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A cognitive appraisal of the City Walk travel trend, considering city image, visitor engagement, place attachment, and behavioural intention

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This study seeks to address deficiencies in theoretical research about growing travel patterns via the analysis of the cognitive appraisal viewpoint. A case study in Malaysia examines the effects of factors including city image, visitor engagement, place attachment, and behavioural intention. The aim is to provide a comprehensive understanding of the factors that affect the development of travel patterns and their underlying mechanisms. A quantitative purposive survey was administered to 382 Chinese visitors who had participated in City Walk in Malaysia. The use of a quantitative study methodology using PLS-SEM demonstrates that the city image, as an extrinsic appraisal of the environment, positively influences intrinsic appraisals of place attachment and visitor engagement. Moreover, it affects the results of behavioural intention in City Walk. Place attachment and visitor engagement positively influence the interaction between city image and behavioural intention, serving as mediators. This study presents innovative perspectives on the burgeoning travel trend of City Walk, providing theoretical and practical insights that might enhance future research and promote the evolution of urban tourism practices.

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Introduction

Since the late 2000s, urban areas have become the predominant human habitat worldwide, and this tendency is expected to intensify in the next decade (Paus et al., 2024). A city is both a tangible thing seen by people with diverse traits and a product of several designers and planners that continually modify its foundational structure according to their reasoning (Mohidin and Ming, 2023). As we progressively occupy human-engineered urban surroundings, it is essential to comprehend how these settings affect human behaviour and how people experience the city (Paus et al., 2024). City Walk provides an immersive urban experience via walking activities designed to inspire individuals to explore and enjoy a city's culture, history, and scenery on foot (Wu, 2024), therefore connecting people to the authentic essence of urban life. A 2023 tourism study report by DT Finance and DT Research Institute revealed a notable trend in urban tourism, with 82% of respondents indicating a strong inclination to participate in city walking excursions, exceeding interest in other travel modalities.

Previous research regards City Walk as a mode of transit or a permanent retail complex with many uses. For instance, England has implemented specific regulations for urban walking to alleviate urban transportation challenges. Wiyanti and Hanfan (2022) recognise it as a shopping centre or destination, serving as a point of departure for a journey. Which notions emphasise the objective of a tourist destination, seeking entertainment, recreation, dining, and shopping activities? Hartanto and Yuwono (2020) declared that in Indonesia, City Walk denotes public open spaces designated for pedestrians or pedestrian pathways, used by residents for diverse activities, including parking for motorcycles, automobiles, and rickshaws. The rise of urban tourism has introduced City Walk as a contemporary trend, providing an immersive experience of urban life via walking activities that allow people to explore and enjoy a city's culture, history, and scenery on foot (Wu, 2024). Nevertheless, a precise definition of City Walk remains elusive, along with the study of City Walk in tourism. This research defines City Walk, from a tourist viewpoint, as a novel tourism style that integrates walking activities in urban areas for leisure and experiential tourism, closely connected to the authentic life of the place. City Walk is gaining widespread acceptance, hence creating prospects for the enhancement of the tourist sector. The global tourism industry requires a knowledge of destination development, which entails grasping the distinct characteristics of tourists, including their expectations, interests, desires, and behaviours (Hashemi et al., 2023). Nonetheless, existing research on the travel trend in urban tourism is limited.

City walk offers insights into the future development of the city (Borucka, 2019). Urban developments and transformations, including gentrification, tourism, and heritagisation, always provide distinct consequences for various demographics and their walking behaviours; moreover, walking as a study methodology may provide insight into these alterations (Svensson, 2021). The image of a city is constructed through a multifaceted process whereby tourists create a mental representation influenced by their perceptions, ideas, beliefs, impressions, identities, or emotions regarding a destination (Cham et al., 2021). This image serves as a crucial indicator of urban tourism development, reflecting the reputation or perception of a city (Mohidin and Ming, 2023) during City Walk activities. Nevertheless, visitors, including tourists, have extensively used urban spaces, amenities, and services, while the trash in these areas was expressly intended for tourist usage (Ujang and Muslim, 2015). Limited research has been undertaken to assess tourists' perceptions of city image (Hassan et al., 2020), particularly with the burgeoning travel trend of City Walk, which significantly

influences their decision-making process (Al-Gasawneh and Al-Adamat, 2020).

City Walk facilitates an immersive experience in the daily urban life of the residents, enabling visitors to fully connect with the local surroundings and embrace the local lifestyle at a leisurely pace (Borucka, 2019; Harun et al., 2020; Kim and Hall, 2023). The walkable tourist places will intensify the tourist magnets and focal elements that may increase place attachment (Ujang and Muslim, 2015) and provide the opportunity for engagement. Individual participants in City Walk could immerse themselves in the local community and experience everyday life with an authentic feeling of belonging by observing and experiencing different aspects of the city, such as its neighbourhoods, social practices, urban changes, residents' spatial behaviours, cultural events, and heritage branding; visitors can gain a deeper understanding of the city's everyday life in terms of its size and pace (Wu, 2024). Not only does culture nurture the creative and attractive texture of cities and urban settlements, but it also ties people and places together with landmarks, heritage, and traditions (Moscatelli et al., 2023). Despite the environmental and health importance of tourist walking, specific research on walking and tourism is limited, with walking in leisure and work contexts often being used as a proxy (Kim and Hall, 2023).

The global tourism industry requires a knowledge of destination development, which entails grasping the different features of tourists, including their expectations, interests, desires, and behaviours (Hashemi et al., 2023). Cognitive appraisal and emotional response are crucial to visitors' engagement (Yu et al., 2021). Participants in City Walk can acquire diverse cognitive insights from both visible and invisible sources, thereby shaping their relationship with the city to create external stimuli, which subsequently fosters internal stimulation of place attachment and engagement, ultimately influencing their behavioural intentions. Consequently, cognitive appraisal theory (CAT) may elucidate this link effectively from an academic standpoint. Despite the increasing interest in CAT within tourism research, there is a deficiency of studies on its relevance to emerging travel patterns, particularly about urban images, visitor engagement, and place attachment in City Walk from a cognitive appraisal perspective.

This research aims to analyse the processes and interactions among aspects associated with city image, visitor engagement, place attachment, and behavioural intention, in light of the significant allure of travel trends. The emphasis will be on foreign visitors visiting Malaysian cities, to enhance the competitiveness and appeal of the local tourism sector amid changing travel preferences. The research will be executed using both theoretical and practical methodologies, focusing on a particular case study of foreign visitors.

Literature reviews and hypotheses development

Cognitive appraisal theory. CAT elucidates how individuals respond to environmental inputs. The cognitive appraisal hypothesis has been experimentally investigated and validated across several areas, including critical thinking, human-computer interaction, online education, and marketing. CAT in tourism investigates the fundamental processes by which tourists respond to stimuli or assess the outcomes of an experience (Liu et al., 2022). It is gaining popularity in the tourist sector, with research highlighting its capacity to elucidate the generation of emotions (Liu et al., 2022). Most models in psychology and tourism have three fundamental components: appraisal, emotions, and coping response. According to appraisals, individuals will have an emotional response to the encounter. It posits that individuals continually assess their everyday experiences, which subsequently

influences their emotional and behavioural responses to their external environment (Liu et al., 2022; Scott et al., 2024).

Cognitive evaluation of the external environment may prompt interior reflection, thus affecting individuals' emotional experiences and sentiments. Participants on City Walk might develop a cognitive assessment of the city's image while traversing it, generating emotional experiences and sentiments related to place attachment and visitor engagement. Wu (2024) observed the city walk as a transformative event within daily life, fostering a stronger connection with urban settings. Participants derived important experiences and profound insights into city life; thereafter, they sought the essence of tourism and leisure. In this research, city image represents the cognition of exterior surroundings, place attachment and visitor engagement denote interior sensations and emotions, while behavioural intention reflects the coping reaction to city walking. Nevertheless, previous research has used CAT across many tourism studies, and the exploration of emerging travel patterns remains insufficiently examined.

City image has effects on behavioural intention, place attachment, and visitor engagement. The concept of "city image" is commonly employed to characterise a city's reputation or the overall impression it conveys to visitors (Mohidin and Ming, 2023). As a subset of destination image, city image refers to the attitudinal perception that a visitor forms about a location, encompassing their beliefs, thoughts, and general impressions. In the 1970s, Fu Chieh Hsu and Noel Scott made seminal contributions to tourism literature by exploring the concept of destination image (Hsu and Scott, 2020); previous studies have highlighted the significant role that destination perception plays in understanding various behaviours, such as destination choice, the intention to revisit, satisfaction levels, and the development of marketing strategies for tourist destinations (Foster and Sidharta, 2019; Lv et al., 2024). Hashemi et al. (2023) noted that the Malaysia Tourism Ministry and National Tourism Organisations have leveraged destination food images as a competitive advantage to promote inbound tourism, given that Malaysian food and beverages are highly recognised and appreciated by tourists. Furthermore, a positive city tour experience contributes to enhancing the city's image, which, in turn, influences the intention to revisit and recommend the destination (Kim, 2018). A substantial body of literature underscores the importance of these perceptions in shaping the views of potential travellers, which, in turn, directly influences their decision-making processes (Al-Gasawneh and Al-Adamat, 2020). Nevertheless, the application of the city image concept within the context of City Walk remains underexplored. Therefore, we propose the following hypothesis:

H1 City image will positively relate to behavioural intention in City Walk.

Place is a central concept in environmental psychology (Lewicka, 2008), and place attachment, as both a concept and a theoretical framework, has been employed in tourism research since the 1980s (Mohamed et al., 2022). Initially developed within environmental psychology, place attachment is defined as the emotional bond or connection between individuals and specific locations (Sthapit et al., 2022). This concept is rooted in attachment theory, which examines the relationship between individuals and particular places (Trinanda et al., 2022). Previous research has extensively explored the dynamics of human–place interactions, focusing on place attachment as the intensity and nature of emotional connections to a given place (Yan and Halpenny, 2023). Studies indicate that place attachment in urban contexts typically represents a positive emotional connection between individuals and the urban environment. Furthermore, it

has been found that city image plays a significant role in shaping place attachment, especially in historical or culturally rich areas (Al Rasyid, 2022). Moreover, place attachment is recognised as a valuable construct for understanding individuals' behaviours in relation to tourism and leisure experiences (Sthapit et al., 2017). While place attachment is often considered a key outcome of experiences in rural tourism, it is equally relevant in urban tourism contexts, where it is associated with positive emotional responses to specific urban sites. In the context of City Walk, we propose the following assumption:

H2 City image will positively relate to place attachment in City Walk.

The concept of a destination is inherently subjective, encompassing a blend of individuals' perceptions, beliefs, emotions, and attitudes toward a country, city, or region as a tourism destination (Woosnam et al., 2020). Previous studies have demonstrated a direct correlation between the perception of a city and the level of tourist involvement. Moliner-Tena et al. (2024) addressed a gap in the literature by proposing a causal model that includes seven hypotheses to explore the relationship between destination image and visitor engagement. Their research, conducted in Mexico, highlights that the perceived image of a destination plays a pivotal role in motivating tourists to plan a visit and in fostering lasting memories over the medium to long term. Despite these findings, empirical research examining the direct correlation between destination image and visitor engagement remains limited (Moliner-Tena et al., 2024). Therefore, the following theory is proposed:

H3 City image will positively relate to visitor engagement in City Walk.

Visitor engagement and place attachment have effects on behavioural intention. Engagement has become a critical area for understanding consumer behaviour within complex, interactive, and co-creative environments (Hao, 2020). The concept of visitor engagement has evolved from the broader field of customer engagement (Paul and Roy, 2023). It is of paramount importance for destination management organisations, as it enhances the tourist experience and strengthens the destination's value proposition (Taheri et al., 2014). Previous research has examined the impact of destinations on behavioural intention. Lee et al. (2020) emphasised the positive correlation between enhanced engagement and a greater degree of behavioural intention toward the destination. Seyfi et al. (2021) indicated that combinations of dimensions of visitor engagement could predict revisit and word of mouth intentions. Satar et al. (2023) confirmed that transforming destination-based customer engagement influences revisit intention. Walking through neighbourhoods, observing urban changes, engaging with residents' spatial behaviours, attending various cultural events, and experiencing heritage branding all enable individuals to gain a deeper understanding of the scale and rhythm of daily life in a city (Svensson, 2021). City Walk provide an immersive experience that allows visitors to fully connect with the local environment, embrace the lifestyle, and adopt the pace of the locals. However, much of the existing research on visitor engagement has concentrated on contexts within businesses or online platforms, leading to a gap in the investigation of tourist engagement at specific destinations (Zhou and Yu, 2022), particularly within unique leisure activities like City Walk.

The concept of place attachment has been widely studied and applied across various tourism contexts, such as food tourism (Hsu and Scott, 2020), night tourism (Chiang, 2016), rural tourism (Khartishvili et al., 2019), and other related forms of tourism. These studies explore the interplay between place

attachment and factors such as motivation, experiences, emotions, cognition, behavioural intention, and outcomes. Individuals form both functional and emotional connections with locations, leading to a mutual influence on their attachment to those places (Al Rasyid, 2022). Previous research has highlighted the significant role of place attachment in shaping visitors' decision-making processes and influencing their future behaviours. For instance, Mohamed et al. (2022) established a strong correlation between place attachment and the intention to revisit destination restaurants. Additionally, studies have found that stronger attachment to a place often facilitates the adoption of environmentally protective behaviours (Yu et al., 2021). Based on these findings, the following theories are proposed:

H4 Visitor engagement has a positive effect on behavioural intention in City Walk.

H5 Place attachment has a positive effect on behavioural intention in City Walk.

The mediator effects of place attachment and visitor engagement. The city functions as a condensed representation of the interactions between individuals and their surroundings, encompassing social, cultural, and economic dimensions (Al Rasyid, 2022). In the context of urban tourism, visitor engagement holds significant importance, particularly for those seeking immersive experiences. Previous research has indicated that the perception of a location can significantly influence the level of visitor engagement. It plays a mediating role in bridging the gap between a destination's image or quality and tourist loyalty and behaviours (Putri et al., 2022). A positive perception of the destination is often associated with a higher quality of tourist interaction (Moliner-Tena et al., 2024). Rasul et al. (2024) indicated that virtual reality experiences could boost potential visitor engagement and affect intention to visit in natural world heritage sites. As emerging travel trends continue to shape the tourism industry, expanding the understanding of visitor engagement is essential. However, there remains a notable gap in the literature regarding the connections between city image, visitor engagement, and behavioural intention in urban settings.

Furthermore, previous studies have suggested that place attachment can mediate the relationship between the credibility of a travel destination and tourists' environmentally responsible behaviour (Qiu et al., 2023), as well as their level of engagement and travel behaviour (Wong et al., 2021). Sam et al. (2023) highlighted that walking, as a globally significant mode of transportation, offers substantial health and environmental benefits, while also serving key psychological functions in urban areas. The development of tourist destinations that are easily accessible on foot can enhance the attractions and key features that foster visitors' emotional connection to a place (Ujang and Muslim, 2015). Thus, a clear connection exists between city image, place attachment, and behavioural intention across various tourism studies. However, the application of these concepts in the context of City Walk remains limited. Therefore, this study proposes the following hypothesis:

H6 Visitor engagement mediated the relationship between city image and behavioural intention in City Walk.

H7 Place attachment mediated the relationship between city image and behavioural intention in City Walk.

Methodology

Instrument. The proposed model was assessed using scales derived from previous studies, with quantitative data collected through a questionnaire consisting of two distinct sections: demographic information and multiple-item scales (Fig. 1). The city image variable was measured using 11 items, adapted from a

prior study by Ahsanah and Artanti (2021). Visitor engagement was operationalised with eight items based on the work of Taheri et al. (2014), with a sample item being: "Using guided tour." Place attachment was measured using six items, drawing on previous research by Hosany et al. (2017). Lastly, behavioural intention was assessed using three items from Loureiro (2014). A 5-point Likert scale was used to measure responses, ranging from 1 (strongly disagree) to 5 (strongly agree).

Study setting and sample. Malaysia is recognised as a multi-cultural country due to the coexistence of various ethnic groups alongside the majority Malay population (Hashemi et al., 2023). According to the 2023 statistical report by Tourism Malaysia, the country welcomed approximately 20 million tourist arrivals, a significant increase from the 10 million recorded in the previous year. However, when compared to other Asian nations, Malaysia still faces challenges in attracting international visitors. A growing number of outbound Chinese tourists are increasingly interested in experiencing both tangible and intangible cultural heritage through various leisure activities (Manley et al., 2023). In 2023, China ranked fifth in terms of tourist arrivals to Malaysia, with a total of 1,474,114 Chinese visitors. These activities typically encompass shopping, leisure experiences, food exploration, or simply walking without a particular goal. Therefore, the target population for this study consists of Chinese tourists who have participated in City Walk activities across several Malaysian cities, including Kuala Lumpur, Penang, Kuching, Malacca, and Ipoh.

Data collection and analysis. A quantitative and purposive sampling technique was employed in this study to target appropriate respondents. A panel of two academic experts was assembled to review the survey and assess its validity. Based on their feedback, minor adjustments were made to the phrasing of some questions. To ensure that the respondents had participated in City Walk activities in Malaysia, the questionnaire included screening questions aimed at maintaining the survey's quality. Pre-testing and pilot testing were conducted to validate the questionnaire's content and assess its reliability. During these tests, all items were scrutinised for their relevance to the study's objectives. No items were deemed irrelevant, and none were removed from the final version of the questionnaire.

Questionnaires were distributed using both face-to-face and online methods from November 2023 to April 2024. Face-to-face data collection was conducted at key locations in Kuala Lumpur, including KLCC, City Central Park, Merdeka Square, Jalan Petaling, Saloma Bridge, and surrounding areas. The online survey was administered through WeChat and Credamo. A total of 474 individuals participated in the survey, with 187 respondents completing it online and 287 participating through face-to-face interactions via QR code scanning.

The data cleaning process was carried out using Microsoft Excel and SPSS 26.0, which provide user-friendly platforms for statistical analysis in social science and behavioural research. A total of 66 responses were excluded from the dataset due to respondents selecting the same option for all questions or completing the survey in an unusually short amount of time. As a result, 408 responses (86.08%) were retained for further analysis. Additionally, SmartPLS 4.1 was employed to perform partial least squares structural equation modelling (PLS-SEM) to analyse both latent constructs (unobserved variables) and manifest variables (observed variables) within the structural equation modelling framework (Hair et al., 2019; Memon et al., 2021; Sarstedt et al., 2020). While PLS-SEM is well-suited for exploratory research and the analysis of complex structural relationships involving latent constructs, it also has several inherent limitations. These include

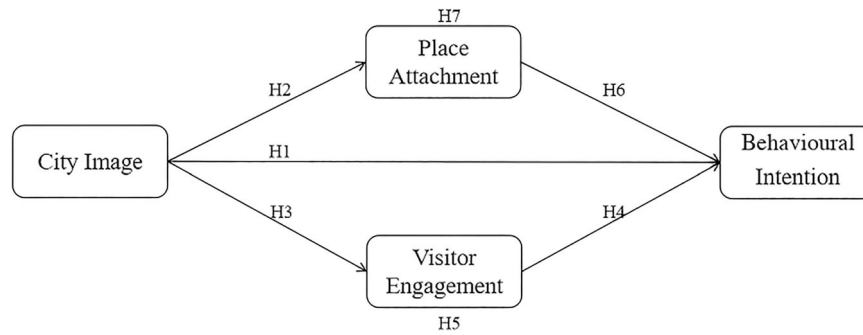


Fig. 1 Proposed framework.

issues related to model fit assessment, sensitivity to multicollinearity, sample size requirements, non-random sampling methods, and predictive accuracy (Fauzi, 2022; Guenther et al., 2023). Therefore, the application of PLS-SEM in this study has been carefully executed in accordance with established guidelines to ensure methodological rigour.

Results

A total of 382 out of 474 Chinese visitors were included in the study's database. Of these respondents, 36.9% were male and 63.1% were female. Students represented the largest occupation group (39.0%), followed by individuals in management (18.4%) and professional/technical roles (18.4%). Additionally, 42.4% of visitors had previously visited the location, with Kuala Lumpur being particularly attractive for urban exploration, as it had a higher percentage of repeat visitors compared to other cities. The survey indicated that city walking tours are most popular among younger visitors, particularly those with an average age of 32.39 years. Most respondents had a higher level of education, with the majority holding a college degree or higher. Furthermore, a substantial proportion of the Chinese visitors who participated in city walks in Malaysia had high economic earnings, with approximately 50% earning a monthly salary exceeding 7000 CNY.

Assessment of the model using PLS-SEM. The conceptual framework of this study includes one reflective construct, place attachment, which is divided into two dimensions: place identity and place dependence. A repeated indicator technique, involving both first- and second-order constructs, was used to evaluate the measurement model for validity and reliability. The first-order latent variables were used to form the second-order construct, and the measurement model was assessed using factor loadings, composite reliability (CR), Cronbach's alpha, and average variance extracted (AVE), following the guidelines outlined by Hair et al. (2020). Three items—VE1, VE5, and VE6—were removed due to their low outer loadings, which were below the threshold of 0.6. As shown in Table 1, the CR, Cronbach's alpha, and factor loadings exceeded the recommended thresholds. Additionally, the AVE values were all within the acceptable range, exceeding 0.5. The variance inflation factor (VIF) values ranged from 1.316 to 2.830, all below the threshold of 3.3, indicating no issues with multicollinearity among the factors.

Discriminant validity was assessed after establishing convergent validity, using the traditional Heterotrait–Monotrait Ratio (HTMT), which should ideally be below 0.85 (Hair et al., 2017, 2019). In social sciences, values above 0.85 but below 0.9 are also considered acceptable. As shown in Table 2, most of the HTMT values are below 0.85, except for two values—0.882 and 0.860—which are slightly above the 0.85 threshold but still below

0.9. Further analysis using the bootstrapping technique in SmartPLS, with 5000 resamples, revealed that the empirical 95% confidence interval did not include a value of 1. This confirms an acceptable level of discrimination between the constructs. Therefore, discriminant validity has been established.

The validation of the second-order constructs was conducted using data derived from the first-order latent scores. Cronbach's alpha values ranged from 0.774 to 0.900, and all CR values exceeded the 0.7 threshold, both surpassing the recommended limits. The AVE values ranged from 0.501 to 0.740, all exceeding the 0.5 threshold (Table 3). As a result, both reliability and convergent validity were achieved.

Discriminant validity was effectively demonstrated, with all HTMT values falling below 0.85, except for one value (0.882), which was slightly above 0.85 but still below 0.9 (Table 4). Additionally, all VIF values were below 3.3, confirming no multicollinearity issues. Furthermore, the empirical 95% confidence interval generated through bootstrapping in SmartPLS did not contain the value of 1 (Table 5), indicating that discriminant validity is sufficiently established.

Table 6 presents the results of hypothesis testing for the study. The findings support the hypothesis that city image has significant positive effects on behavioural intention, place attachment, and visitor engagement. Specifically, H1 ($\beta = 0.667$, $p = 0.000$), H2 ($\beta = 0.663$, $p = 0.000$), and H3 ($\beta = 0.441$, $p = 0.000$) are all supported. However, visitor engagement was found to have a negative effect on behavioural intention, with H4 ($\beta = -0.119$, $p = 0.004$) being accepted. Moreover, it shows a negative mediation effect between city image and behavioural intention, as evidenced by H6 ($\beta = -0.053$, $p = 0.009$). The results also indicate that place attachment has a significant positive effect on behavioural intention, with H5 ($\beta = 0.225$, $p = 0.000$) being supported. Additionally, place attachment shows a positive mediation effect between city image and behavioural intention, as demonstrated by H7 ($\beta = 0.149$, $p = 0.000$).

The R^2 values indicate that the structural model has strong explanatory power, with place attachment and visitor engagement accounting for 60.6% of the variance in behavioural intention. The f^2 values of 0.630, 0.783, and 0.242 show that the city image has the most substantial influence on behavioural intention, followed by its effect on place attachment and visitor engagement. In comparison, the explanatory power of place attachment (0.058) and visitor engagement (0.023) on behavioural intention is relatively smaller than that of city image.

PLSpredict, which relies on separate training and holdout samples for estimating model parameters and assessing predictive power (Shmueli et al., 2019), was employed for the second-order constructs. The results showed that Q^2 predict was greater than zero, ranging from 0.057 to 0.410, and PLS-SEM outperformed LM for most indicators (Table 7), indicating that the model has strong predictive power. Additionally, the analysis of the

Table 1 Measurement model.

Item	Outloading (before)	Outloading (after)	VIF	Cronbach's alpha	CR	AVE
BI1	0.862	0.862	1.959	0.825	0.828	0.740
BI2	0.861	0.861	1.979			
BI3	0.857	0.858	1.721	0.900	0.902	0.501
CM1	0.629	0.629	1.576			
CM10	0.724	0.725	2.011			
CM11	0.749	0.749	1.923			
CM2	0.634	0.635	1.539			
CM3	0.746	0.746	2.032			
CM4	0.68	0.681	1.699			
CM5	0.703	0.702	1.810			
CM6	0.722	0.723	1.928			
CM7	0.684	0.683	1.753			
CM8	0.748	0.749	2.210	0.790	0.795	0.704
CM9	0.752	0.751	2.124			
PLI1	0.795	0.795	1.598			
PLI2	0.862	0.862	1.820	0.846	0.848	0.765
PLI3	0.858	0.858	1.767			
PLR1	0.851	0.851	2.010			
PLR2	0.863	0.863	2.209	0.774	0.777	0.524
PLR3	0.909	0.909	2.830			
VE1	0.571	Delate	1.316			
VE2	0.666	0.703	1.394			
VE3	0.713	0.721	1.667			
VE4	0.676	0.691	1.557			
VE5	0.581	Delate	1.251			
VE6	0.546	Delate	1.292			
VE7	0.721	0.758	1.566			
VE8	0.708	0.744	1.557			

CI city image, VE visitor engagement, PLI place identity, PLR place dependence, BI behavioural intention, CR composite reliability, AVE average variance.

Table 2 Discriminant validity (Heterotrait-Monotrait ratio) of the first order.

	BI	CI	PLI	PLR	VE
BI					
CI	0.882				
PLI	0.697	0.736			
PLR	0.643	0.690	0.860		
VE	0.376	0.520	0.694	0.666	

CI city image, VE visitor engagement, PLI place identity, PLR place dependence, BI behavioural intention.

Table 4 Discriminant validity (Heterotrait-Monotrait ratio) of the second order.

	BI	CI	PL	VE
BI				
CI	0.882			
PA	0.718	0.766		
VE	0.376	0.520	0.734	

CI city image, VE visitor engagement, PA place attachment, BI behavioural intention.

Table 3 Validity of the second order.

	Cronbach's alpha	CR	AVE
BI	0.825	0.828	0.740
CI	0.900	0.902	0.501
PA	0.828	0.828	0.853
VE	0.774	0.777	0.524

CI city image, VE visitor engagement, PA place attachment, BI behavioural intention.

Table 5 Confidence intervals (second order).

	Original sample (O)	Sample mean (M)	2.50%	97.50%
CI <-> BI	0.882	0.883	0.828	0.935
PA <-> BI	0.718	0.719	0.638	0.794
PA <-> CI	0.766	0.766	0.694	0.834
VE <-> BI	0.376	0.377	0.267	0.487
VE <-> CI	0.520	0.521	0.414	0.626
VE <-> PA	0.734	0.734	0.623	0.836

CI city image, VE visitor engagement, PA place attachment, BI behavioural intention.

mediating effect revealed that visitor engagement and place attachment serve as significant partial mediators between the dimensions of city image and behavioural intention, with H7, H8, H9, and H10 being supported (Fig. 2).

Conclusion and discussion

Conclusion. This study offers an academic exploration of City Walk, an emerging urban tourism concept in Malaysia, by examining factors such as city image, visitor engagement, place

Table 6 Hypothesis testing.

Hypotheses	Original sample (O)	Sample mean (M)	Standard deviation	T statistics	p values	Result
H1.CI -> BI	0.667	0.671	0.050	13.393	0.000	Accept
H2.CI -> PA	0.663	0.665	0.031	21.096	0.000	Accept
H3.CI -> VE	0.441	0.448	0.043	10.365	0.000	Accept
H4.VE -> BI	-0.119	-0.117	0.042	2.867	0.004	Accept
H5.PA -> BI	0.225	0.222	0.059	3.820	0.000	Accept
H6.CI -> VE -> BI	-0.053	-0.053	0.020	2.597	0.009	Accept
H7.CI -> PA -> BI	0.149	0.148	0.040	3.776	0.000	Accept

CI city image, VE visitor engagement, PA place attachment, BI behavioural intention.

Table 7 PLSpredict assessment of manifest variables.

	Q ² predict	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
BI1	0.410	0.662	0.519	0.683	0.533
BI2	0.404	0.669	0.524	0.672	0.522
BI3	0.459	0.741	0.581	0.755	0.584
PLI	0.382	0.789	0.581	0.803	0.590
PLR	0.357	0.804	0.615	0.814	0.613
VE2	0.134	1.393	1.193	1.387	1.146
VE3	0.083	1.019	0.770	1.053	0.807
VE4	0.057	0.940	0.720	0.964	0.737
VE7	0.112	1.213	1.007	1.214	0.989
VE8	0.091	1.076	0.820	1.093	0.842

CI city image, VE visitor engagement, PLI place identity, PLR place dependence, BI behavioural intention.

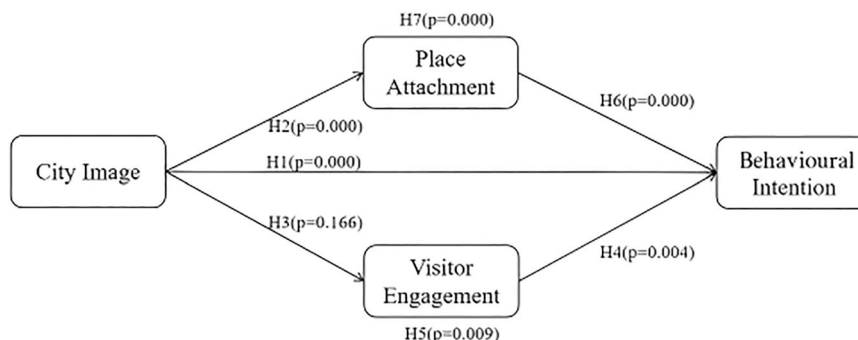


Fig. 2 Results of structural equation modelling (PLS-SEM).

attachment, and behavioural intention through the lens of CAT. The research aims to understand how this novel travel trend attracts visitors by considering both extrinsic and intrinsic appraisals and investigating the relationship between these appraisals and their outcomes. By addressing both theoretical and practical gaps, this study provides a comprehensive understanding of the roles played by city image, visitor engagement, and place attachment within the context of city walks, which exemplify a unique and evolving tourism trend. The findings are significant for destination management in Malaysia and can be applied to other tourist destinations. These insights offer valuable guidance for locations navigating the challenges and opportunities presented by emerging travel trends.

This research suggests that a city’s image has a positive and direct influence on place attachment, visitor engagement, and behavioural intention within the context of City Walk. These findings are consistent with prior research indicating that the perception of a destination plays a crucial role in influencing behaviours such as destination choice, the desire to revisit, satisfaction, and the formulation of marketing strategies (Foster and Sidharta, 2019; Lv et al., 2024). The perception of a destination impacts behavioural

intention (Ahsanah and Artanti, 2021; Gosal et al., 2020; Rasoolimanesh et al., 2021), place attachment (Shen et al., 2019; Ujang and Muslim, 2015), and visitor engagement (Jianfeng et al., 2020; Kheiri, 2023). For example, earlier studies on city image have shown that the image of a city significantly influences both place attachment and visitors’ behavioural intention in settings like historical zones (Yu et al., 2021) and night markets (Chiang, 2016). According to Ramkissoon et al. (2024), tourists’ sensory experiences—encompassing visual, auditory, olfactory, tactile, and gustatory stimuli—exert a moderate influence on fostering emotional bonds with urban destinations. Elements such as environmental cleanliness, urban infrastructure, iconic attractions, and the overall urban ambience play varied roles in shaping tourists’ place attachment. Meanwhile, Moliner-Tena et al. (2024) found that cognitive destination image is the main antecedent of visitor engagement, and affective image also exerts a direct effect on visitor engagement. Factors relevant to destination brand, including perceived safety, the presence of distinctive art galleries, participatory activities, cultural immersion, and aesthetically pleasing urban settings, significantly contribute to enhancing visitor engagement (Li et al., 2025; Setiawan et al., 2023).

However, some researchers have argued that there is no direct link between destination image and behavioural intention. Instead, this connection may only emerge through direct experiences (Rasoolimanesh et al., 2021). Heritage tourism, for instance, may limit visitors' ability to fully grasp a destination's essence, meaning that their engagement and behavioural intentions are shaped more through lived experiences. The difference in findings may stem from variations in study objectives and research locations. Walking as a research method provides an insightful lens into the evolution of city spaces (Svensson, 2021), and walkable destinations enhance the attractiveness and key features that may intensify place attachment (Ujang and Muslim, 2015) and offer opportunities for visitor engagement. City image, as a concept, refers to how the external environment is perceived and evaluated, which in turn influences intrinsic evaluations of place attachment and visitor engagement. A positive and compelling city image serves as an external driver that shapes visitors' perceptions in a favourable light. A well-crafted city image can boost place attachment and guide future behaviours. As urban environments continue to shape human experiences, understanding how these environments influence behaviour and how individuals perceive the city becomes increasingly important (Paus et al., 2024).

Secondly, both place attachment and visitor engagement significantly and positively influence visitors' behavioural intentions, aligning with prior studies that highlight the direct effects of these factors on behavioural intention (Mohamed et al., 2022; Tao et al., 2022; Wong et al., 2021). Mohamed et al. (2022) identified a strong link between place attachment and revisit intention, particularly in destination restaurants, where higher levels of place attachment notably influence decision-making and behavioural intention. Similarly, Lee et al. (2020) emphasised that increased engagement correlates with a heightened level of behavioural intention toward the destination. However, some studies have reported contrasting results. For instance, research conducted in Yogyakarta City found that visitor engagement did not significantly affect revisit intention (Ahsanah and Artanti, 2021). These discrepancies suggest that intrinsic evaluations may lead to varying outcomes. The difference could stem from the diverse purposes of tourism, which provoke different cognitive appraisals and, consequently, a range of outcomes. As such, a nuanced understanding of how intrinsic appraisals relate to visitors' outcomes at an individual level is crucial for effectively influencing their behavioural intentions. Cities, as human-created environments, exert considerable influence on human behaviour (Paus and Kum, 2024). The presence of strong place attachment and visitor engagement nurtures positive intrinsic appraisals, which, in turn, favourably impact behavioural intentions. This insight underscores the importance of fostering emotional and cognitive connections with urban spaces to influence visitors' future behaviours effectively.

Furthermore, this study reveals that place attachment and visitor engagement act as positive mediators between city image and behavioural intention. This finding aligns with previous research, which suggests that a favourable city image fosters positive impressions, thereby enhancing individuals' attachment to and engagement with the city, which in turn influences their behavioural intentions. Cognitive destination image is the main antecedent of visitor engagement; managers should strive to evoke tourism destination attributes such as awareness and image (Moliner-Tena et al., 2024), while they have been found to significantly impact engagement and behavioural intentions (Rasul et al., 2024). Rasul et al. (2024) indicated that virtual reality experiences could boost potential visitor engagement and affect intention to visit in natural world heritage sites. The interaction of physical and built environments in urban areas

underscores the complexity of urban spaces and their impact on individuals' perceptions, extending beyond purely aesthetic or subjective comfort criteria (Paus and Kum, 2024). A positive relationship between residents' place image and place attachment can significantly influence pro-tourism behavioural intentions (Shen et al., 2019). Additionally, the perception of a location plays a crucial role in shaping the level of engagement from visitors, bridging the gap between a destination's image or quality and tourist loyalty and behaviours (Putri et al., 2022).

Thus, promoting and enhancing visitors' place attachment and visitor engagement can strengthen the relationship between city image and behavioural intention. Place attachment and visitor engagement serve as key intrinsic appraisals, transforming the process of extrinsic appraisal into tangible outcomes. City Walk, emphasising individual perspectives and cognition, combines elements of tourism and leisure, offering a multi-dimensional experience. In light of this emerging travel trend, it is beneficial to update traditional tourism programs and increase awareness of everyday leisure activities to develop suitable tourist offerings. By blending leisure with tourism, destinations can optimally address the evolving nature of travel trends.

This research seeks to enhance our understanding of the cognitive processes that shape an individual's transformation and interaction between city image, place attachment, visitor engagement, and behavioural intention, through the lens of CAT. This theoretical framework emphasises the significance of both extrinsic and intrinsic appraisals in shaping perceptions and responses to emerging travel trends. The city's image serves as a fundamental driver of urban tourism, while place attachment and visitor engagement act as key connectors, bridging the metropolitan environment and its visitors. By cultivating a positive urban reputation, fostering meaningful interactions, and nurturing a strong emotional connection to the city, tourists are likely to form deep attachments to the urban environment. Such connections not only enhance tourists' experiences but also contribute to the sustainability of the destination, positioning the city to lead and adapt to evolving tourism trends in the future.

Theoretical contribution. This study contributes to the field of urban tourism by introducing new perspectives and focusing on emerging travel trends that could potentially serve as new drivers for urban tourism development. To our knowledge, there is limited research that has thoroughly examined this evolving travel behaviour. By addressing a significant gap in the existing literature, this study provides essential empirical insights for future academic research on shifting tourist patterns. Through a novel theoretical framework, this study incorporates city image, place attachment, visitor engagement, and behavioural intention within the context of CAT, utilising the PLS-SEM model to explore the interaction and interrelationship among these influencing factors. This comprehensive understanding of the factors shaping visitors' behavioural intentions in this emerging travel trend offers valuable theoretical contributions that will guide future research and urban tourism development.

Secondly, this study expands the application of CAT to urban tourism, specifically focusing on the emerging travel trend of City Walk. While CAT has been widely used to elucidate processes and influencing factors in various academic disciplines, its application in the context of urban tourism, particularly with regard to new travel trends, remains limited. In this study, city image is considered an extrinsic appraisal of the environment, while place attachment and visitor engagement serve as intrinsic appraisals of the individual. Behavioural intention is examined as the outcome. The study effectively investigates the interrelationships between these factors and compares the findings with prior

research. The results underscore the significant role of place attachment and visitor engagement in urban tourism. Future research exploring ways to enhance the intensity of place attachment and visitor engagement, especially in the context of emerging travel trends, would be a promising and impactful area for academic exploration.

Thirdly, previous studies have explored the theoretical dimensions of city walks and their evolving significance in contemporary urban tourism. This body of knowledge provides a foundational understanding that will benefit future research by offering a more comprehensive grasp of the subject. Additionally, the study underscores the impact of city image on individuals' behavioural intentions, which invites a rethinking of urban design and development from a cross-disciplinary perspective. This approach should centre on the core experiences of both residents and visitors. As cities continue to serve as the primary human habitat globally, a trend that is expected to strengthen in the coming decade (Paus et al., 2024), city structures will increasingly shape resident interactions. Public spaces—such as streets, squares, and parks—play a pivotal role in promoting social integration and community life (Paus and Kum, 2024). Adopting a fresh perspective in urban tourism studies would not only contribute to more effective urban design and development but also foster a transformation in the urban tourism industry.

Practical contribution. This research offers practical implications and valuable insights for destinations looking to attract or enhance their appeal to visitors interested in city walking tours. The findings provide a solid framework that can foster the growth of urban tourism and contribute to establishing lasting competitive advantages. By emphasising the significant influence of city image, place attachment, and visitor engagement on behavioural intentions, the study underscores that modern travellers are increasingly seeking unique and independent experiences in cities that are already popular tourist destinations. These insights can guide efforts to improve quality standards, boosting the competitiveness and attractiveness of the destination in light of the emerging City Walk trend. This is particularly beneficial for urban tourism managers, practitioners, and policymakers, helping them to align strategies with evolving visitor preferences.

Managers and practitioners must prioritise the promotion and preservation of a city's image, as a strong city image serves as a valuable brand. By incorporating cultural, technical, fashionable, and sustainable elements, cities can influence how visitors perceive and behave towards them. This approach helps create city images that foster a deeper sense of place identification and place dependence, both mentally and physically. Urban policies, adopted by many cities, increasingly prioritise human-centric approaches (Paus and Kum, 2024). For instance, enhancing city accessibility through innovative design strategies that prioritise walkability and pedestrian-friendly infrastructure can improve the visitor experience. Furthermore, integrating diverse urban activities, such as commerce and recreation, is essential for accommodating and guiding the evolving needs of various demographics. By utilising a range of tools and programs, cities can effectively meet the demands of emerging trends and create a sustainable, dynamic urban environment.

This research provides crucial insights for policymakers to track and guide emerging travel patterns with effective strategies. Good public policies can play a vital role in enhancing the destination image, which in turn could impact destination attributes (Rasul et al., 2024; Zhou et al., 2024). The study not only clarifies the mechanisms of City Walk and the interactions between city image, place attachment, visitor engagement, and behavioural intention but also offers an individual perspective. This perspective enables

policymakers to better understand how the external urban environment influences individuals' travel behaviour and intentions. The research underscores the importance of a city's positive reputation in enhancing urban tourism competitiveness. Efforts to promote and enhance the city's image can significantly impact attracting prospective visitors and boosting the urban tourism sector. Furthermore, the study highlights the value of place attachment and visitor engagement as vital means of connecting the city with its visitors. Policy measures that incentivise and facilitate the cultivation of place attachment and visitor engagement could be highly effective strategies for advancing urban tourism in response to emerging travel trends.

Limitations and future study. The study is subject to certain limitations that point to potential areas for further investigation. Firstly, the use of a quantitative research approach, relying on dimensions and items derived from previous studies, may not fully capture the complexity of the issue. To enhance the robustness of future research, a mixed-methods approach could be employed, offering a more comprehensive and nuanced understanding of the topic. Additionally, while prior studies have suggested that younger age groups predominantly participate in City Walk activities, this study found that participants from a wide range of age groups are engaging in this emerging travel trend. As such, future research should consider controlling variables such as age, gender, and other demographic factors. Furthermore, in the context of urban pedestrian studies, a rapidly growing travel trend, future research should broaden its scope by incorporating a wider array of theories and models. For instance, the integration of AI models, digital technologies, city gene analysis, and landscape information systems could offer a more holistic understanding of urban tourism development, approached from an interdisciplinary perspective. Moreover, barriers such as stakeholder coordination challenges, uneven municipal support, risks of commercial overdevelopment, and the complexities of technological implementation should be carefully considered in the practical application of the proposed solutions.

Data availability

All data generated or analysed during this study are included in this published article and its Supplementary Information files.

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Author contributions

Wang Zhenbin conceptualised the ideas presented in the article and drafted the initial manuscript. Zhang Hui contributed to the writing of the first draft, as well as the data collection and analysis. Cao Chaoyi played a key role in data analysis and critically reviewed the first draft. Sridar Ramachandran was responsible for the conceptualisation of the study, provided critical revisions, and supervised the entire research process.

Competing interests

The authors declare no competing interests.

Ethical approval

All methods in this study were carried out in accordance with relevant guidelines and regulations. The research protocol, including its objectives, survey instrument, and

participant recruitment procedures, was reviewed and approved by the Institutional Ethics Committee of Anyang University (Approval No. AYU13504202311205) on 12 November 2023. Data collection was conducted through both online and face-to-face survey methods, with participants providing informed consent prior to participation. The committee confirmed that the study complied with institutional research ethics policies, national regulations, and the principles of the Declaration of Helsinki. No vulnerable populations were involved, and no personally identifiable or sensitive data were collected.

Informed consent

Informed consent was obtained from all participants prior to their participation in the study. For the online survey, an electronic consent procedure was embedded at the beginning of the questionnaire. Participants were presented with a detailed information page describing the study's objectives, procedures, voluntary nature of participation, the right to withdraw at any stage without penalty, data confidentiality, and the academic-only purpose of data use. Only individuals who clicked "Agree and Continue" were able to proceed with the survey. For the face-to-face survey, written consent forms were provided and signed by participants after the researcher had clearly explained the study's purpose, procedures, and data protection measures. In both modalities, participants were explicitly assured that their responses would remain anonymous and that no personally identifiable or sensitive information would be collected. The informed consent procedure and data collection were conducted between 28 November 2023 and 5 April 2024, and were fully approved by the Ethics Committee of Anyang University on 12 November 2023 as part of the reviewed protocol.

Additional information

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1057/s41599-025-06032-y>.

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