

The Influence of Physical Features in Lively Urban Contexts of Shopping Streets

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ABSTRACT

The present research aims to understand how the presence of physical features influences lively street life of shopping streets, and what role their temporality and number represents on the decision making for pedestrians on urban contexts. Literature based on the Non Verbal Communication Model shows that the spatial layout of urban contexts non-verbally communicates its meaning through physical elements giving necessary visual cues on pedestrians. It classifies them into three group: fixed, semi-fixed and non-fixed features. Fixed features such as buildings, Semi-fixed features as street furniture, and non-fixed features, or human actions. Among these, semifixed features provide significant distinctiveness by improving the spatial experience depending on its degree of manageability. The ongoing study is based on on-site counting of pedestrian number and speed related to semifixed features of two Tokyo shopping streets, Yanaka Ginza in Taito area and Shimokitazawa in Setagaya area. Yanaka Ginza was selected because of its original urban fabric and pedestrian scale from the Tokugawa period. In contrast, Shimokitazawa offers a youthful identity and more active nightlife. The initial findings from the countings describes 2 different stances on Yanaka Ginza and Shimokitazawa between 14:00 to 21:00 hours: a) Yanaka Ginza shows a reduction of number of people and manageable objects with an increase of walking speed; and b) Shimokitazawa presents an increase of manageable objects and walking speed with a reduction of number of people. Despite observing similar behaviors on Yanaka Ginza and Shimokitazawa during initial hours, it may be suggested that the character of Shimokitazawa changes from a “destination place” into a “transition place”. In addition, statistical analysis corroborates a strong relation between the number of manageable objects and pedestrian behaviors. However, it is important to consider that additional physical features such as street dimensions must be assessed to evaluate future outcomes.

1. INTRODUCTION AND OBJECTIVE

The present research aims to determine which physical features of urban contexts support lively street life in shopping streets, and what influence temporality and number represents on decision making of pedestrians. Literature based on the NVC Model (Non Verbal Communication Model) shows that the spatial layout of urban contexts non-verbally communicates its meaning through physical elements and gives necessary visual cues on pedestrians (Rapoport, 1982). These provide an adequate legibility, the ease in which information is able to be perceived; and readability, the ease in which information is able to be understood. Studies conducted by Rapoport (1982) divides physical features into three main groups: fixed, semi-fixed and non-fixed features. Fixed features such as buildings or city fabric, have a subjected condition to major regulations and communicate in a static

pace. Semi-fixed features, or attachable elements such as street furniture, curtains or billboards, are complementary to fixed features and communicate in a slow pace. And non-fixed features, or human actions, communicate on a rapid pace within the built environment. Among these, semifixed features are able to provide significant distinctiveness by improving the spatial legibility and readability, and thus influencing decision making of pedestrians (Rapoport, 1990). They can change easily, and provide a richer spatial meaning due to its manageability. In other words, the management of semi-fixed features may influence how urban contexts can be experienced by supporting more complex social activities and behaviours.

2. RESEARCH QUESTIONS AND HYPOTHESES

Based on literature reviewed and observation surveys, the following research question arises: 1) What characteristics of physical features of urban contexts are the most significant in supporting lively street life? ; and 2) How do these characteristics motivate people's decision making? Two initial hypotheses are proposed: 1) Lively street life results from the interaction of the number and temporality of fixed, semifixed and non-fixed features; and 2) Number and manipulation of semifixed features have a significant relation with the occurrence and the increase of pedestrian activities.

3. STUDY SITES AND METHODS

As urban typology, Shopping Streets in Japan are ideal for the study of lively urban contexts due to the diversification of social interactions. The approach of this ongoing research is based on the assessment of two first shopping streets, Yanaka Ginza in Taito area and Shimokitazawa in Setagaya area. The shopping street of Yanaka Ginza was selected as a first studied site because of its original urban fabric and pedestrian scale inherited from the Tokugawa period. In contrast, Shimokitazawa offers a youthful identity and more active nightlife environment with a myriad of vintage shops, kisaten and restaurants.

As a first stage, the research performed observation survey as initial assessment for the identification of variables followed by models of statistical regressions for a subsequent correlation matrix. The field survey aimed to describe the weekend day from 9:00 to 21:00 hours of Yanaka Ginza on January 10th, 2016 (13^o C) and Shimokitazawa on May 8th, 2016 (27^o C). As a first stage, the field survey gathered numbers of buildings' dimensions, furnishing, agglomeration of pedestrians and speeds in Yanaka Ginza on May 15th, 2016 (24^o C) and in Shimokitazawa on May 22nd, 2016 (29^o C) every hour from 9:00 to 21:00 hours (12 hour span). The samples were collected by performing walkthroughs along the shopping street using a tally counter and timing the walking speed using a hand chronometer. The samples were arranged into three categorical features following the NVC model: fixed, semifixed and nonfixed. The fixed features, are composed by buildings' height, street width, walkable area and number of stores, also considering their opening hours. The second category, semifixed features, describes street furniture and greenery collected according to the management and number such as banners, parked bicycles, planters, chairs and display counters. The third category, nonfixed features, describes pedestrians' walking speed and agglomeration, classified by gender (male - female) and age (children - adult - elder).

The present paper presents a preliminary observation of semifixed and nonfixed features as well as initial steps of statistical analysis (Fig. 1). The samples were correlated with significant validation ($p= 0.01$ and $p=0.05$) and assembled in matrixes for each shopping street (Table 1).

The semifixed features were classified as: a) manageable objects; b) non-manageable objects; and the nonfixed features as: a) number of pedestrians; and b) walking speed. The classification made possible to draw some preliminary findings that gave insights for more variables and to be assessed on next steps of this research.

4. PRELIMINARY FINDINGS

As a first finding, the number of manageable objects and number of pedestrians present a strong correlation in Yanaka Ginza ($r = 0.8868$ $p = 0.00012$) and Shimokitazawa ($r = 0.8122$ $p = 0.00132$) (Table 1). It is important to note that in Yanaka Ginza there is a simultaneous decrease on number of people in 290 (from 302 to 12) and on number of manageable objects in 305 (from 414 to 109) from 14 to 21 hours (Fig.1). On the contrary, the number of people in Shimokitazawa decreases in 117 (from 284 to 167) and the manageable objects decrease in 27 (from 412 to 385) from 14 to 21 hours. The different decreases on both sites may indicate the emergence of different manageable objects from 14 to 21 hours in Shimokitazawa (Fig. 1).

As a second finding, the correlation between number of pedestrians and walking speed on both sites indicates that the higher is the number of people the slower is their walking speed. Although this may seem to be an obvious observation, the values on Shimokitazawa shows to be lower ($r= 0.6966$ $p = 0.0118$) than Yanaka Ginza ($r=0.8200$ $p = 0.0010$).

A next finding comes from manageable objects and walking speed. Yanaka Ginza is the only site that shows a high number of manageable objects related to a slow walking speed ($r = 0.6951$ $p = 0.012$). Although Shimokitazawa presents a higher number of manageable objects from 14:00 to 21:00 hours, it does not seem to significantly affect the walking speed ($r = 0.45$ $p = 0.138$) (Fig. 3). The last finding indicates that only in Yanaka Ginza there is a strong correlation between walking speed and non-manageable objects ($r = 0.7826$ $p = 0.003$). Despite the understanding that the number of non-manageable objects do not change drastically during the day, it suggests the effect might be caused by an extra or extras variables.

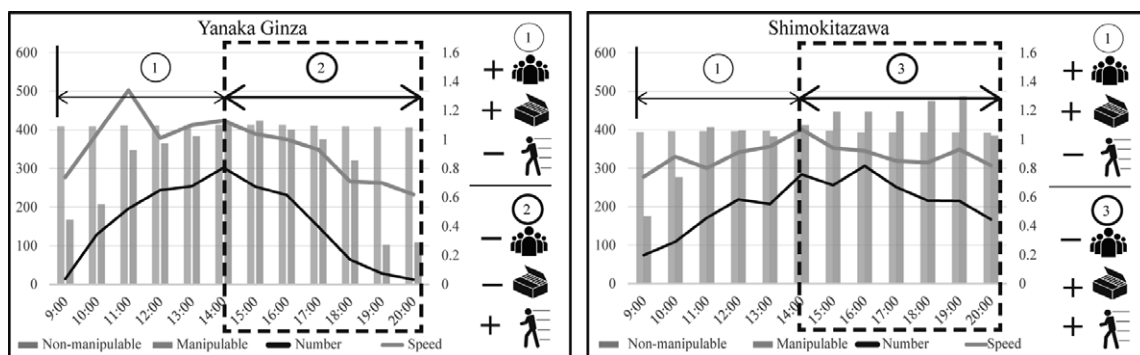


Figure 1: Number of Manageable Objects, Non-Manageable Objects and Pedestrians in Yanaka Ginza and Shimokitazawa Minamiguchi

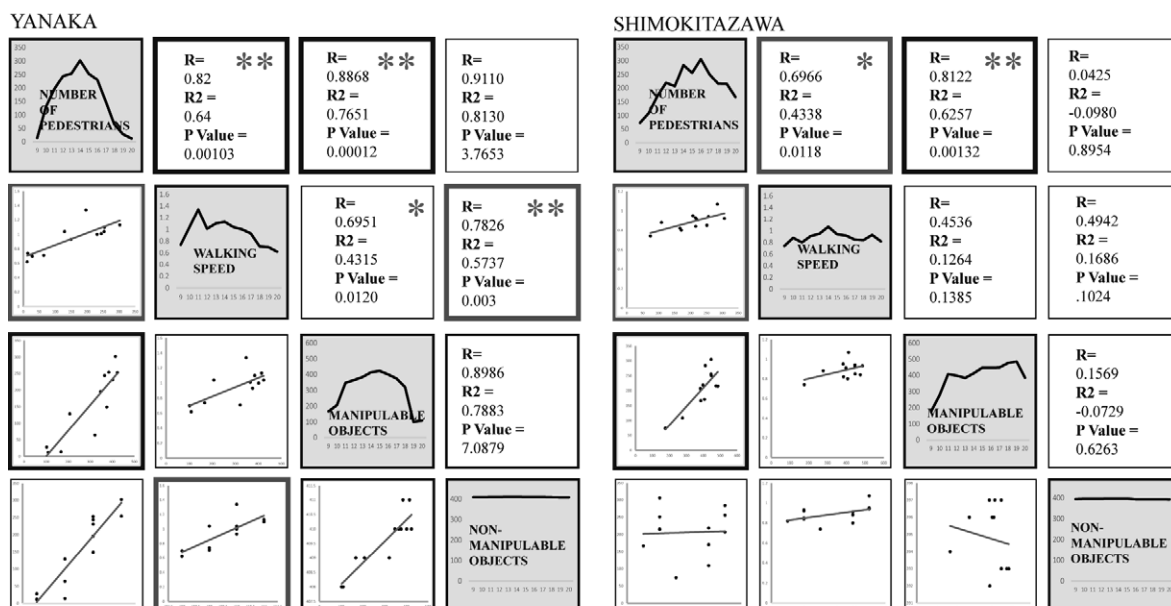


Table1: Correlation Matrix of Manageable and Non-Manageable Objects with Pedestrians

It is noticed during 14:00 to 21:00 hours, the sites subdivide into 2 different models. Yanaka Ginza shows a reduction of number of people and manageable objects; and an increase of walking speed resembling an inverse process from the first period (from 9:00 to 14:00 hours). On the other hand, Shimokitazawa presents an increase of manageable objects and walking speed; and a reduction of number of people. The model may suggest that the character of Shimokitazawa changes from a “destination place” to a “transition place” from 14:00 to 21:00 hours. Even though the number of manageable objects has a strong relation to pedestrian variables, it is important to consider that additional physical variables such as variety or street proportion may influence outcomes. It is fundamental on future stages the expansion of places and variables involved in sustaining lively urban contexts of shopping streets.

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