

Influence Of Physical Conditions On The Outdoor Activities At The Street Level: A Case Study Of Wong Ah Fook Street In Johor Bahru, Malaysia

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Abstract: one of the important effects of sustainable urban environments is motivating people for outdoor activities. The phenomena of street simultaneously come from the west into urban spaces with automobile and designers doesn't have much of a role to set and design of this space in relation to physical activities. Consequently, these spaces are not adjusted to the walking behavior of people. In order to encourage walking among people it is important to know how pedestrian travel pattern can be affected by the physical environment. The aim of this paper is to show the influences of physical characteristics, spaces and land use of neighborhood Commercial Street in the Johor Bahru City Centre of Malaysia to the behavioral responses and attitudes of people. In this research, the inquiry employed a multiple-method survey involving a variety of techniques including direct observation, walk-by observation and pedestrian counts to collect data on the behavior of people on the street. The result shows that a commercial street with high population should have various Spaces with impressive physical characteristics that each user with different attitude is able to recognize their required spaces and use it with satisfaction.

Index Terms: Street, walking behavior, Pedestrian, Physical environment, Commercial street, Outdoor activity, Land use quality.

1. INTRODUCTION

If a city street looks interesting, the city looks interesting; if they look dull, the city looks dull (Jacobs, 1961). Streets are an important part of open public space in the city. For many urbanites, it is the streets that represent the outdoors (Jacobs, 1993). People depend on streets for functional, social and leisure activities, for travel, shopping, play, meeting, and interaction with other people, and even relaxation (Jacobs, 1961; Jacobs, 1993; Appleyard et al., 1981; Gehl, 1987; Moudon, 1991; Carr, 1992; Southworth & Ben-Joseph, 1997; Lofland, 1998; Hass-Klau, 1999; Carmona, 2003). Streets and their sidewalks are the main public spaces of the city and its most vital organs. Sidewalks, their bordering uses, and their users, are active participants in the drama of civilization (Jacobs, 1961). In urban areas, streets represent a majority of the area of public space (Jacobs, 1993; Moudon, 1991; Southworth & Ben-Joseph, 1997) and the efforts to revitalize the public realm are often efforts to revitalize streets to generate activity and to make streets lively. In Neighborhood Commercial Streets, Mixed-use neighborhoods are predominantly residential neighborhoods that also include work, retail, cultural, and/or light industrial uses. It is expected that by mixing various land uses we can achieve a more vital, vibrant, attractive, safe, viable, and sustainable pattern of urban lifestyle (Jacobs, 1961; Bentley 1985; Duany et al., 2000). The physical environment is one of the factors: a factor that influences the activities to a varying degree and in many different ways. Outdoor activities in public spaces can be divided into three categories, each of which places very different demands on the physical

environment: necessary activities, optional activities, and social activities (Gehl, 1987). The table 1 shows that when the quality of outdoor areas is good, optional activities occur with increasing frequency, furthermore, as level of optional activity rise, the number of social activities usually increases substantially (Gehl, 1987). It has already been mentioned that the outdoor activities that are particularly dependent on the quality of the outdoor spaces are the optional, recreational activities, and by implication, a considerable part of the social activities.

Table1: Relation between the quality of outdoor spaces and the rate of occurrence of outdoor activities (Gehl, 1987).

Outdoor activity	Quality of the physical environment	
	Poor	Good
Necessary activities	●	●
Optional activities		●
Resultant activities		●

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The purpose of this study is a qualitative and quantitative review of existing spaces on the Wong ah Fook Street in Johor Bahru, Malaysia and several behavior patterns of users. The main emphasis of this study is to find influences of street physical components on pedestrian patterns of behavior in order to enhance vibrancy of the streets also

improving the adverse conditions and creating new streets or modifying existing ones such that they are able to better afford social interaction.

2. STREET CHARACTERISTICS

Physical characteristics of the built environment have long been of interest to urban designers and architects [Sitte, 1965; Krier, 1979]. It includes microclimatic conditions (shade and shelter from trees and canopies), Average sidewalk width, sitting spaces (commercial and public seating), Community places, furniture and physical artifact and variety of businesses. In comfortable microclimatic conditions on the street, Environmental comfort through protection from the natural elements and the provision of shelter is the most basic human need, and this is a primary role of the built environment (Maslow, 1954; Steele, 1973). Sitting spaces are physical characteristics and uses identified as contributing to keep the city inhabitants in urban public and open spaces and providing them the opportunity of interacting socially include sitting space (Hass-Klau, 1999; Joardar & Neill, 1978; Whyte 1980); other street furniture and physical artifacts (Gehl, 1987; Joardar & Neill, 1978; Prieser, 1971; Marcus & Francis, 1998); generous sidewalk width (Whyte, 1980); trees (Joardar & Neill, 1978; Share, 1978; Whyte, 1980; Coley et al., 1997; Sullivan et al., 2004); a high degree of articulation with nooks, corners, small setbacks in adjacent walls, and landscape elements such as ledges, planters, and so on [Gehl, 1987; Joardar & Neill, 1978; Whyte, 1980; De Jonge, 1967, 1968; Alexander et al., 1977]; eating establishments such as restaurants and cafes [Hass-Klau, 1999; Whyte, 1980; Alexander et al., 1977; Banerjee & Loukaitou-Sederis, 1992; Montgomery, 1997]; a variety of shops (Jacobs, 1961; Hass-Klau, 1999; Alexander et al., 1977; Montgomery, 1998); and the presence of retail (Whyte, 1980; Banerjee & Loukaitou-Sederis, 1992); additionally, movable chairs were the most desired due to the choice, flexibility, and comfort they offered (Whyte, 1980). By and large, it can be inferred from the literature that both, the land use features and environment physical structure; are highly effective in supplying an applied, advantageous and convenient context for attracting and keeping people within the city and in its open and public spaces, like sidewalks, streets, etc. Johnston does addition for public places that such community places have a significant role in daily life interactions and every person can access simply to them. Furthermore they help people in creating associations and value by providing the feasibility of being used constantly. Generally they are places for simple gathering of the urban public or just small centers of business in the neighborhood, they are also "third places" as being termed by (Oldenburg, 1989). In order to describe a variety of businesses character it is important that the street as a milieu must cater to the needs of people and provide support for any sort of activity and their patterns that likely to happen on the street.

3. METHODS

A Concurrent Transformative Mixed-Method Strategy of inquiry consists of both qualitative and quantitative methods of inquiry to collect and analyze data (Creswell, 2003). In this study, qualitative and quantitative data were collected simultaneously and merged during the analysis phase to

add dimension to the findings. As a part of the mixed-method strategy, the inquiry employed a survey including direct observation (with extensive field notes and photography), walk-by observation, and pedestrian counts to collect data on the behavior of people on the neighborhood commercial streets. Data presented in this study were collected on Jalan Wong Ah Fook, The City Center of Johor Bahru area, the street studied is the major commercial streets in the neighborhoods. Inner the City Center are lying three famous and major artery streets they consider the biggest streets in the City Center acquaint with Jalan Tun Abdul Razak which situate in the Eastern tip of City Center, Jalan Bukit Timblan locates in the west tip of City Center and Jalan Wong Ah Fook strong path, is at the core of City Center. Jalan Wong Ah Fook is a Major one-way Road and one of the best-known roads in the state. The Street also is one of the most famous Business and Commercial Street. The Street is the outlet of the most around Streets, becomes daily overcrowded. The Shopping, the Tourism and the both Pedestrian, automobiles Movements as well as bus stations service are the daily activities features within Street. Other features are the wide of the Street width so are the sidewalks beside it. The Street of Wong Ah Fook is classified as a Collector Street. It is known load street and carries traffic from collector streets to the individual land parcels within any given area. The street consists of many shophouses, commercial buildings, shopping complex building, hotels and public buildings as well as open spaces in between them. The open spaces used in specific time on the day. However; the residential buildings absent from the street. The commercial buildings are distributed on the whole of the street.



Figure1: The existing division of Wong Ah Fook Street

4. PROCEDURES

Data presented in this study were collected at two levels – the existing division of the street which happened by sub-streets beside Wong Ah Fook Street and the street block. However; such as sub-streets are actually dividing the length of the street into five parts (figure 1) and each part include of several block segments (figure 2). The concept is to study each part of the street individually. The rows of

buildings in each part are indicated by (A) and (B). A refers to one row of buildings in specific part. B was indicated to the opposite row of buildings in opposite side.

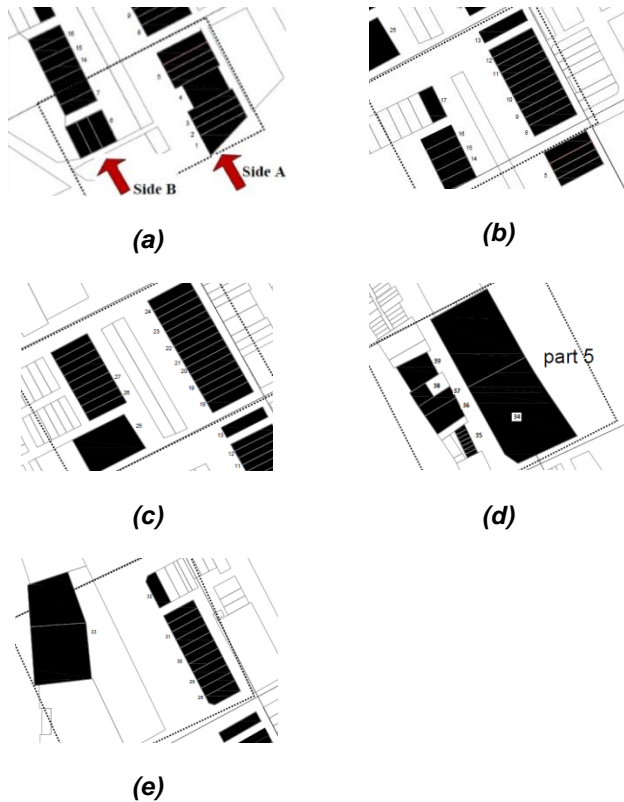


Figure 2: The block segments of different part

A pilot study was conducted, mapping of the spaces, division of spaces, recording the patterns of behavior (Pedestrian Counts, Walk-by Observations, and Direct Observations), taking the photograph (location, distances, period).

5. RESULTS

Observations in these areas provided information on people’s attitudes and the people’s pattern of use toward the street environment. This study was holding conceive a plan in order to study and to observe the physical characteristics within street in properly and precise ways (figure 3).

Side (A) of part (1) consists of block 1 (block segments 1-4 include public buildings and hotel), There are three physical characteristics include: sidewalk, street corner, and steps front of public buildings but all of them inefficiently used. The component’s performance is totally low effectiveness. The sidewalk seems empty as well as the corner street is changed to another function. Side (B) of part (1) consists of block 6 (block segments 6, 7 include public and commercial buildings), here is greenery area includes the steps and wide sidewalks. The steps are used for transits of the different level of the greenery area as well as used for sitting and waiting as well as entertainments. The sidewalk daily accommodates different people. Although there are the sidewalk locates between the greenery area and buildings but non-preferred a few people use it. There is one open space in between buildings it used as parking to serve the restaurants. It makes the place permeable and lively. Side (A) of part (2) consists of block 2 (block segments 8-13 include shophouses and commercial buildings) the sidewalks, the two street corners, the setback dominate in this side. It is starting and ending at the Corners of the Street. However the both of corner accommodate different activities. The sidewalk considers the connect area to transfer the activities into corners of the street. The activities distribute of the corner to other parts of the street. Recently the sidewalk is only used for movement activities to go-return from-to their destinations. Except specific part of the sidewalk accommodates multi activities as waiting, standing, and sitting .The corridor which is on the fronts of the shopehouses more effectiveness than the corridors which are in front of commercial buildings. Side (B) of part (2) consists of block 6 (block segments 14-17 include commercial buildings as well as one government buildings) the characters included two of the sidewalks, steps, an open space between buildings. One of the sidewalks is between the edge of building and greenery area. The sidewalk has wide but inactive. The steps are functioned to transit activities to different levels. These characters are preferred due to the greenery area but they were used only at daytime. Side (A) of part (3) consists of block 3 (block segments 18- 24 include commercial buildings as well as one hotel) There are two street corners and the sidewalk on this side. All of them work together in animating this side. However; there is a large open space between the areas of the street corners. The street corner area is small. For that reason it is not preferred, and sorely used as runways for sidewalk. While the other street corner has a wide area at the same time have regularly surfaced. Such as corner is preferred by walkers to spend their time to see or to be seen, to standing, to waiting, to across the street as well. Side walk between the both corners accommodate different activities, make it daily active. The activity of the sidewalk refers to three factors. One of them is the wide enough of the sidewalk width so encourages people in using it. The second one is that all the ground level doors of buildings are opened into the sidewalk or transparent, this case encourages people to use sidewalk to have a seen what the levels activities are. The third factor is the fence which helps in animating the sidewalk. Side (B) of part (3) consists of block 7 (block segments 25-27 include Shophouses as well as one cinema) Side walk, corridor as well as the steps is the physical characters on

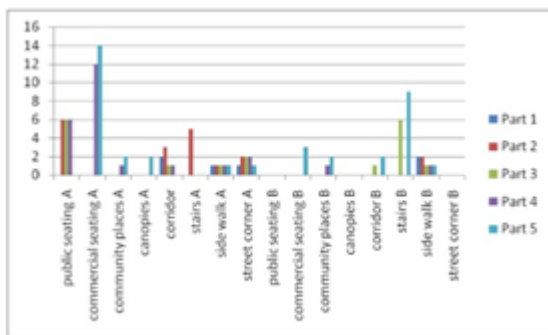


Figure 3: Number of physical characteristics in Wong Ah Fook street

this side. There is no sidewalk adjacent to the shophouses. Consequently causes of reducing the vitality of the street. The corridor width is adequate for movement as well as for presents the goods. The activities in the corridor create strength place. This corridor although is located below than the greenery area but is lively. It helps in creating a livable environment. Side (A) of part (4) consists of block 4 (block segments 28-32 include commercial buildings as well as one public building) this side has two street corners, the sidewalk connects them and the open space in between buildings attaches to the sidewalk. The street characters with the commercial buildings are working equally to animate the street space. The environment of this side is more vibrant than other side due to the interrelationship between the activities of buildings and the street components. Many activities occur there such as necessity activities or daily activities. There are different areas of street corner but both of them carry appropriate area. However the latter corner accommodates diversity of activities such as sitting, waiting to cross the street as well as informal activities. The first corner polarizes the multi-activities to resend them to the second one. There is an open space in between buildings. Most of the informal activities are occurring there, they are benefited of the sidewalk and the corners street activities. The stairs are used to transfer the good also some of them used as sitting place as well as some of them occupied by informal activities. However; present stairs between buildings and street helps to interact the whole floors of buildings with the street level, it helps in creating a livable environment. Side (B) of part (4) consists of block 8 (block segments 33 include commercial buildings) the sidewalk in this part locates in the greenery area. The area of the sidewalk is wide enough to be used as entertainments place. Multiplicity informal activities occur in this space. The sidewalks are shaped the locations of the informal activities. The activities shaped to conform to the sidewalk shape. At the end of the sidewalk situates the patio area. It is an hourly accommodating lot of activities due to its strategic locations as well as the large area; it's overview to the street. This patio makes this side vibrant during the day time. This side is dominated by land escape features except for one commercial building located at the end of the side. However this building plays a vital role in animating this side. Optional activities such as daily activities and informal activities occur around this building. People use the space in the front of these buildings to see or to be seen or to wait. Side (A) of part (5) consists of block 5 (block segments 34 include shopping complex buildings) this side has the land escape, the street corner and the wide sidewalk. These components gained importance due to of the shopping complex buildings which brings lots of people. This side considers the most important side of the street. The street characters in this side have an ability to absorb different activities. The street corner which locates in the beginning of this side provides an important role in animating the street as a whole. It polarizes many activities from different directions. It is the starting point to discover the street as well as a point to convert the activities to their business. The sidewalk provides more space for the shopping complex buildings and connect the whole building elements and the side components altogether. The shopping complex building is the most permeable building among the whole

street buildings. Side (B) of part (5) consists of block 9 (block segments 35-39 include commercial buildings) the side locates up the street level adjacent to the bus station. The activities which used the bus stop entirely used the sidewalk and vice-versa. The whole interface components on this side such as transition zones, corridors, and stairs in between buildings, components of the ground levels of buildings are separated of the sidewalk. The sidewalk in this part has high performance effectiveness on the street. The steps are located between the sidewalk and the buildings. The steps are used to transit the activities between the two levels. Sometimes they are used as a sitting place or for waiting places. It is playing role in enriching the place.

6. DISCUSSION

6.1 Seating, sunlight and shade, sidewalk

Urban public spaces which designed for people sitting have a significant role in keeping people in the urban environment and open public spaces that might help in supplying the social interactions within the city (Linday, 1978; Whyte, 1980). This paper's result confirmed the Whyte's results. Public spaces and block-segments which have seats for people sitting might have much more ability to create a livable and animated city compare to public spaces without such facilities (part 5, side A). Moreover, it was observed that public spaces with the seating facility and close to local businesses that can supply stationary activity were more utilized compared to those situated in block-segments (33,34) with no business around. It was obvious from the results that businesses that provide seating were much more usable than those without them. The location of seating, especially public seating, with respect to activity supporting stores was found to be critical. It was observed that there were several blocks-segments with both, transportable seats which supplied by shops and immovable seats which supplied by public agencies(block 2-4). Furthermore, integral surfaces that provide people with the sitting possibility, like chocks, edges, stairs, etc. helped in keeping people in these public spaces. The more the immediate outside services provided by shops, the much more the utilization of these transportable, immovable and such integral surfaces. Taking into account that all kinds of sitting facilities are considered as urban furniture, therefore they might have other functions than only sitting for urban inhabitants. Often people used these horizontal surfaces as a place to put or reorganize their belongings, taking things out of a bag or putting them in, or just taking a rest on the walk. For instance, they are known as places on which people tired of walking too much put their belongings temporarily to have some rest or even manage things they bought. In some parts in Wong Ah Fook street, shops and business created an attractive environment through accommodating retractable canopies which are utilized by pedestrians (part 5, side A). Due to the fact that direct sunlight is not pleasant, especially for those pedestrians who spend lots of time on walking, hence their preference is to sit and rest in shaded or semi-shaded green spaces, corridors, in alcoves, in niches and entrance nooks of buildings close to the street (block 2-4). Also canopies that provided by small business and commercial buildings are inviting people to have social activities (block 5, 8). More functional blocks in the study area introducing this kind of

shelters. This study indicates that the pavement width of the Johor Bahru city central cannot make stationary activities possible on the neighborhood Commercial Street and people in most of sidewalks just using it for movement, and transition. Being wide enough of a sidewalk or pavement alongside with other necessary land use and physical infrastructure features are a must in order to make the social interactions possible.

6.2 Pedestrian-Friendliness

Based on observations, it can be inferred that the more the variety of shops in the block-segments the more attractive the blocks and neighborhoods. Also the definition of a friendly street environment can be extracted from the pedestrian and street walker surveys' results as a comfortable and pleasant place which is equipped with the possibility of safe walking, sitting facilities like integral surfaces, benches and facilities to support the social behavior and interactions. The blocks on the street that was perceived as being more pedestrian-friendly were also the ones that were animated. Additionally, as discussed earlier, people emphasized pedestrian-friendliness as an important quality that they wanted to retain. In suggesting changes and additions, they prioritized it as a quality of the blocks that were not already pedestrian-friendly. They were examined based on a visual rating scale, inducing provocation from immovable, semi-movable, and movable features like the building façade articulation, the openings of building adjacent to streets, lighting equipments, pavement or sidewalk furniture, signs, green spaces and plantings, displays, etc. The survey's findings indicated that the blocks with more attractive and pleasant appearances to their users are; The blocks in which the users engaged in some form of social interaction, and the blocks in which the users spent the most amount of time (figure 4).

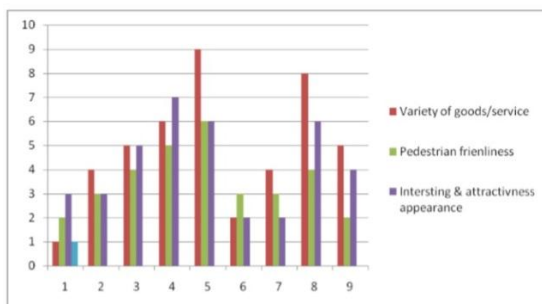


Figure 4: Number of appearances of the blocks

Figure 5, 6 illustrate that people are more interested in the blocks with mixed-use of land-uses that even able to meet their daily life needs and requirements; blocks that were visually interesting and had a distinguished and different character and environment; blocks with community places, which held special meaning for the community that can be used for meeting the social interaction needs of the inhabitants.; blocks that were pedestrian-friendly such that they provided ample sidewalk space to accommodate walking as well as sitting areas, and provided shade and shelter; and blocks that had unique independently operated stores on them.

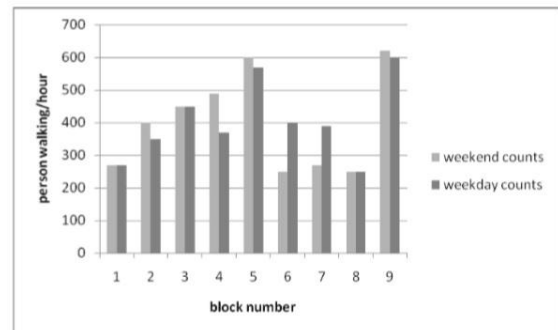


Figure 5: Number of pedestrian per hour on weekdays and weekends

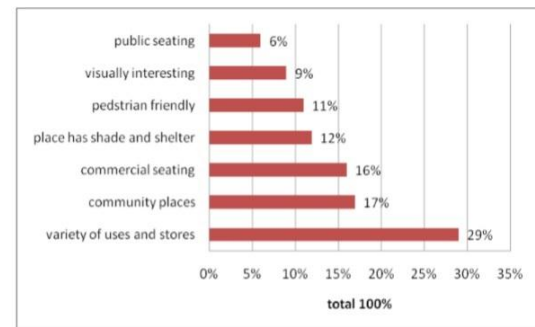


Figure 6: Percent use of people from street characters.

6.3 Sensory Pleasure, safety and belonging of the street

The number of people and the time spent on the streets with them as well was an indicator of how comfortable and pleasurable these locations were and how well they served basic human needs. The animated places on the street were the ones that were better able to satisfy the range of physical, social, and psychological human needs on the street. Observations suggested that by providing a sense of safety, a sense of community and belonging, environmental comfort, convenience and physical comfort, a sense of control over the environment, sensory pleasure, and the opportunity for socializing, these settings supported the hierarchy of human needs that may be provided for in the public realm. This aided the process of understanding the behaviors that were recorded through observations, and discussed in the previous section. While the macro-scale characteristics such as the proximity of the neighborhood commercial street to home or work, or the accessibility of the street, remain similar, the results of observation demonstrate that people chose to visit and spend more time at certain locations on the street. This is consistent with what was found through observations. From the observations of the Jalan Wong ah Fook Street, it was evident that while many more people used and spent more time at some locations. All examined blocks at this investigation were generally noticed safe during the day. Appeal and fascinating appearance, business varieties, sidewalk width, and tree planting, commercial sitting and community places along the study area to encourage people to walk and increasing social interaction. The main reasons of reduction of sense of safety in these blocks were identified as lacking personalization and territorial control.

Community places inspire people to have a sense of belonging and make the place vibrant. People are interested in shops, businesses that can create public places for daily simple gatherings of the neighborhood inhabitants that where they can visit their beloved persons, friends and even those who are not familiar with before in order to make new relations with them and have new friends. Such places are evolving constantly from simple places to neighborhood landmarks and community places during the time. People expected from community places to be occupied by a variety of land-uses, including coffee shops, restaurants, bookshops, etc. There are several places within each neighborhood that might be considered as community places in the viewpoint of inhabitants or even those whose job located there.

7. CONCLUSION

The street characteristics components are observed, enumerated, analyzed, evaluated and properly studied to find out their performance influence. These aspects are studied in order to know the effect of street component on each other for enhancing which is most influential and which is least. Generally, the finding of this study shows that if a commercial street wants to be used, it should consist of spaces and land uses that provide all the needs of users with different culture and ethnicity, also with different attitude. A commercial street with high population should have various Spaces with impressive physical characteristics that each user with different attitude is able to recognize their required spaces and use it with satisfaction. Such streets will be a vibrant street. This study consists of the basic knowledge of the affective street characteristics and the theories that can be adopted to build further studies as well. It is considered the first stage for those who would continue or pursue this study of the street characteristics.

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