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## The Contribution of Landscape Features on Traditional Streets in Malaysia

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### Abstract

The objective of this paper is to determine the landscape features that contribute towards the character of the traditional street environment. The case study was conducted at three streets in Melaka, namely; Tukang Besi Street, Tukang Emas Street and Tokong Street. Mixed methods were used in this study which involved visual survey, direct observation of behaviour, user perception (questionnaires, in-depth interview and mental mapping) and an in-depth interview with policy makers. The result shows that landscape features can be characterized into two main categories, namely physical appearance and function.

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## 1. Introduction

In recent decades, many studies have focused on public open space, particularly looking from the view point of environmental psychologist, the physical aspect, social or behavioural considerations. According to previous scholars, the roles of streets in urban areas are more concentrated on pedestrians as a social interaction place besides traffic movement.

The variety and diversity of human behaviour can be seen on the street such as, walking, standing, talking, playing, lingering and observing, which generate urban life (Jacob, 1993). The path for connectivity includes vehicular movement and pedestrian walkways. Thus, the uniqueness of streets can be seen through their environment and by their social and cultural significance.

### 1.1. Issues and Problems

In the face of rapid urbanization and modernization, many of the physical features of our public open spaces have changed, thus affecting behaviour and activity patterns. This has negatively affected the soft and hard landscape, particularly in Malaysian's old towns. The soft landscape includes the natural aspects, which play an important role as place setting. According to Harun and I. Said, (2010), one of the factors that contributes to the failure of a place (placelessness) at Padang Kota Lama, Penang is the lack of natural greenery. This problem is also faced by one of Melaka historical site, the Padang Pahlawan where the setting was changed from recreation space to a shopping area (Harun and I. Said, 2010). Another example is the felling of a row of matured trees along Masjid India Street, Kuala Lumpur where a variety of activities take place : a place for relaxation and for vehicular movement shaded by the trees, have been replaced by a roofed pedestrian bazaar (Ja'afar 2006). Abdul Rahman (2012) study indicate the trees at Tuanku Abdul Rahman Street have been mentioned by the street users in order to improve the level of friendliness of a street. Similarly, in Johor Baru, the Segget River which is one of the key image of the city was covered (Lim M.F. 2010).

Similar problem was also encountered with hard landscape as S.Bachok et.al. (2004) study on Tuanku Abdul Rahman Street found that the use of street furniture create an obstruction to pedestrian flow. Harun (2011) found that the domination of hard landscape at Padang Kota Lama, Penang contributes to the 'placelessness' of the area. In Malaysian traditional towns, the sidewalk can take the form of a five-foot way. However, new buildings in the old areas do not emphasize this character. Some have changed the appearance by creating a different height. This type of design exposes the pedestrian to the element and the scenario becomes worse when the new buildings do not provide the five-foot way (Ja'afar , 2006; Ja'afar et al. 2012; A. Bashri & Shuhana, 2002).

Therefore, it is essential to ensure that the unique character of old towns so that it can be preserved for the future generations. This study focused on the physical element as suggested by Mehta (2006) that physical aspects are essential as they reflect the behaviour pattern and use - 'behavioural setting'. The physical environment encompasses all natural and made-made aspect, which involves other senses such as feelings of danger (Rapoport 1977). So, the objective of this paper is to determine the landscape features that contribute towards the traditional street characters in Melaka where three streets were chosen, Tukang Besi Street, Tukang Emas Street and Tokong Street. According to MPMBB (2008b), these streets portrays their own identity especially from the socio-cultural aspect. The study areas are mix-used between commercial and residential which include three place of worship (mosque, Indian temple, and Chinese's temple) to support the religious need of the local society. A cultural and religious festivals celebrated regularly associated with place of worship strengthened the identity and character of the area (MPMBB 2008a).

The study is about characterization which is also known as urban characterization study (UCS) (Basingstoke and Deane 2008) where character is defined as the combination of elements between man-made and natural elements, which generate the uniqueness identity of a place (Miskell 2008) that retain local character (English Partnership et al. 2010). Characterization is to describe and explain the historical character of place in order to focus on the local uniqueness (Cadw 2009a; 2009b). According to previous UCS, characterization includes special and negative character (Wrexham County Borough Council 2009). The significance of this investigation is that it will provide conceptual alternative references for designing future streets and existing streets that act as public open spaces.

### *1.2. Landscape and Traditional Streets*

Landscape here refers to soft and hard landscape as suggested by London Borough of Croydon (2009) where soft landscape features are the landscape elements that represent nature such as plant, water and topography (London Borough of Croydon, 2009). However, hard landscape was categorised as the man-made features designed to complement the soft landscape (Hussain & Ahmad, 2010).

Street is defined as space enclosed in order to generate movement which is created through buildings, trees, walls or any combination of those elements (Moughtin, 2006; Jacob A. 1993). Traditional comes from the word 'tradition' which represents the repetition from one generation to another generation which relates to the concept of 'time' and 'heritage' of the place. These two concepts are essential in order to create a distinctive atmosphere which distinguishes between a traditional and a new street where priority is given to the local need (Ja'afar, 2006; Shuhana et al. 2007). It also shows its' own strength of physical and spiritual aspect (Samadi et al. 2012). In this UCS study, the concept of heritage refer to the historical period of the place, which portrays its own development and changes, which can be seen through its morphology, social and economic factors (DPUD Western Australia, 1995; Wrexham County Borough Council, 2009). UNESCO on the other hand defines 'heritage', as a value that is inherited from one generation to the next that encompass tangible and intangible aspects. The tangible aspect refers to 'hardware' elements such as building and landscape and intangible aspect refer to 'software' elements such as social pattern, activity, culture (Gottman J 1978). Thus, the combination of both concepts (time and heritage) creates an environment that reflects the 'genius loci' or spirit of place that can be felt by users.

According to Kropf (1996), building style is an important element in the sense of history in a place where the design of building changes through time. Based on previous research in Malaysi (Ja'afar, 2006; A. Bashri et al. 2007; Shuhana et.al, 2007; Shuhana, 2011) a traditional street would be among the earliest streets of the towns that determine the pattern of the town. Also it is flanked by a row of old shop-houses built before Independence in 1957. Generally, the buildings consisted five-foot ways where a variety and diversity of activities occur. Normally, the streets have enclosed quality due to the transportation modes (e.g.; walking and bullock carts) during the era of its construction which resulted in a human-scale environment. It also gives priority to the local needs where the street name reflected the business activities. These types of trading activities are in the form of informal (e.g.; stalls, night market) and formal activities (inside the building

## **2. Methodology**

This study adopts a mixed method approach (qualitative as the core) where the case study method was adopted. It involves six techniques of data collection (refer to Fig. 1). There are several steps in conducting this study. First, is the document analysis where a theoretical framework and scope was determined. Next, it involves pilot study of questionnaire and pre-field observation in order to obtain

general idea of the place. Last stage involves the real research where all the technique will be conduct concurrently.

Twenty-one respondents (street users) were engaged using three techniques, namely, in-depth interview, mental mapping followed by questionnaires. According to previous research (Wan Ismail, 2010, 2009; Shuhana & Ujang, 2008; Ujang, 2008), there are two types of street user, namely; mobile and static. Mobile user is known as a visitor, they do not engage with the study area daily. The examples of static users are resident, shop owner, shopkeeper, vendor and office workers. Both type of users are selected because it is evident in the previous study in place that the story from local people is important in order to understand the place character through the effectiveness of time in creating the place which

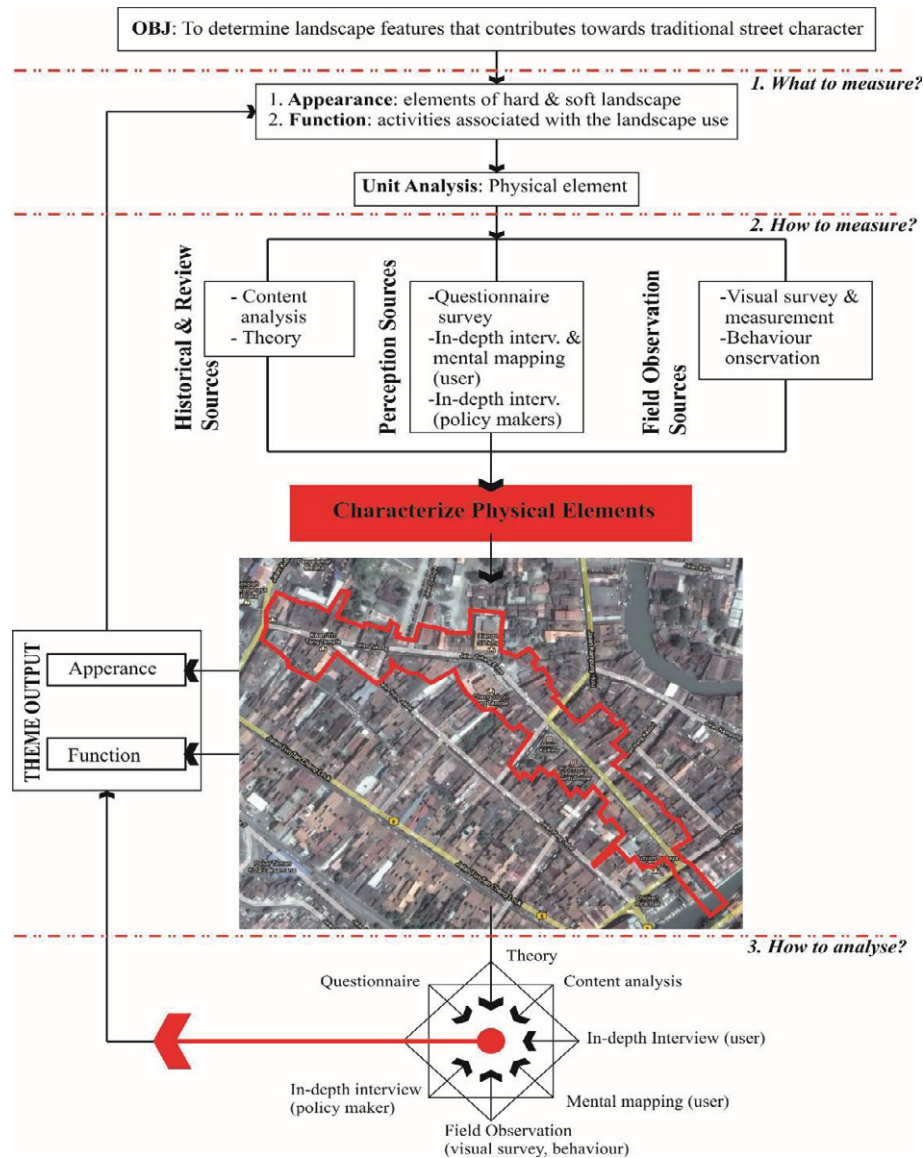


Fig. 1. Research framework and methodology

including the changes and continuity (Manley & Guise, 1998; Alizadeh 2005, Alfrey 2010; Dovey et al., 2005). However, visitors were chosen in this study because according to Tuan (1974), they are better in terms of images/physical and viewpoint compared to resident. In-depth interview with planners and government architect were carried out. Secondly, documents' morphology studies and old photographs were conducted. Lastly, direct observation involving two techniques, visual survey and behavior observation as suggested by Shuhana (2011) and Abdul Latif (2011) were also performed. The purpose of the visual survey is to record the visual characteristic which related with landscape features. The aim of behaviour observation is to record the activities' pattern and its relationship with the physical elements which have been modified from previous study (Mehta and Bosson, 2009). This observation involves five types of questions namely, "what was done (act), when or where was it done (scene), who did it (agent), how he did it (agency), and why (purpose)" (Mehta, 2007). As suggested by Ujang (2008), this technique was conducted on a working day (Monday to Friday) and Saturday and Sunday (holiday). The activities were recorded using field notes (sketchbook) and photographs during good weather condition only as suggested by Mehta (2006).

The questionnaire was analyzed using statistical software producing descriptive statistics. This technique involved 330 respondents with 5.5% sampling error adopted at 95% confidence level where 'the cluster and probability' of design sampling was involved as suggested by previous study who was using the similar respondent (Ujang, 2008; Wan Ismail, 2010). In contrast, the qualitative data from the historical, perceptual and observation sources were analysed using thematic analysis. The sources of direct observation documented through field notes and photograph were also utilized and analysed qualitatively. This type of analysis has been suggested by previous researchers as it gives an opportunity for a researcher to think more creatively and broadly (Shuhana & A Bashri, 1992; Worskett, 1970; Shuhana et al., 2002; Mulyadi 2008; Anwar (2006).

### **3. Results And Discussions**

The study shows both landscape hard and soft landscape contributes towards traditional street characters which can be characterized into two main categories namely, physical attributes and function.

#### *3.1. Physical Attributes*

##### *3.1.1. Soft landscape features*

Soft landscapes are divided into two types: natural and man-made, which encompass three elements, namely; (i) water features, (ii) vegetation, and (iii) topography. The finding suggests there are at least five qualities contributed by soft landscape features in creating the strong character of the traditional street. These qualities are; (i) comfort, (ii) orientation, (iii) human scale, (iv) spatial, and (v) symbol.

Comfort is a quality associated with the calmness of the environment experienced through sensory perception which is triggered by location and water features namely, rivers, ablution pools, and individual plants. The location of the river and ablution pool of the mosque which is quite hidden from the hustle of the street environment is a crucial factor in creating calm (fig 2). Furthermore, the sound of moving water can be heard clearly even though the door is closed. It creates an enjoyable feeling of calmness when passing those buildings. The importance of water in an urban environment is emphasized by Moughtin (2005, 2006), where the water movement and the calmness effect make a comfortable environment. A comfortable environment is also associated with the quality of the view, which is created by river, vegetation, and topography as suggested by Handy et al, (2002) and Cullen G, (1985). The reflections of buildings along the river and the colourful lighting at night created a beautiful visual effect. Similarly, vegetations contribute to quality of view through its location, types and colour for those walking along the



street. The variety and diversity of these flower pots be seen in front of old shop-houses create their own effect or personalization. Crankshaw N. (2009) suggests that a variety of vegetation will create a variety of and diversity of texture, which represent one of the environment qualities associated with psychological calmness and attractiveness to the users (Macdonald, 2005). The topography which is referring to St Paul Hill, located near the study area. Although the height of the hill is not great, it contributes to the quality of view through the development pattern. The developments are following the contour where the flat land (study area) reflects high-density development (fig 3). According to previous study (English Heritage & CABE, 2008; Llewelyn D., 2000; Basingstoke and Deane, 2008), the development that follows the topography will give a benefit from an economic aspect while strengthening the 'sense of place'.

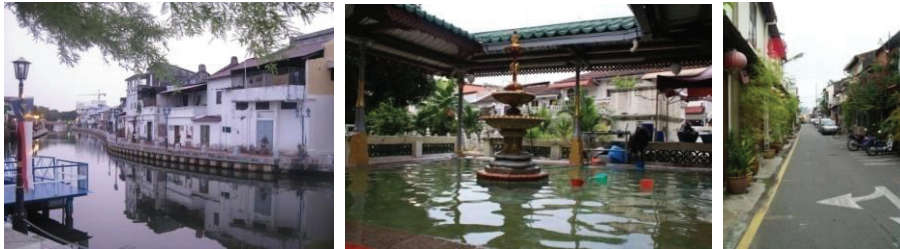


Fig. 2. Types of water (a) Melaka River (b) Pool ablution; (c) Types of vegetation

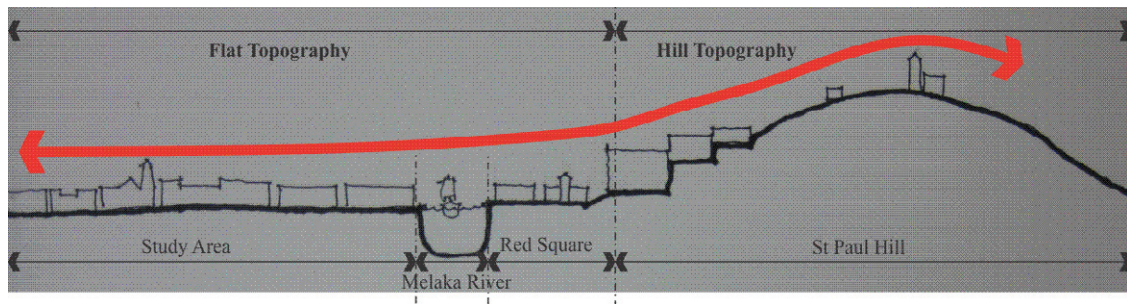


Fig. 3. The influence of development and topography

Soft landscape features also contribute to the clarity of the orientation which is associated with two elements namely, river and vegetation, that have been mentioned in mental mapping and in-depth interview. The location of the river creates clarity of orientation and acting as the edges of the study area. A variety and diversity of vegetation features such as singularity, types, colour, size and location also contribute to the clarity orientation. Finding also shows that the vegetation create a human-scale

environment, spatial quality and symbol of the place. The row of trees planted along the streets also creates a feeling of enclosure. Types of vegetation also associated with a symbol of the place through the local Chinese belief where according to Utusan On Line (2011), in Chinese community, bamboo and citrus trees represent prosperity and peace in life.

### 3.1.2. Hard landscape features

Hard landscape features affected four characters, (i) comfort, (ii) orientation, (iii) safety and (iv) symbol of a place. The study shows that comfort contributes to the positive and negative feelings of the place. This quality is associated with two main attributes, (i) street furniture, and (ii) pavement. Street furniture that generates a comfortable quality is associated with four features, (i) public toilet, (ii) bus stop, (iii) bicycle lane, (iv) zebra crossing, and (iii) quality of view. Public toilet is one of the amenities that contribute to the comfort environment as mentioned by respondent. Shaftoe H. (2008) mentioned that this facility is part of the basic infrastructure of a successful public space. The study discovers that comfortable environments of traffic amenities encompassed three features namely, bus stop, bicycle lane and zebra crossing. The appropriate location of a bus stop at the nodes of pedestrian activities (a square) with a shade provided by trees, water fountains and nearby food stalls are mentioned by a respondent. According to the respondent, this setting creates a comfortable environment while waiting for the bus. This finding supports Los Angeles County's (2011) opinion that a bus stop is the focal point of an activity.

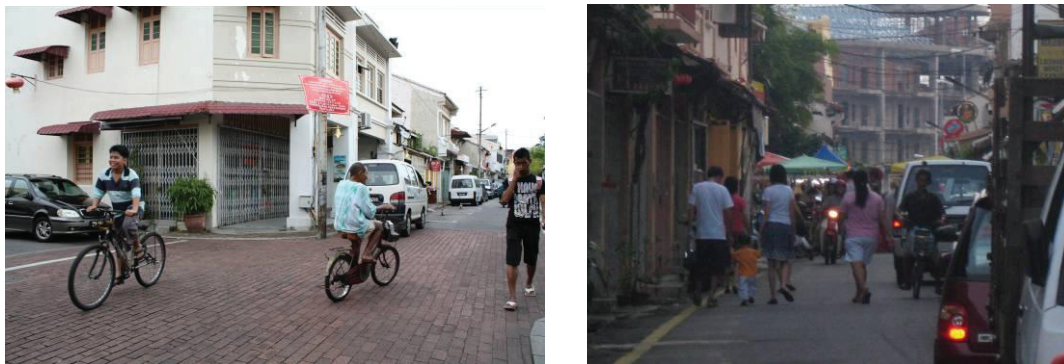


Fig. 4. Cycling and walking mode transportation

The absences of bicycle lane and zebra crossing have been suggested to be associated with comfortable environment (fig 4). New York Biycling Coalition (2002), mentioned that the minimum

width of bike lane is 5'. The New York Bicycling Coalition also suggests that the use of 'bicycle routes,' which refers to the 'shared space' with another mode of transportation, could be applied. Similarly, with the designation of zebra crossing in the street junction which is not compulsory because the existence of it is known (Los Angeles County, 2011). Studies show that these suggestions can be applied in the study area because the observation proved that people were walking and chatting in the street without feeling worried by the traffic.

The quality of view created by hard landscape features is essential in order to create a comfortable environment which is associated with three features, (i) decorative lighting (ii) meter parking, and (iii) types of pavement. The finding supports South Dublin County Council (2011) view where overwhelming traffic management will reduce the attractiveness of the street. The decorative lightings that are found to contribute to the quality of view at night are associated with the colourful lightings along the river and the 'tang long' as part of Chinese's culture. These night settings create an attractive and enjoyable environment which contributes toward a sense of place in the form of a place symbol, especially the lights from the 'tang longs' as mentioned by the users, which is similar to Lillebye E.'s (2001) findings. These environments create a 'sense of communality', that lends to an unforgettable experience for the users. The pavement, on the other hand, contributes to the quality of view through the use of natural elements which can be found on the sidewalk that portrays design, territory and personalization. A respondent in the in-depth interview mentioned that this kind of material shows a unique, attractive and rustic appearance. This finding supports Moughtin's (2005) opinion that the design of pavement can create a feeling of relaxation and calm.

Uncomfortable environments are associated with six features, namely; benches, dustbin, bicycle rack, bus stop, quality of view, and pavement. The absence of dustbin and bicycle rack generates uncomfortable environment due to residents and traders throwing rubbish at the road junction, with the thinking that it will be removed the next day by the cleaner. This creates inconvenience both physically and visually, as mentioned by respondents. The absence of bicycle racks resulted in bicycle being in an inappropriate location that blocked pedestrian movement. The finding shows that even though the absence of bicycle rack is not critical, in order to encourage their use, a proper design and location of racks must be considered (Los Angeles County, 2011). The location of existing benches in front of the temple creates discomfort, as has been learned from the in-depth interviews, because of the smells of ritualistic events there. According to Shaftoe (2008) placement of a bench is an important feature in pedestrian amenities, and a suitable location must be considered. The small number of benches creates a limited choice of where to sit, a factor mentioned by most respondents. This finding is similar to Mehta and Blosson's (2009) opinion that benches create a sense of personalization which will encourage human use and social behaviour.

Uncomfortable situation is also generated by the location of the bus stop, whereby in the visual survey; the distance between bus stops is around 1km where the Los Angeles County (2011) suggested that, the distances between bus stops depend on a variety of factors. Generally, the appropriate distance is around 400m or nearer if the stop is in the middle of the town and close to a residential area, thus showing having nearest bus stops are essential. Next, the quality of view generates uncomfortable environment through the untidy appearance of manhole and transformer vault. According to North Shore City (2009), the good design of utilities can improve a comfort environment and the quality for pedestrian. Lastly, uncomfortable environment is caused by pavement through its narrowness and no continuity of the sidewalk. According to North Shore City (2009), a sidewalk is an important feature, however, the vertical designation (level of changes) of it is not compulsory in 'shared space' concept. This type of concept is suitable for streets with narrow width as in the study area. Added by English Heritage (2010) a good design of paving will help visual continuity of the street.



The quality of orientation is supported by five features, pavement, signage, stage, public toilet and outdoor café. The pavement design at the building frontage and the junction support the clarity of orientation. According to South Dublin County Council (2011), the selections of surface material help to distinguish the character of the place which makes the street readable. Signage contributes to clarity of orientation through location and visibility of design appropriateness. This finding is similar to Crankshaw's (2009) opinion that the design of signage with suitable location is important in order to create a legible place (Llewelyn D., 2000). The clarities of orientation are also afforded by the stage, public toilet and outdoor café through clarity of location as seen in mental mapping. This observation is consistent with Nasar's (1989) observation that humans can remember the distinctiveness elements easily.

Safety contributes to the positive and negative feelings through street lighting where a safe environment has been mentioned by all respondents and a lack of street lighting at the back lane generates insecure feeling. This is consistent with Shaftoe's (2008) finding which suggested that appropriate street lighting is important in order to create a safe environment.

Finally, quality of the place is also associated with the presence of old Muslim graves and mausoleums. These features show uniqueness and distinctiveness through location in the middle of the Chinese's settlement. It has been mentioned by respondents and presented as one of the identities of the place. Observation reveals that these old graves and mausoleums are well maintained and true to Alexander's (1977) suggestion that there should not be any development in a grave area in order to preserve memories of those who have passed.

### 3.2. Activity

The study suggests that the uses of both landscape features (soft and hard landscape) contribute to two types of traditional street activity namely, local community activities and tourist activities.

#### 3.2.1. *Soft landscape features*

The study suggests that local community activities that are associated with soft landscape features are ablution pools and plantations. The ablution pool from Kg Kling Mosque functions as a place of ablution for Muslims before they perform their prayers. The uniqueness and distinctiveness of this feature have been mentioned by respondents and the water from this ablution pool is also used in traditional treatment. Its efficacy is a long-held belief by the local people from various religious and racial backgrounds, which have been mentioned by respondents and through observation conducted. This finding is consistent with Worskett's (1970) opinion that one of the aspects that contribute to street character is the presence of local community activities. Activities are also associated with local vegetation whereby the fruits from the mango tree located within the mosque area become an attraction. There were a group of local children plucking the mangoes while an observation was being conducted. According to Whyte (1981), food is one of the factors that attracts people to the place where activities will be generated spontaneously.

Soft landscape features that attract tourist activities could be found along the Melaka River through cruise activity which also attracts local people. Shuhana et al. (2002) show this activity is able to enhance the function of the river.

#### 3.2.2. *Hard landscape features*

The finding suggests that the local community is generally associated by two major features namely pavement and street furniture. The function is of two types of pavement (fig 5). First, sidewalk including the five-foot way that functions as a setting for daily interaction and a space for informal business such as stall. The observation shows that this informal or temporary business sells breakfast items which start as

early as 6:30am until 10:30pm when trade becomes more robust. Interestingly, the permanent business found in the five-foot way as preparation area and is also as a place for people to eat. Usually the activity in this area is an overflow from the activity inside the building which creates a sense of territory.

The street also provides a setting for daily activities such as path, passage of vehicles and loading and unloading activities. The street also is used as a space for residents to dry food (fig 6:c) and as an interactive area, especially in the evenings. It also supports a 'night market' held every Friday and weekend. This activity only involves a part of the study area (Tokong Street). Those street areas will be closed to vehicles at certain times. During this period, the streets are packed with people of various races and ages, and are involved in various activities. The result of this activity affects the rest of the study area where the number of sustained/stationary activities increase compared to weekdays. Observation shows that most people using the study area are passing through on their way to the night market. This finding supported Moughtin's (2005) opinion stressing the function of pavement to provide a hard surface, dry and not slippery that will generate a variety and diversity of activity through its robustness (Bentley et al. 1985). In addition, the mixture of users (locals and tourists) create a variety and diversity of activities both passive and active activities as suggested by Rapoport (1977).



Fig. 5. (a) Informal business creates sense of robustness (b) Overflow activity (i) five foot way as eating area (ii) cleaning & preparation the food at the 'street it -self'; (c) Social interaction among local community

Street furniture supports social interaction through four elements; benches, street lighting, badminton court, and an open stage. The benches functions as a relaxation and observation platform (fig 6). According to Mehta (2007), a bench is essential in generating social activities and user comfort. The study shows that street lighting is important in generating social interaction amongst the local community. Observation indicates that at night, residents and their families will walk and chat on the street, especially under street lights. This finding supports the Llewelyn D (2000) opinion which mentioned that the more light provided in a space, the more activities it would trigger during the night. Next, the badminton court which is located between the houses becomes a node for local community recreation, including teenagers and children, especially in the evenings from about 5pm to 7pm. Interestingly, in the middle of the afternoon, this court becomes a place to sun-dry coconut husk by the residents for the cattle's needs (fig 6). These day-long activities, with their variety and diversity, have enhanced the character of the place. It is consistent with CABE's (2008) finding namely; the space between building is important and if it is well-design, it will generate an enjoyable and a good function. Lastly, the open stage functions as performance space for the local community during the night market from 8pm until 11pm. Observation and in-depth interview show that at other times the stages are used for entertainments or classes such as karaoke and dance sessions for the local community. Consequently, it triggers social interaction in the local community that suggests street entertainers have the power to make the street vibrant (Raleigh City Council 2008).



Fig. 6. (a) Variety and diversity of use at badminton court (b) The function of benches: (i) at night (ii) during day time (c) Space for residents to dry food

#### 4. Conclusion

The study concludes that landscape features contribute to street's character can be categorized into three main aspects, namely; (i) physical (landscape features), (ii) activity (landscape use) and, (iii) meaning (landscape symbol). Physical quality refers to man-made (e.g.; benches, street lamp) and natural features (e.g.; river) which are also known as tangible aspects whilst activities and meanings are the intangible aspects. The physical aspect is essential because it determines the intangible aspect which consists of human behaviour or activity, which reflects its own pattern and also the symbol of the place. The study reveals that natural elements play a significant role in contributing the positive feeling of the place especially regarding the water features and vegetations. It influences human psychology through its calmness and view. This is also true to the types of vegetations that grow well. Planting these in the streets should be encouraged. Local people enjoy them and the plants create a sense of belonging. Therefore, the appropriate places for the vegetations must be considered, and it is essential to understand how this natural element will influence the place and how it differs from other places. According to Norberg-Schulz (1984) development which adapts to the natural environment will enhance the place's character and therefore, its meaning.

For the hard landscape, there are some design suggestions to improve the place's character. This is because, according to Kropf (1996), man-made objects are distinct from natural ones because they can be altered and arranged. First, greater number and appropriate locations of benches should be considered because they will generate comfortable environment. The continuity and appropriate design of sidewalks including the surface is essential because the quality of robustness will encourage a variety and diversity of activities. Dustbins should place at appropriate locations, design and the maintenance aspects should also be creatively considered. Comfort environment through cleanliness will promote a quality time use within the area by the user. The amount of street lightings should be considered for the back lane in order to create a safe and comfort environment for users especially at night. On the whole, preservation of natural elements that gives a place its potential is enhanced by a good design of man-made features which will portray the harmony and strength of the place's characters. This has been emphasised by London Borough of Croydon (2009) in which hard and soft landscape should be considered together and as an integral part of any proposal to create or improve the quality of external spaces.

For the future research, the study should focus specific on behaviour aspect, the influencing of old setting compare to modern setting. Thus, it will provide more comprehensive benchmark in designing the street from the function aspect.

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