

## MAPPING FUNCTIONAL ATTACHMENT ALONG TRADITIONAL STREET AT LEBUH ARMENIAN, GEORGE TOWN, PULAU PINANG

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### ABSTRACT

Rapid development and urbanisation in Malaysia have permanently altered the structure and character of traditional streets. Modern buildings have significantly affected these streets, shifting individuals' preferences from outdoor to indoor shopping. This study aims to assess users' functional attachment of traditional street at Lebu Armenian, George Town by examining the activities and the street physical features. To achieve this, the study adopted systematic observation with behaviour mapping as the primary data collection method. The results show that the contributing factors such as place engagement, street familiarity, dependency, satisfaction, and physical comfort play crucial roles in forming strong emotional connections and reinforcing individuals' attachment and sense of identity with traditional street. These results highlight the intricate relationship between emotional and functional factors that maintain the vitality and cultural significance of this street. Ultimately, the study provides insights into the factors influencing place attachment to traditional street and offers practical suggestions for enhancing and preserving these urban spaces. It underscores the importance of balancing functional and emotional attachments to create lively and culturally rich urban environments.

**Keywords:** Systematic Observation, Behaviour Mapping, Functional Attachment, Traditional Street

## 1.0 INTRODUCTION

Rapid development and urbanisation in Malaysia have led to irreversible changes in the structure and character of traditional streets. This could potentially result in the loss of their historical uniqueness and a failure to meet community needs, particularly regarding space and street connectivity (Shukri et al., 2022). Modern buildings have significantly affected traditional streets, shifting individuals' preferences from outdoor to indoor shopping. Alamoush et al. (2022) argue that contemporary shopping complexes in urban areas have led to the decline of smaller independent shophouses, erasing the traditional urban fabric (Ujang, 2008). New shopping malls are often located near or within traditional streets (Shuhana et al., 2004; Sholihah, 2016). This development threatens the continuity of the existing townscape, as modern mall designs often do not harmonise with historic surroundings, both physically and aesthetically. Consequently, the conversion or demolition of many traditional shophouses has led to the construction of shopping malls that deviate in style and size from the surrounding buildings. The development of shopping malls in close proximity to traditional streets, such as 1st Avenue Mall, Prangin Mall, and Komtar Walk, is particularly

evident in George Town. In this context, the present study aims to evaluate users' functional attachment to traditional street by examining their activity patterns and physical features in Lebu Armenian, located in George Town, Pulau Pinang.

## **2.0 LITERATURE REVIEW**

### **2.1 Functional Attachment**

Functional attachment refers to how well a place meets a user's needs. According to Shukri et al. (2022), functional attachment in placemaking focuses on fulfilling the users' unique activity needs. An individual's ability to evaluate a place's effectiveness in meeting their needs depends significantly on their personal experiences (Backlund & Williams, 2003; Chen et al., 2014). In urban settings, Ahamad et al. (2019) emphasise the relationship between the physical features of green spaces and functional attachment, as these features engage park visitors with their surroundings. Their study revealed that the elements of familiarity, engagement, dependency, satisfaction, and comfort can assess functional attachment. Similarly, Shamsuddin and Ujang (2008) highlight that engagement, familiarity, dependency, satisfaction, and comfort are crucial for place attachment in traditional streets. Shukri et al. (2022) further identified these elements in their study of traditional streets in Alor Setar, Kedah- noting that engagement, familiarity, satisfaction, and comfort contribute to a sense of place. Therefore, to establish functional attachment, the environment must offer familiarity, safety, and enjoyment for the users.

### **2.2 Traditional Streets**

The term "traditional" relates to "tradition," which includes the heritage and passage of time, contributing to a street's physical and spiritual character (Ujang et al., 2017; Samadi & Mohd Yunus, 2018). According to Alamoush et al. (2022), traditional streets are considered the most authentic representations of evolving social civilisations, highlighting their role in reflecting individual and group identities as well as cultural diversity. In Sholliah's (2016) study on the quality of traditional streets in Indonesia, traditional streets closely align with the concepts of traditional settlements and cities, symbolising a place's historical and cultural heritage. Kusumowidagdo et al. (2022) affirm that traditional streets are among the earliest in a town, influencing the overall urban pattern (Ja'afar et al., 2018). Shamsuddin and Ujang (2008) offer a comprehensive depiction of traditional streets, highlighting the typical presence of pre-World War II shophouses featuring five-footways, which act as pedestrian walkways and wider outdoor spaces for shop activities and social interactions. Consequently, traditional streets foster a strong emotional connection.

## **3.0 METHODOLOGY**

Systematic observation, in conjunction with behaviour mapping, serves as the primary data collection method. The process of gathering data through observation, which can be structured or unstructured, entails watching, listening, reading, or recording behaviours and attributes (Dudovskiy, 2022). Structured observation, also known as systematic observation, uses predefined variables and observation schedules, while unstructured observation is more open-ended with no predetermined variables or objectives. Systematic observation outlines

the actions, attributes, or variables for documentation, providing clear guidelines for their recording (Clark et al., 2022). This ensures consistency among observers in documenting the attributes' current conditions. Behaviour mapping complements systematic observation by recording behaviour at specific locations and times. As Nizarudin (2017) explains, behaviour mapping systematically documents human activity, characteristics, and movements using annotated maps, plans, videos, or time-lapse photography. This reliable method is suitable for assessing and evaluating the functional attachment to traditional streets, such as Lebu Armenian.

In this study, the structured observations were used to document the behavioural activities of different genders along Lebu Armenian. These activities encompassed social interactions such as trading, walking, sightseeing, performing arts and entertainment, street vending, and other similar engagements. The activities were monitored and recorded simultaneously through walk-by observations and behaviour mapping. The observations were carried out on both weekdays and weekends from 9 a.m. to 7 p.m. Specific time intervals were designated within this period to enhance the reliability of the results as indicated in Table 1.

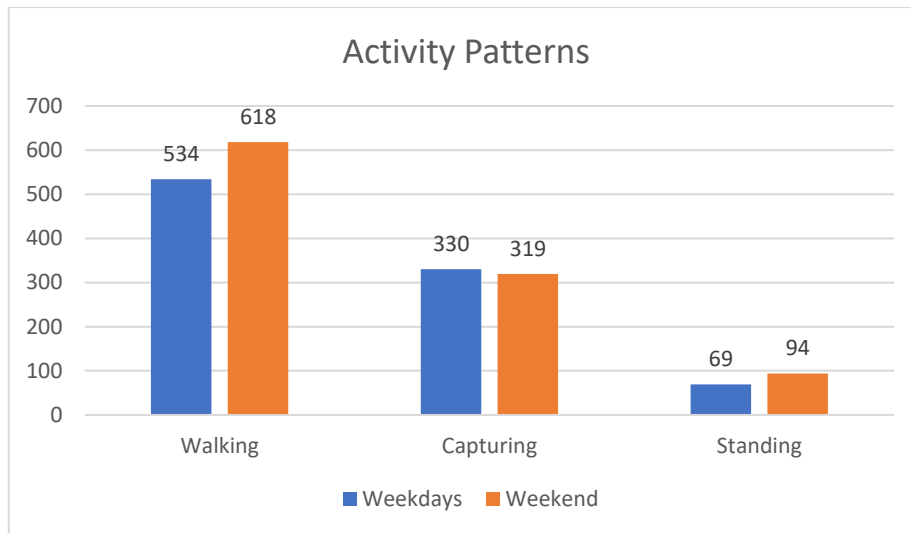
**Table 1:** Summary of Behaviour Mapping (Time and Duration)

<b>Interval</b>	<b>Weekdays</b>	<b>Weekends</b>
Morning	9 a.m-11 a.m	9 a.m-11 a.m
Afternoon	1 p.m-3 p.m	1 p.m-3 p.m
Evening	5 p.m-7 p.m	5 p.m-7 p.m

The schedule was aligned with the operational hours of most shops on the street. During data collection, activity checklists with appropriate observation symbols and a coding system were used to record user activities. This coding system provided a structured framework for categorising and organising the observed street activities. Later, the data was digitised and transferred into Quantum Geographical Information System (QGIS), a software program for spatial analysis.

#### **4.0 RESULTS**

By integrating collected data with spatial analysis through QGIS, insight on users' functional attachment were gained through their activity patterns and the physical features of Lebu Armenian. Key elements such as place engagement, familiarity with the streets, dependency, satisfaction, and physical comfort influenced the traditional streets' spatial patterns. These results enhanced the understanding of how street characteristics and user behaviour intersect, contributing to the overall assessment of place attachment. Users engaged in 14 different activities on the streets including walking, sitting, chatting, playing, capturing, busking, resting, eating, cycling, standing, buying, selling, waiting, and viewing, but the most frequently observed activities with a notable presence was the central focus. This focus allows for a deeper analysis of their spatial distribution, patterns, and relationship to the physical features of the streets.



**Fig. 1:** Activities occurring during both weekdays and weekends along the street.

Figure 1 depicts the most common activities on Lebu Armenian throughout the data collection period. Walking emerged as the predominant activity, representing a substantial part of overall street engagement, followed by activities related to capturing images. Standing activities were the least frequent among the highest activities, involving fewer than 100 users. This analysis provides valuable insights into how these activities contribute to the functional attachment and overall experience of individuals along Lebu Armenian. The next section will delve into the detailed results concerning the most prevalent activity patterns observed along the street.

#### 4.1 Walking Activities

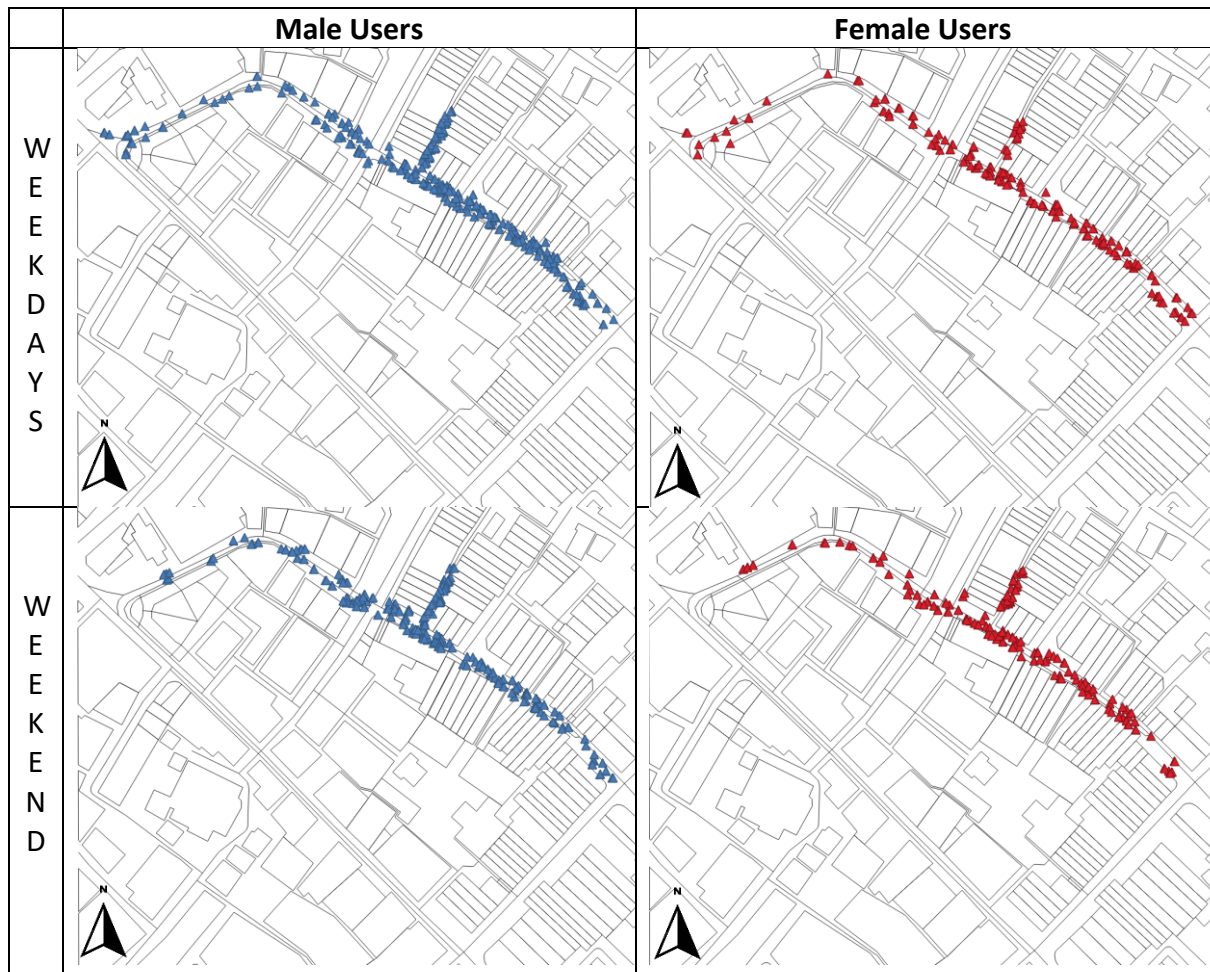
The upcoming section details the presence of different genders at Lebu Armenian on these selected days for walking activities.

**Table 2:** Data results pertaining to walking activities.

Traditional Streets	Male Users	Female Users
Weekdays	361	173
Weekend	365	253

Table 2 shows the data result during weekdays, there are 361 male users and 173 female users, while on weekends, male participation increases to 365 users and female participation rises to 253 users.

Figure 2 shows the behavioural patterns along Lebu Armenian on selected weekdays and weekends, categorised by activities and gender. There was a significant decrease in the number of visitors walking in the northern area of Lebu Armenian. On select weekdays, similar observations of Lebu Armenian revealed that male users engaged in more walking activities than female users. This suggests that walking is a more prominent activity among male users in this area.



**Fig. 2:** Walking activity patterns observed along Lebuah Armenian during the weekdays and weekends.

#### 4.2 Capturing Activities

Subsequent sections offer detailed insights into the presence of various genders along Lebuah Armenian during specified weekdays and weekends for capturing activities.

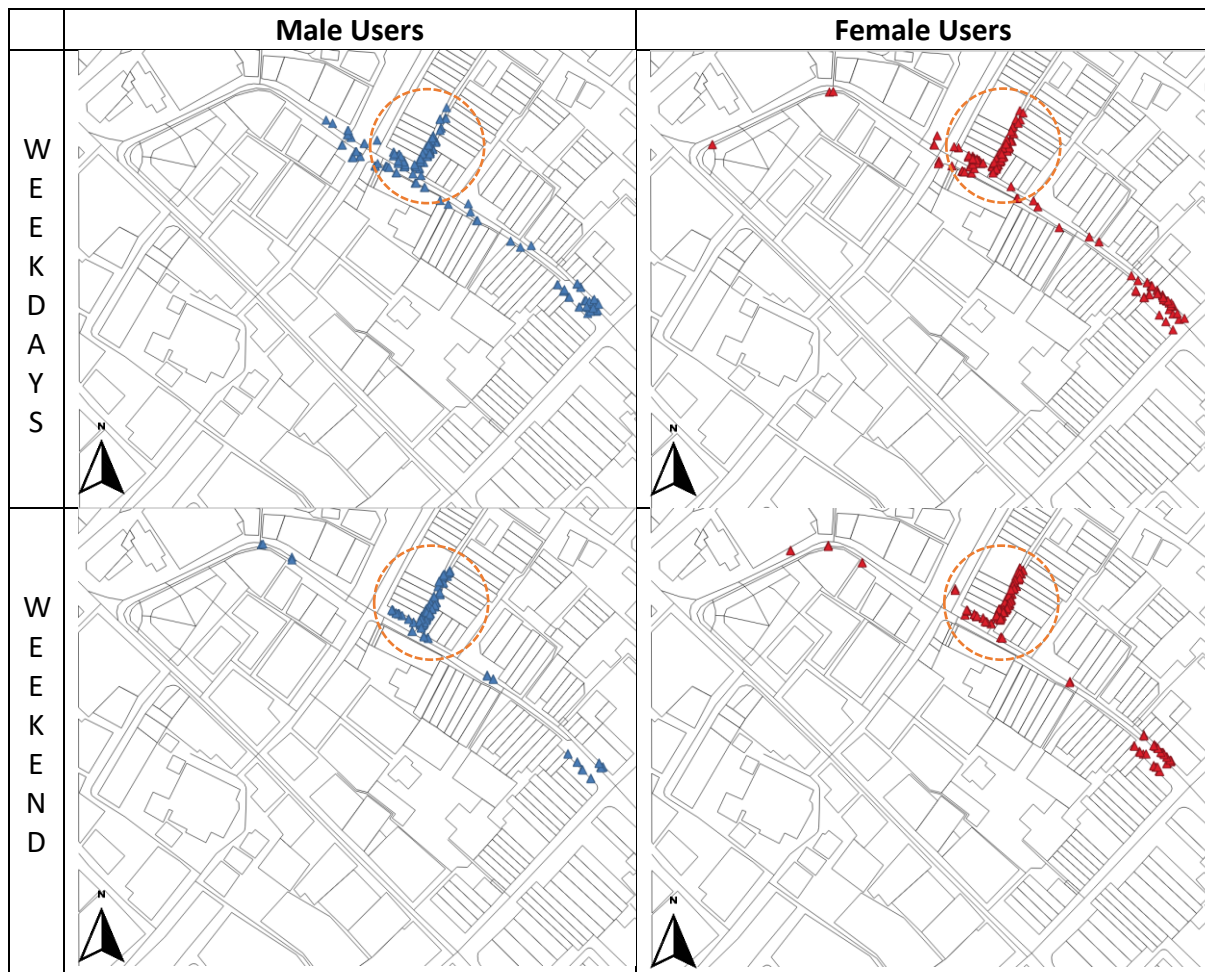
**Table 3:** Data results pertaining to capturing activities.

Traditional Streets	Male Users	Female Users
Weekdays	155	175
Weekend	143	176

Table 3 shows the data result on weekdays, there are 155 male users and 175 female users, with male participation slightly decreasing to 143 users and female participation remaining consistent at 176 users on weekends.

Figure 3 depicts the behavioural trends observed on certain weekdays and weekends at Lebuah Armenian, categorised by activities and gender. Notably, individuals tend to congregate in well-known spots renowned for street art along Lebuah Armenian. Based on observations made on specific weekdays, there was a noticeable trend of higher involvement in capturing

activities among female users compared to male users on the same streets. The users' affection for Tapak Warisan George Town (refer to the circle on map) was evidently more intense.



**Fig. 3:** Capturing activity patterns observed along Lebu Armenian during the weekdays and weekends.

### 4.3 Standing Activities

The subsequent section provides detailed insights into the presence of various genders along Lebu Armenian during specified weekdays and weekends for standing activities.

**Table 4:** Data results pertaining to standing activities.

Traditional Streets	Male Users	Female Users
Weekdays	39	30
Weekend	40	54

Table 4 shows the result during weekdays, there are 39 male users and 30 female users, whereas male participation increases slightly to 40 users on weekends, while female participation notably rises to 54 users.

Figure 4 displays the behavioural trends observed on certain weekdays and weekends at Lebu Armenian, categorised by activities and gender. After observing Lebu Armenian, it became apparent that the majority of users were congregating in the open area (refer to the circle on map) located in the southern part of the street. Conversely, the northern region had a lower number of male and female users. Interestingly, over weekends, female users exhibited higher levels of participation in standing activities in comparison to male users.



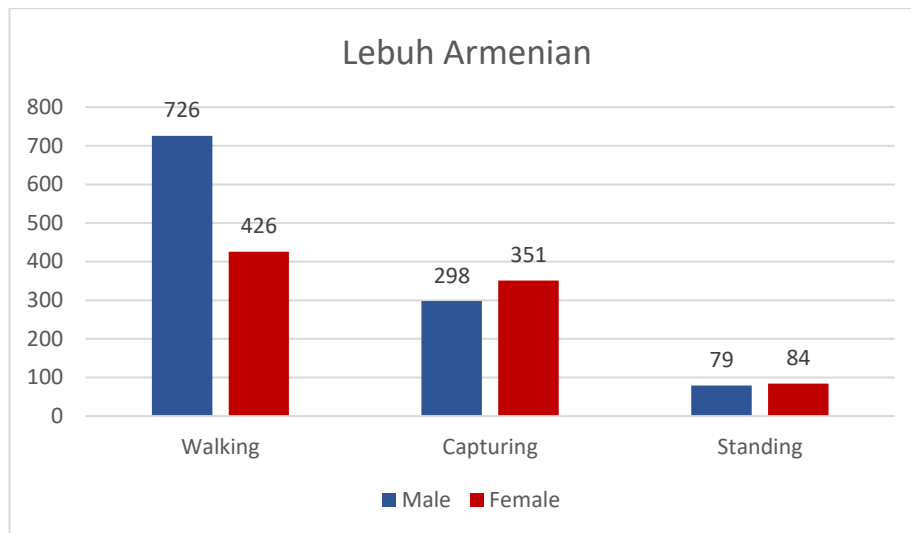
**Fig. 4:** Standing activity patterns observed along Lebu Armenian during the weekdays and weekends.

#### 4.4 Comparison of Activities Based on Gender Along Lebu Armenian

Figure 5 provides evidence that male users outnumber female users along Lebu Armenian, highlighting a distinct gender imbalance in occupancy.

This observation suggests that the distribution of users and visitor patterns may vary across different sections or areas of the street. Despite the presence of vehicles, users perceive a sense of security and comfort while walking along this historic street, indicating efforts to ensure a safe and pleasant pedestrian experience. Female users displayed a greater interest and engagement in capturing activities, especially in prominent street art areas, suggesting that this area holds significant appeal for users regardless of gender. Tapak Warisan George Town emerged as a popular spot for capturing activities, indicating its importance as a

heritage site along Lebu Armenian, evoking a sense of pride and familiarity unique to this street.



**Fig. 5:** Comparison of activities based on gender along Lebu Armenian

## 5.0 THE INFLUENCE OF ACTIVITY PATTERNS AND PHYSICAL FEATURES

The literature review highlighted critical factors such as place engagement, familiarity, dependency, satisfaction, and physical comfort that influence place attachment to traditional streets. To maintain relevance, this study delved into the functional attachment aspect of Lebu Armenian. The results illustrate how activity patterns and physical characteristics are pivotal in shaping a functional attachment to traditional streets.

### Place Engagement

Place engagement refers to the participation and contributions of individuals or communities in a particular location, involving their time and energy to connect with their surroundings. This engagement may involve attending community gatherings, volunteering, taking part in local events, or patronising local businesses. Figure 6 depicts the level of engagement among users on Lebu Armenian.



**Fig. 6:** Users' engagement on Lebu Armenian



This study's results reveal that walking, capturing moments and standing are among the most preferred activities on all three selected streets. The strength of these social activities is evident in users' attachment to others engaged in similar activities. On Lebuah Armenian, users develop strong engagement through their presence and activities, contributing to the creation of welcoming, safe, and lively streets. Figure 6 illustrates how Lebuah Armenian users contribute to and interact with others. According to the researcher's observations, Lebuah Armenian offers a variety of experiences and amenities, including spacious areas that facilitate user interaction. Physical features like five-foot walkways serve as transition spaces for pedestrians, areas for hawkers to sell goods, ample space for cyclists, and a trishaw station, all contributing to the street's vibrancy.

### Familiarity

Familiarity, also referred to as locational knowledge, encompasses knowing the whereabouts of a place; visual recognition, which involves identifying a place visually; place name recognition, associating specific names with places; and interaction with the place, actively engaging in activities within it. The results suggest a preference for walking activities along Lebuah Armenian, indicating that users are familiar with their surroundings and feel secure and confident without fear of getting lost. The uniqueness of physical features like heritage buildings, green spaces, and connectivity between streets significantly contributes to this familiarity. These distinct features not only enhance the visual appeal of the area but also serve as landmarks or reference points for users, making this traditional streets more recognisable. Figure 7 depicts a row of historical buildings situated along Lebuah Armenian.



**Fig. 7:** A row of historical buildings located along Lebuah Armenian

Ja'afar et al. (2018) outline various attributes that form the physical characteristics of streets, including size, height, shape, colour, skyline, movement, surface, texture, signs, edge, designs, materials, arrangement of building facades, openness, spaciousness, and enclosure. Figure 7 illustrates the characteristics present in the heritage buildings along this traditional street. These characteristics contribute to the townscape's identity and establish a sense of place image for Lebuah Armenian. The development of buildings, structures, and spaces influences the usage patterns, activities, and movement within a place, shaping the experiences of visitors, workers, and residents on this street. Therefore, observers play a significant role in shaping townscape elements as they easily recognise and remember unique physical features that contribute to the overall assessment of the area.

## Dependency

Dependency refers to a personal connection to a specific physical environment. As outlined by Marshall and Marshall (2007) and Rajala et al. (2020), dependency denotes the reliance individuals develop on resources for their livelihood. Lebuah Armenian falls within the business district activity zone, indicating that this street are primarily associated with commercial and economic activities. They are characterised by a concentration of businesses, offices, and related infrastructure, contributing to the overall vibrancy of the city's business hub. Functional attachment elements primarily focus on shophouse owners, caretakers, hawkers, or the presence of entertainers along this traditional street. Figure 8 provides an illustration of the observed dependency along this street.



**Fig. 8:** Souvenirs and Bicycle Shops on Lebuah Armenian

Figure 8 shows a souvenir shop and a bicycle shop located on Lebuah Armenian. Based on these results, the researcher observed that the seller is reliant on this street because it directly impacts both their personal life (residence) and professional life (business). Furthermore, from casual conversations with these sellers, the researcher observed their dependency on this street, where the events and activities closely influence their livelihood and engagement. These businesses or services serve Lebuah Armenian shophouse owners, as well as providing locals with an opportunity to generate income on this street.

## Satisfaction

Place attachment is associated with individuals' levels of satisfaction in urban environments, as well as the significance and role of a place for its users and residents (Karsono et al., 2021). The results suggest that Lebuah Armenian users and residents derive satisfaction from obtaining something meaningful. Figure 9 illustrates the satisfaction levels among users with traditional streets.



**Fig. 9:** Users' comfort and satisfaction

Individuals' active participation in recreational activities such as trishaw and bicycle riding on Lebu Armenian indicates a high level of satisfaction with the services and amenities provided in this area. This satisfaction serves as a crucial indicator of the overall success of revitalisation efforts. The fact that users actively choose to participate in these leisure activities suggests that they find the streets enjoyable, safe, and conducive to recreational experiences. It indicates that the infrastructure is not only available but also well-received by users. This street not only serve a functional purpose but also evoke feelings of joy and well-being among visitors. Social interactions and the meanings attributed to a place indicate the positive correlation between a physical location and personal satisfaction. As a result, the engagement in leisure activities and the satisfaction expressed by users underscore the successful revitalisation of this traditional street, demonstrating their effective transformation into vibrant and appealing destinations for both locals and visitor.

#### 5.0.5 Physical Comfort

Physical comfort refers to an individual's experience in a particular location. Factors within this scope may include the overall quality of the surroundings, such as temperature, lighting, noise levels, and the overall satisfaction derived from the environment. Figure 10 highlights the distinct architectural styles and historical materials used in constructing the structures, emphasising their unique charm and character.



**Fig. 10:** An artistic and creative touch to the heritage building

The infusion of artistic and creative elements into the buildings adds vibrancy to this street and enriches the overall business environment. It indicates that shophouse owners feel at ease, and satisfied on this street, promoting community cohesion and mutual support. This could foster collaborative endeavours to upkeep and enhance the streets, thereby elevating the neighbourhood's appeal and attractiveness to potential customers and visitors.

Functional attachment to traditional streets in George Town, Pulau Pinang, is vital for preserving the city's unique heritage, supporting its economy, and fostering a strong community identity. It ensures that modernisation and development respect and enhance the historical and cultural fabric that defines George Town, Pulau Pinang. The activities of walking, capturing, and standing on traditional streets along Lebu Armenian are intricately tied to physical features such as architectural design, infrastructure, and environmental quality. These elements not only support various activities but also enhance user engagement, familiarity, dependency, satisfaction, and physical comfort, thereby shaping a strong functional attachment to the street. While the essence of traditional streets in George

Town, Pulau Pinang, is found in their historical depth, architectural beauty, cultural richness, and vibrant community life. These elements combine to create a unique and dynamic environment that is both a testament to the city's past and a living part of its present and future. Preserving and celebrating this essence is crucial for maintaining the identity and heritage of George Town, Pulau Pinang.

The results suggest that various elements of functional attachment, such as place engagement, familiarity with the streets, dependency, satisfaction, and physical comfort, played a significant role in shaping the attachment to the traditional streets. The literature review played a vital role in supporting the data results through systematic observation using behaviour mapping, identifying essential elements and elements of place attachment relevant to this study. These results highlight the intricate relationship between emotional and functional factors that maintain the vitality and cultural significance of this street. Ultimately, the study provides insights into the factors influencing place attachment to traditional streets and offers practical suggestions for enhancing and preserving these urban spaces. It underscores the importance of balancing functional and emotional attachments to create lively and culturally rich urban environments. Therefore, it is essential to maintain community activities and physical features to prevent changes in how users perceive and interact with their surroundings.

## 6.0 CONCLUSION

The results of systematic observation and behaviour mapping indicate that several critical factors, such as place engagement, familiarity with the streets, dependency, satisfaction, and physical comfort, significantly influenced the functional attachment to the traditional streets. These elements not only established but also reinforced the emotional and functional ties to the traditional streets. This result is consistent with the perspectives of Ross and Uzzell (1996), Stedman (2002), and Rajala et al. (2020), who emphasise that threats to deep emotional connections with a place can trigger behavioural responses, leading to shifts in individuals' perceptions and satisfaction with their environment. It underscores the significance of the identified factors and elements in influencing place attachment, serving as key indicators relevant to this study.

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