus stop on the footpath. The corner of footpath is a strategic location where motorcycle taxi station, temporary street vendors situated. The narrowest size of unobstructed walking space of footpath width is 1.85 meter.

D. Location 4: Footpath space at Phahonyothin Island

This crossing bridge connects between Phahonyothin Island and Koh RachaWithi Island. It is a crossing bridge with roof. As this western part of the monument does not have the skywalk, the crossing bridge is the only pedestrian route for the pedestrian without being exposed to the traffic. The unobstructed walking space of footpath width is 2.85 meter.

E. Location 5: Footpath space at Phahonyothin Island

The street is the emergency entrance to the Ratcha Whiti Hospital. The size of footpath on both sides of the road is at 1.5 meters each and the area where street vendors locate left 0.9 meters unobstructed walking space of footpath. The footpath in this location holds very specific usage as waiting area for the public commuter vans. There are several semi permanent van terminal stations locate on this strip of footpath space.

Figure 1. Victory Monument Location Map (Basemap: Google Map)

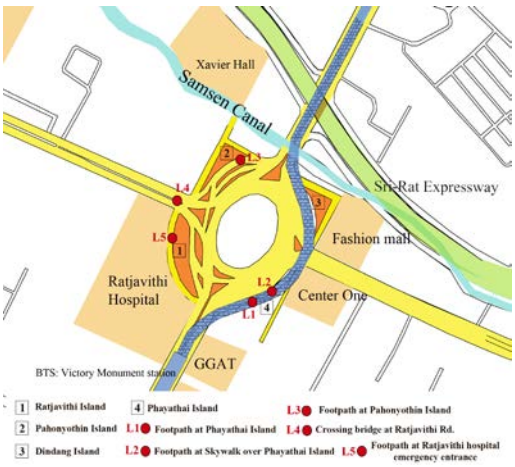

Figure 2. Locations of footpath for the study (Basemap: Department of City Planning Thailand)

Behavioral mapping observation for stationary and sustained activities was recorded at Location 1 and Location 5 where conflict between walking behavior and stationary and sustained activities occurs. The lingering activities will also be observed at location 1 as it is one of the main activities on footpath space at this certain time of the day. The study at Location 5 was conducted due to its current situation where walking footpath is being used as an informal van stop terminal. The road in front of RachaWithi hospital is a r oad at the second layer from the monument and roundabout but a main entrance to RachaWithi hospital and emergency unit access.

V. RESULT OF THE STUDY AND DISCUSSION

A. *Pedestrian's walking performance*

Pedestrian count throughout the hours of study during peak periods in a day on weekday and weekend shows significantly large number of the pedestrians occupying the footpath at all locations especially Location2: Skywalk where the footpath is dedicated for walking activities only and it is an interconnecting bridge covers eastern loop of the monument. The table shows the summary of the total number of the pedestrians occupied the footpath during 6 hours of study period.

TABLE I. NUMBER OF PEDESTRIANS DURING 4 DAYS DATA COLLECTION

Day	Location1			Location2		
	Hours (am/pm)			Hours (am/pm)		
	7-9	12-2	5-7	7-9	12-2	5-7
Mon	2036	1878	2058	8156	6642	12186
Wed	1754	1889	2402	10875	6788	7837
Fri	2405	1968	**2911**	7775	7178	**14090**
Sat	1873	2939	2816	5482	9597	9977
	Location3			**Location4**		
Mon	3501	2870	3962	1446	1730	6712
Wed	3426	2879	4080	4299	3316	5896
Fri	4738	4478	**5687**	4032	3453	**7807**
Sat	1975	3385	3327	2621	3723	4357

Friday evenings between 5pm to 7pm have the highest amount of pedestrians occupy the space at all locations. The utilization of Victory monument as an intermodal site for public transportation may cause the significant numbers of users occupy the area during Friday evening to commute in and out of Bangkok. Taking the example on the data from Friday (9th August 2013) with averagely maximum number of pedestrians occupied the footpath, The result shows that the pedestrian flow at location 1 and 3 (Phayathai Island and Pahonyothin Island) were consistent throughout the day while the pedestrian flow at location 2 and 4 (Phyayathai skywalk and Ratjivithi crossing bridge) increased greatly during evening hours.

TABLE II. COMPARISON OF THE WALKING PERFORMANCE OF FRIDAY 9TH AND SATURDAY 10TH AUGUST 2013

Location1	**TIME :Friday 9th Aug 2013**		
	7.00-9.00 am	***12.00-2.00pm***	***5.00-7.00pm***
Speed (m/s)	1.19	1.11	1.08
Space (m²/p)	9.84	9.96	2.85
Flow (p/min/m)	6.55	6.30	26.95
V/C ratio	0.08	0.08	0.35
Location2	**TIME :Friday 9th Aug 2013**		
	7.00-9.00 am	***12.00-2.00pm***	***5.00-7.00pm***
Speed (m/s)	1.52	1.47	1.32
Space (m²/p)	4.14	4.09	1.15
Flow (p/min/m)	21.59	19.39	39.13
V/C ratio	0.28	0.26	0.52
Location3	**TIME :Friday 9th Aug 2013**		
Speed (m/s)	1.21	1.18	1.02
Space (m²/p)	5.58	5.19	2.92
Flow (p/min/m)	21.34	20.17	25.61
V/C ratio	0.28	0.26	0.34
Location4	**TIME :Friday 9th Aug 2013**		
Speed (m/s)	1.06	1.01	0.99
Space (m²/p)	5.76	8.14	3.20
Flow (p/min/m)	11.78	10.09	22.82
V/C ratio	0.15	0.13	0.30
Location1	**TIME :Saturday 10th Aug 2013**		
	7.00-9.00 am	***12.00-2.00pm***	***5.00-7.00pm***
Speed (m/s)	1.12	1.07	0.90
Space (m²/p)	6.70	6.10	2.19
Flow (p/min/m)	6.00	9.41	26.07
V/C ratio	0.08	0.12	0.34
Location2	**TIME :Saturday 10th Aug 2013**		
	7.00-9.00 am	***12.00-2.00pm***	***5.00-7.00pm***
Speed (m/s)	1.16	1.09	1.17
Space (m²/p)	6.56	3.65	2.73
Flow (p/min/m)	15.22	26.65	27.71
V/C ratio	0.20	0.35	0.36
Location3	**TIME :Saturday 10th Aug 2013**		
Speed (m/s)	1.15	1.15	1.09
Space (m²/p)	6.95	5.09	4.58
Flow (p/min/m)	8.89	15.24	14.98
V/C ratio	0.36	0.11	0.20

Location4	TIME :Saturday 10th Aug 2013		
Speed (m/s)	1.05	1.02	1.09
Space (m²/p)	9.89	6.63	4.00
Flow (p/min/m)	7.66	10.88	12.73
V/C ratio	0.10	0.14	0.16

The average pedestrian walking speed (m/s) of all locations at all three peak periods on Friday is consistent at around 0.99-1.52 m/s. The slowest speed is during the evening hours. The physical and social characteristic of the location play major part in the change of walking behavior. The number of shops and temporary vendors increases in the evening when the pedestrians tend to walk more for leisure and socialization. With the consistent walking speed it resulted in a distinctively high unit flow rates during the evening hours regardless the reduction of effective walking width from 2.6 meter to 0.9 meter at Location 1 footpath. Similar situation occurs on Saturday, when the pedestrian unit flow rate is considerably the same as Friday. Footpath location 3 and 4 however, shows the consistent result of walking performance of the pedestrian throughout the day both on weekdays and weekend. The unchanged footpath condition and activities may be the factors that sustain the consistent walking performance of the pedestrians regardless of the change in time.

Further study of the data from footpath at location 2 (skywalk) is taken into the analysis as an alternative route for the pedestrians at location 1. The result shows that during the same evening hours on Friday, space per person at location 2 is averaged at 1.15 m²/p which is considerably inefficient. Therefore, it is possible that the footpath at location 1 could not offer efficient walking condition to the pedestrians resulted in the walking condition at location 2 even though the space per person is considerable desirable. Different purposes of walking could also influence such result and shows that the majority of the pedestrians commute through the space for transit rather than leisure or shopping activities.

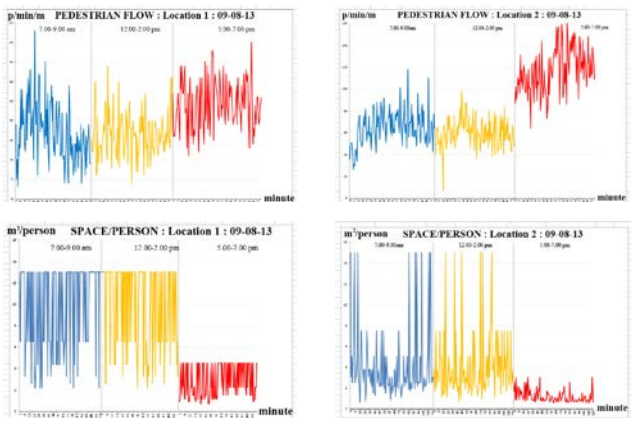

Figure 3. Pedestrian flow VS space/person of the pedestrian On Friday 9th at Footpath location 1 and 2

The transiting activities at location 3 Pahonyothin Island is stable throughout the day except Saturday morning when working there is less working population occupying the footpath. The average space per person during heaviest period of Friday evening when the maximum number pedestrians occupied the footpath at location 3 is 2.92 m²/p which is considerably appropriate even though the flow of the pedestrians is rather large (5,687 person with average of 47.39 p/min/m). When comparing the walking space per person at location 3 f ootpath to location 1 f ootpath (Phayathai Island) during the same evening hours on Friday, the result shows that the average walking space per person of the two locations are similar at 2.92 m²/p and 2.85 m²/p regardless the change in activities and inefficient footpath width at location 1.

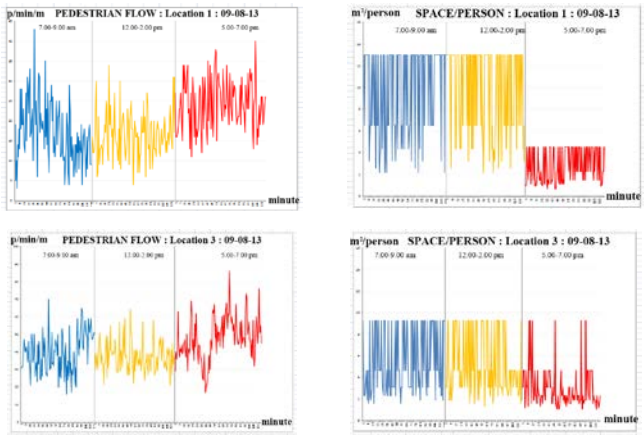

Figure 4. Comparison of pedestrian unit fow rate and space/ person of footpath location 1 and 3 on Friday 9th Auguest

The data of walking behavior during the weekend shows indifferent speed of walking pedestrians in all locations compare to weekday but the unit flow rate of pedestrians increases significantly during the midday in location 1 from 6.30 person/meter/minute to 9.41 person/meter/minute. The social activities that begin early during the weekend might influence the change in walking pattern of the pedestrians and the pedestrians tend to occupy the space more on the weekend. In contrary, the flow of the pedestrians in location 3 reduced significantly compare to weekday possibly due to less commuting activities of all other sort of public transportation.

Apart from role of footpath as walking space for the pedestrians, the result shows that footpath is utilized for other social activities. The physical context of adjacent building and services on footpath has direct influence on the walking performance of the pedestrians as well as how the footpath's role is being perceived from users.

B. Stationary and Sustained pedestrians

TABLE III. NUMBER OF PEOPLE OCCUPY THE SPACE BETWEEN 5-8PM

DAY	Location1		Location5	
	No. of people	*Space of footpath*	*No. of people*	*Space of footpath*
Monday 2nd Sept 13	9606	65	2186	66
Wednesday 28nd Aug 13	8744	65	1810	66
Friday 30th Aug13	3327	65	2037	66
Saturday 31st Aug 13	11786	65	2020	66

The result shows that the stationary and sustained activities of the pedestrians in Location 1 increase significantly on Saturday which is conformed to the result from pedestrian walking performance. The speed of the pedestrians reduced in the evening when the pedestrians take on other activities such as window shopping. The walking speed of the pedestrians reduced as the number of lingering increases as it gets later in the night. The number buy and sell events however are not as high as window shopping and lingering. The cause of lingering activity however, may come from the increasing number of shops and temporary stalls that reduced the overall walking space and effected in the much slower walking speed. Interesting enough though as the type of vendors at this area tend to sell modern goods mainly fashion clothing and accessories rather than the traditional street vendor type where foods and basic commodity are the main items. It shows the street vendor is no longer on the public footpath to supply basic commodity goods to support the demand of the pedestrians in the economical survival chain. Instead the footpath space is taken into the use of market for leisure where the buying pedestrians have a higher buying power and use the public footpath as a leisure market rather than to support the need of everyday lifestyle.

The comparative graph of lingering activity in location 1 between Monday and Saturday shows a drastic increase in lingering activity as it get later in the evening especially for weekend. The behavioral pattern of the pedestrians tends to occupy the space for more than just walking through during the weekend. The result of human activities shows that Victory Monument serve more than just an intermodal site for public transportation. The role of footpath instead is for the optional and social activities of the pedestrians.

The highest number of the pedestrians and activities is suppose to be on every Friday of the week according to the pedestrian counts and walking performance data but it rained on Friday 30th August 2013 resulted in a significant drop of pedestrains and activities in location 1. The number of lingering activity in the weekday (Monday) is consistent over three hours period in the evening and the number of lingering activity much lesser as it gets later in the night compare to the data in the weekend. The the optional and social activities may occur to be secondary for the people who occupy the space during weekdays.

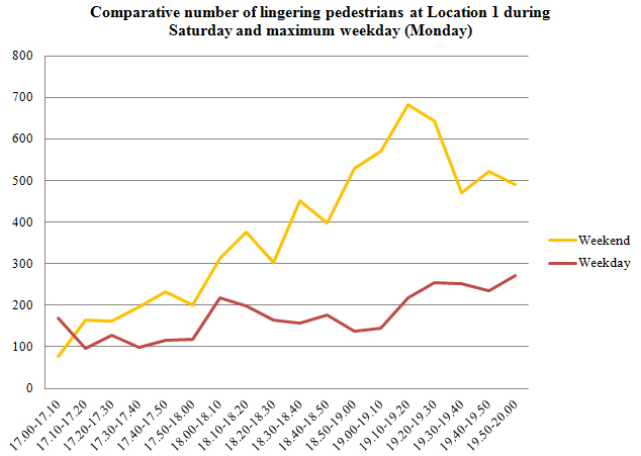

Figure 5. Comparative number of lingering pedestrians at location 1 during Saturday and Monday

Even though the footpath space in Location 1 o ffers appealing alternatives for social activities such as shops, street vendors and nearby public space with seatings. The result is contrary. The stationary and sustained activities of the individual pedestrains occurred very much more frequent compare to the social activities in group both for weekday and weekend. However, when compare the social activities between weekday and weekend, in location 1, social activities in groups occurred more frequently during the weekend and it gets more frequent as it get later in the night. The role and uitlization of footpath space at Location 1 tends to serve as a social space at night. It might be because the number of street vendors increase after 7 pm and the operate the space until midnight. It encourages more social activties of the footpath space in the area.

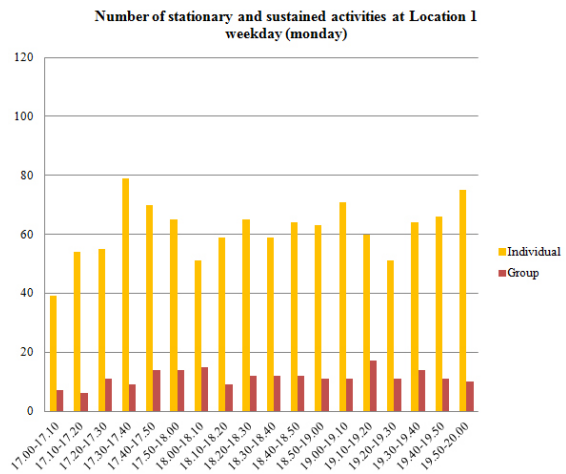

Figure 6. Number of stationary and sustained activities at Location1 on Monday 2nd September

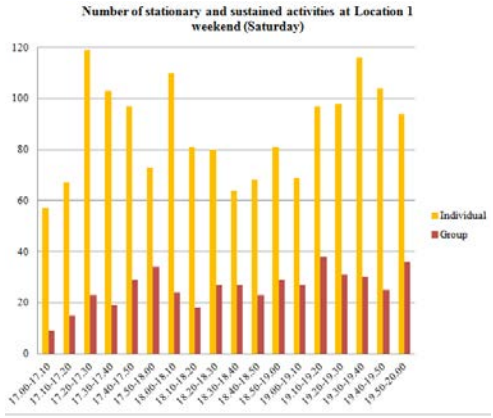

Figure 7. Number of stationary and sustained activities at Location1 on Saturday 31st August

In location 5 however, shows totally different result in the use of footpath space. The increasing demand of alternative public transports effect the role of footpath space. It tends to become the waiting station for the public transportation (public van). The stationary and sustained activities for indivudual is significantly higher than the social activities. There are some street vendors in this area too selling food and quick meal which seems to serve as a traditional type of street vendors when compare to the characteristic of street vendors in Location 1. Therefore the pedestrian behavior on the footpath in this area still remain as a quick-and-go transit space rather than the social market space for leisure. The number of social activities in this area therefore is minimal according to the physical chracteristic of the context as well as the current utilzation of space that does not encourage any social activities of the pedestrians. From the earlier observation, pedestrians tend to occupy this area of footpath in the morning when they want to commute into the city but there are not many ques waiting on the public van when compares to the amount of waiting pedestrians in the evening. The conflict of use between the fundamental role of footpath space and the human activities in this area seems to be problematic that requires further anaylsis and solution.

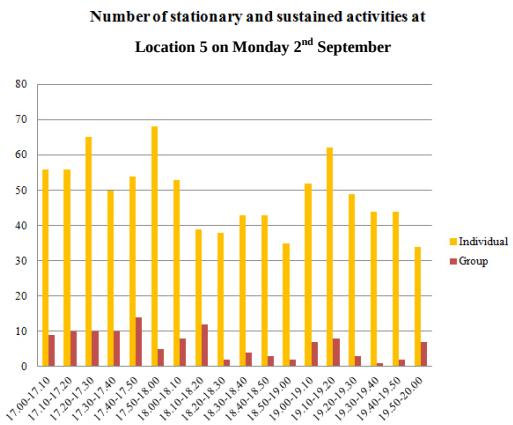

Figure 8. Number of stationary and sustained activities at Location5 on Monday 2nd September

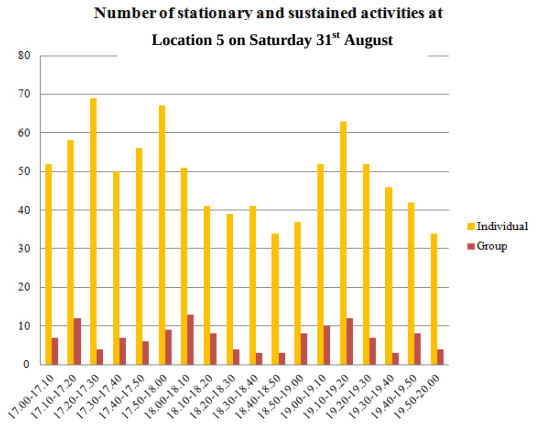

Figure 9. Number of stationary and sustained activities at Location5 on Saturday 31st August

C. *Type of stationary and sustained activities of the pedestrains*

Even though the study of stationary and sustained activities of the pedestrians on the footpath space shows various roles and utilizations of footpath in the social context of the city, most of the pedestrians however, are engaging in such activities individually rather than in group for both locations. The characteristic of Victory Monument as an intermodal site for public transportation might influence on the type of social activities and the level of social engagement of the people who occupy the space. People tend to pass in and out of the area for the main purpose of transiting and transferring rather than socializing so the social engagement between each pedestrian is much less than individual activities. However, the increasing number of social engagement activities among pedestrians and other users in the study area could improve the awareness and rebalance the use of footpath space as a public space.

According to the classification of stationary and sustained activities recorded with postures. It shows the totally different social activities when compare two locations of footpath space. Apart from walking and lingering in Location 1, most of the pedestrains are engaged in window shopping activities individually. The actual selling and buying activities are also considerbly high when compare to other social activities. But the actual buying and selling activities is quite low considering this location of footpath space as one of the most vibrant space for street vendors economically at the Victory Monument.

The rate of the buying and selling activities during weekday and weekend are similar even though the window shopping activities in location 1 gets really frequent in the weekend whereas other stationary and sustained activities remain minimal both individually and social activities as a group.

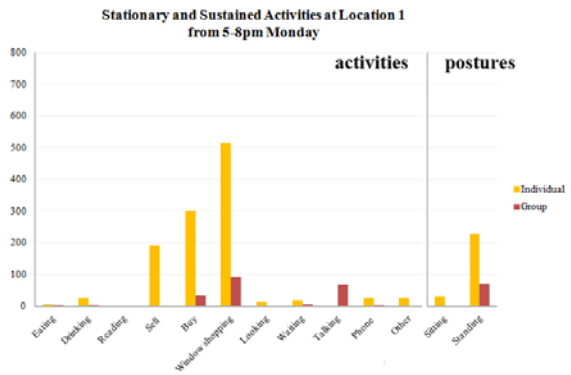

Figure 10. Type of activities classfication and postures at location 1 on Monday 2nd September

The absence of other footpath features such as public lighting, street furniture, green area and public seatings might influence the minimal number of other social activities such as seating , reading and talking of the pedestrians both for individual activities and social activities. The rebalance of space design to accommodate such pulic facilities would enhance more social activities of the pedestrians. Other social encounter activities would be encouraged.

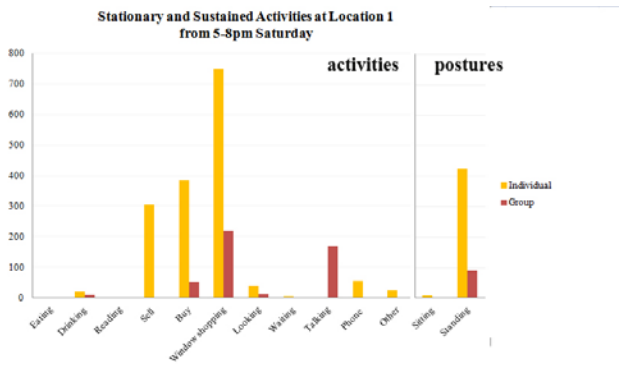

Figure 11. Type of activities classfication and postures at location 1 on Saturday 31st August

With its contraversal use of footpath space in Location 5, the result of the observation shows that the footpath space is currently being use as a waiting area and public van terminal. The waiting activity rate is highest both on the weekday and weekend. The selling activity is secondly frequent as there are some street vendors selling food on footpath space. Some vendors offer seating for pedestrians as it is a quick meal vendor but less people sit there for food as it get later in the night.

The result of the postures shows the significant number of walking pedestrians through the study area but they are walking on the road space as the footpath space there has no room left for walking. The conflict of use between the pedestrians and vehicle occurs as well as the conflict of use between stationary vehicle and moving vehicle. The reevaluation of the use of this footpath space is suggested as the effective width of the footpath is at 1.5 meter or less in some areas. The minimal number of waiting activity was expected during the weekend because people tend to commute less. However, the actual result from the observation shows contrary outcome. The footpath space is being utilized as a waiting area equally frequent on weekday and weekend but the number of walking pedestrians through the area is less in the weekend.

The number of individual activities and social activities in Location 5 are extremely contrasting. The majority of the people commutes individually and occupies the space individually. Similar assumption with footpath space in Location 1 is made that the current common utilization of the footpath is to transit and connecting to other transportation mode. The overall use of Victory Monument as an intermodal site for public transportation does not have features to support social activities. The insufficient width of the footpath to accommodate footpath features such as public lighting, street furniture, green area and public settings might influence the minimal number of other social activities such as seating, reading and talking of the pedestrians both for individual activities and social activities. The misusing habit of footpath space of other users such as van terminal also obstruct the possibility in installing public facilities to accommodate other type of social activities on footpath space.

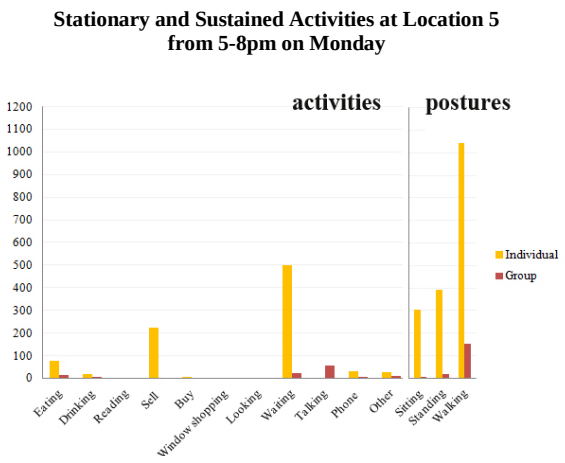

Figure 12. Type of activities classfication and postures at location 5 Monday

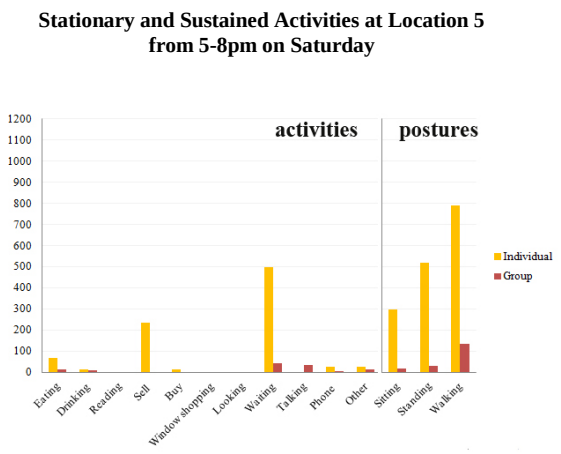

Figure 13. Type of activities classfication and postures at location 2 weekend (Saturday)

VI. Conclusion

The fundamental role and utilization of footpath space as walking space for the pedestrians could be improved with the rebalancing of social activities on footpath space. Stationary and sustained activities on footpath space both are considered to be the natural human activities on public space including footpath. The well balance of sufficient public facilities on footpath such as public lighting, seating, street furniture and green area would improve the quality of footpath space physically and socially.

On the other hand, with the current condition of footpath space that carries the major role in the economic chain of the informal economy of Bangkok. The utilization of footpath space to accommodate economic activities is inevitable. Street vendors and the alternative of public transportation such as van and motorcycle taxi tend to be the key element to complete the supply chain that meet the pedestrians' demand to operate the city Bangkok Metropolitan. The footpath space is often being misused to serve only certain type of activities when the economical aspect of footpath users is involved. The state officers do not have the legalized authority to prevent it as the role and regulation of public space still remains rather vague. The reformation of legislation on public space including footpath should be reconsidered to fit with the fast phase development of the city in the modern world.

The physical improvement of public facilities on footpath such as street furniture, green area and seating should be provided as an attempt to adjust the current user's behavior of the footpath space. It should be able to enhance the social activities among pedestrians to achieve liveliness of the footpath socially without having to totally remove the economical vibrancy of street vendors and public transportation alternatives. Furthermore, the consideration on the accessibility of other increasing users group such as elderly, children and disable must be taken seriously to accommodate them as a part of the city's social group.

The rebalancing of role and utilization of footpath that prioritized pedestrian and social interaction requires the shift from generalized legal definition of footpath to specific control, authority, users and scope of publicness. The participatory process from all groups of user is required in redefining the role of footpath space. The activities and utilization of footpath space should be rebalanced to prioritize the pedestrians. Policy maker should initiate a functional legislation act on the use public space especially footpath that benefits pedestrians of the metropolitan city.

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