PLANNING MALAYSIA:
Journal of the Malaysian Institute of Planners
VOLUME 21 ISSUE 4 (2023), Page 364 – 375

INFLUENCING FACTORS OF NEIGHBOURHOOD ATTACHMENT: A CASE STUDY OF PENANG, MALAYSIA

Teu Yu Han[1], Mohd Ismail Isa[2], Massoomeh Hedayati Marzbali[3]

School of Housing, Building and Planning,
UNIVERSITI SAINS MALAYSIA

Abstract

Many studies have examined the influencing factors of neighbourhood attachment. However, there are relatively lesser empirical studies regarding the influencing factors of neighbourhood attachment in the aftermath of COVID-19. This study investigates the influencing factors of neighbourhood attachment in two Penang Island, Malaysia neighbourhoods. Neighbourhood attachment is a second-order factor structure assessed by a first-order factor structure that includes place dependence and social bonding. A questionnaire survey with a Likert scale was used to measure the residents' assessment of economic, physical and social factors as well as neighbourhood attachment level. The findings were then analysed by Partial Least Squares Structural Equation Modelling (PLS-SEM). These results support the theoretical findings in the literature that economic, physical and social factors affect neighbourhood attachment. Social factors are the most substantial influencing factors of neighbourhood attachment among the three factors. Neighbourhood attachment comprises multiple factors and processes rather than just one. Social interactions, cultural practices, environmental factors, and other experiences all contribute to the development of attachment. It can encourage residents to stay for a more extended time or permanently by fostering neighbourhood attachment. Therefore, this study can serve as a guide for community stakeholders to design attractive neighbourhoods that evoke pleasant memories and sentiments, which in turn encourage a sense of neighbourhood attachment.

***Keywords**:* Economic factor, Physical factor, Social factor, Neighbourhood attachment

[2] Professor at Universiti Sains Malaysia: mohdismail.isa@usm.my

INTRODUCTION

Place attachment is a feeling that reflects their desire to maintain a close attachment to the place (Hidalgo & Hernández, 2001). It is more dynamic as it is modified based on the change in the individuals' experience gained over the period (Brown. et al., 1992). Place attachment has been disrupted since the SARS-CoV-2 pandemic because people have difficulty connecting with the environment due to government measures (Counted et al., 2020). The COVID-19 pandemic has caused long-term negative impacts on social life, the economy and health (The British Academy, 2021). In Malaysia, Penang used to be one of the most popular destinations for migrants in 2016 (Department of Statistics Malaysia, 2017). However, Penang's net migration decreased from 3.3 thousand in 2018 to -1.4 thousand persons in 2020 (Department of Statistics Malaysia, 2021b, 2021a), according to Fattah et al. (2020)'s study in Penang, those who intend to move out of the neighbourhood their attachment level lower than the respondents who intend to stay. Penang's high rate of out-migration intention to leave demonstrates that their attachment has been disrupted. Experiencing a hardship like COVID-19 can lead to a change in their place attachment level. Therefore, it is essential to understand their current degree of neighbourhood attachment and the influencing factors.

RESEARCH BACKGROUND

Neighbourhood attachment

Neighbourhood attachment involves the interplay between affect and emotions, knowledge and beliefs, and behaviour and action concerning a place (Altman & Low, 1992). Place attachment contributes to effective place-making (Abdul Latip et al., 2023). Place dependence refers to the functional or goal-directed connections (functional attachment) to a setting; for example, it reflects the degree to which the physical setting provides conditions to support an intended use (Schreyer et al., 1981). It indicates a place's ability to provide opportunities to fulfil specific goals or activity needs (Stokols & Shumaker, 1981). Social bonding is defined as feelings of belonging or membership in a group of people, such as friends and family, and emotional bonds based on shared history, interests, or concerns (Hidalgo & Hernández, 2001). Raymond et al. (2010) classify social bonding into family bonding (connections to place based on family relationships) and friend bonding (connections to place based on friend relationships).

Influencing factors of neighbourhood attachment

The residents regard *economic factor*s as more important than other visitors (Brown et al., 2007). Economic factors that affect neighbourhood attachment include place of livelihood and affordability (Lestari & Sumabrata, 2018) (Alawadi, 2017). The residents' *economic livelihood* values are regarded as one

of the predictors of place dependence (G. Brown et al., 2015). Static users, such as residents, have a stronger sense of belonging to the places due to economic dependence, providing them with income sources (Ujang, 2012) and opportunities to be involved in home-based businesses (Adewale et al., 2020). Graham Brown et al. (2004) found that newcomers portray high attachment levels mainly because of housing *affordability* and other economic reasons.

Physical factor. Inadequate *green space* will likely adversely affect neighbourhood attachment(McGuire, 1997). Due to the proximity to open spaces, residents could access the park or open spaces for physical activity, community involvement and utilisation of local facilities, which are vital for building links between individuals and their local environment (Manzo & Perkins, 2006). A need for *safety and security* drives neighbourhood attachment. In some research, a sense of safety in the neighbourhood is identified as one of the essential factors and the most positive indicator of place attachment (Lewicka, 2010). Fear of crime can lead to a decrease in neighbourhood identity (Makroni et al., 2015). The *upkeep and cleanliness* of a neighbourhood predict a stronger sense of security (Lewicka, 2010). Lack of maintenance contributes the most negative impact on neighbourhood attachment among all physical and social factors (Kamalipour et al., 2012). Appealing physical characteristics enhance place attachment by enticing and engaging individuals in a place (Mesch & Manor, 1998).

Social factors. *Social support* is described as supportive interpersonal relationships. The support can be in three forms: personal (emotional), instrumental (functional), and informational. Social support was positively connected to place attachment in the research by B. Brown et al. (2003). A sense of *trust* in other residents and the community will result in a positive emotional connection to the community, such as place attachment (Wu et al., 2019). Stedman (2003) discovered that firmly attached residents are more likely to have a higher level of trust in their neighbourhood. Based on the above discussion, we propose the hypothesis below:

H1. Economic factors are positively associated with neighbourhood attachment.
H2. Physical factors are positively associated with neighbourhood attachment.
H3. Social factors are positively associated with neighbourhood attachment.

MATERIALS AND METHOD

Study area

The selection of research regions is limited to Penang Island in Malaysia to reduce the likelihood of inaccurate or biased data. Each neighbourhood is chosen from the South-west and North-east Districts to gather more reliable data and accurately reflect the population. The chosen neighbourhoods meet the following requirements: a more significant proportion of Chinese people, landed homes

valued between RM 400,000 and RM 1,000,000, and at least one green space for residents. The study areas were neighbourhoods of Tanjung Tokong and Bandar Bayan Baru.

Survey instrument

For the pilot survey, 15 respondents were chosen at random. According to the SPSS results, all construct reliabilities of the pilot study are good because all alpha values were over 0.70. They varied from 0.790 to 0.922. The final questionnaire survey contains 43 questions, including 8 items of respondents backgrounds from (Lestari & Sumabrata, 2018), 5 items of place dependence from G. Brown & Raymond (2007), 2 items of social bonding from (Kyle et al., 2005) and another three items from (Raymond et al., 2010), 4 items of economic factors were from (Mishra et al., 2010)(Zhu et al., 2021), 7 items of green area from (Bonaiuto et al., 2003; Malek et al., 2018; Rahimiashtiani & Ujang, 2013), 3 items of sense of safety were from (Hedayati Marzbali et al., 2017), 4 items of upkeep, cleanliness and maintenance were from (Bonaiuto et al., 2003; Poortinga et al., 2017), 4 items of social support and another four items for social trust (Curley, 2010). All items were measured on a five-point Likert scale (from 1- strongly disagreed to 5- strongly agreed), but social support items were assessed by rating the availability of support in their neighbourhoods from 1- little available support to 5- much support.

RESULTS

Respondent profiles

There are 362 respondents in total. The respondents are 41 years old on average (SD=17.44). The average period of residency is 17.7 years (SD=13.3). 98.3% of these respondents are Malaysians, 51.4% are male, and 68.2% are homeowners. Regarding racial composition, 49.2% of the respondents are Chinese, 39.5% are Malay, 9.4% are Indians, and 1.9% are other races. Besides, 58.6% have a university or college education, 32.6% have a secondary education, 4.7% have a primary education, and 4.1% have a non-formal education. In terms of monthly household income, 26.8% of the respondents make less than RM3000, 26.5% make between RM 3001 and RM 5000, 18.8% make between RM 5001 and RM 7000, 8.0% make between RM 7001 and RM 000, 8.0% make more than RM 9001 and 11.9% have no idea.

Measurement model results

As shown in Table 3, all the loadings are above 0.70 (Henseler et al., 2016) except the SB5, GA1, GA5, GA7 and UMC4. The threshold values of Cronbach's alpha and composite reliability are 0.7 (Henseler et al., 2016). AVE should be 0.50 or greater (Hair et al., 2014). Table 1 shows that all constructs fulfil the criteria. Discriminant validity was assessed by (1) (Fornell & Larcker, 1981) criterion, (2)

the heterotrait-monotrait (HTMT) (Henseler et al., 2015), and (3) cross-loading (Garson, 2016). The square root of AVE was more significant than the intercorrelations of the constructs in the model (Table 1), the HTMT ratios were less than 0.90 (Table 2), and the variable's loading on its construct was higher than its correlation with any other variables (Table 3).

Table 1: Results of Fornell-Larcker criterion and reliability assessment.

	AF	**GA**	**LO**	**PD**	**SOS**	**SB**	**SS**	**ST**	**UMC**
AF	0.896								
GA	0.186	0.739							
LO	0.262	0.248	0.909						
PD	0.266	0.361	0.256	0.799					
SOS	0.282	0.391	0.070	0.380	0.865				
SB	0.192	0.339	0.295	0.644	0.261	0.813			
SS	0.189	0.360	0.277	0.378	0.295	0.564	0.810		
ST	0.311	0.327	0.198	0.418	0.413	0.578	0.676	0.871	
UMC	0.298	0.375	0.174	0.437	0.603	0.391	0.363	0.491	0.762
α	0.754	0.859	0.791	0.858	0.831	0.868	0.825	0.894	0.752
CR	0.754	0.870	0.792	0.859	0.832	0.876	0.828	0.898	0.771
AVE	0.803	0.546	0.827	0.638	0.748	0.661	0.655	0.759	0.580

Note: AF = Affordability, GA = Green Area, LO = Livelihood Opportunities, PD = Place Dependence, SOS = Sense of safety, SB = Social Bonding, SS = Social Support, ST = Social Trust, UMC = Upkeep, Maintenance and Cleanliness

Table 2: Results of HTMT ratios.

	AF	**GA**	**LO**	**PD**	**SOS**	**SB**	**SS**	**ST**	**UMC**
AF									
GA	0.231								
LO	0.338	0.302							
PD	0.331	0.422	0.310						
SOS	0.355	0.451	0.087	0.451					
SB	0.235	0.402	0.358	0.748	0.308				
SS	0.237	0.426	0.343	0.446	0.350	0.666			
ST	0.378	0.374	0.237	0.478	0.482	0.650	0.779		
UMC	0.385	0.451	0.224	0.539	0.767	0.479	0.448	0.597	

Table 3: Results of cross-loadings and outer loadings.

	LO	AF	GA	PD	SOS	SB	SS	ST	UMC
ECO1	**0.914**	0.265	0.235	0.226	0.036	0.277	0.251	0.204	0.177
ECO2	**0.904**	0.211	0.215	0.240	0.092	0.259	0.252	0.155	0.138
ECO3	0.237	**0.897**	0.223	0.256	0.316	0.209	0.228	0.339	0.293
ECO4	0.233	**0.895**	0.110	0.221	0.189	0.135	0.111	0.217	0.241
GA1	0.143	0.035	**0.698**	0.164	0.170	0.241	0.165	0.194	0.170
GA2	0.162	0.086	**0.778**	0.260	0.278	0.308	0.301	0.286	0.200
GA3	0.187	0.124	**0.846**	0.252	0.325	0.269	0.331	0.322	0.293
GA4	0.196	0.207	**0.803**	0.321	0.400	0.231	0.254	0.251	0.416
GA5	0.156	0.154	**0.681**	0.217	0.347	0.174	0.216	0.166	0.322
GA6	0.228	0.199	**0.723**	0.294	0.261	0.177	0.277	0.179	0.261
GA7	0.213	0.135	**0.619**	0.361	0.182	0.388	0.316	0.292	0.226
PD1	0.182	0.186	0.327	**0.752**	0.331	0.531	0.314	0.382	0.313
PD2	0.229	0.204	0.281	**0.827**	0.272	0.509	0.267	0.301	0.328
PD3	0.243	0.241	0.306	**0.804**	0.322	0.505	0.332	0.337	0.433
PD4	0.133	0.225	0.213	**0.781**	0.316	0.458	0.290	0.317	0.317
PD5	0.229	0.207	0.310	**0.826**	0.279	0.564	0.306	0.334	0.355
SAF1	0.050	0.248	0.326	0.372	**0.852**	0.222	0.244	0.364	0.570
SAF2	0.078	0.267	0.361	0.292	**0.881**	0.252	0.288	0.385	0.504
SAF3	0.052	0.215	0.327	0.322	**0.860**	0.202	0.233	0.322	0.490
SB1	0.197	0.171	0.288	0.543	0.236	**0.802**	0.418	0.474	0.353
SB2	0.261	0.170	0.267	0.578	0.269	**0.849**	0.499	0.545	0.378
SB3	0.275	0.223	0.337	0.544	0.201	**0.870**	0.462	0.478	0.294
SB4	0.223	0.084	0.244	0.463	0.147	**0.872**	0.488	0.512	0.299
SB5	0.244	0.124	0.237	0.485	0.206	**0.651**	0.423	0.318	0.255
SUP1	0.255	0.166	0.349	0.360	0.296	0.526	**0.822**	0.594	0.337
SUP2	0.235	0.138	0.273	0.306	0.156	0.413	**0.800**	0.471	0.240
SUP3	0.207	0.114	0.238	0.219	0.171	0.428	**0.800**	0.483	0.196
SUP4	0.200	0.189	0.298	0.330	0.316	0.453	**0.815**	0.624	0.387
TRU1	0.212	0.255	0.272	0.342	0.407	0.413	0.508	**0.810**	0.485
TRU2	0.145	0.308	0.225	0.363	0.377	0.472	0.594	**0.891**	0.437
TRU3	0.179	0.279	0.301	0.368	0.317	0.556	0.623	**0.894**	0.397
TRU4	0.160	0.242	0.341	0.384	0.349	0.564	0.623	**0.888**	0.402
UMC1	0.126	0.233	0.342	0.400	0.505	0.368	0.361	0.488	**0.817**
UMC2	0.237	0.259	0.322	0.319	0.357	0.258	0.203	0.306	**0.744**

	LO	AF	GA	PD	SOS	SB	SS	ST	UMC
UMC3	0.108	0.321	0.283	0.364	0.497	0.316	0.312	0.389	**0.853**
UMC4	0.054	0.065	0.178	0.229	0.480	0.232	0.210	0.290	**0.610**

Structural model results

All VIF outputs are significantly below the standard cut-off threshold of 3.0 and near 1.0. The impacts of economic factors on neighbourhood attachment (H1; $\beta = 0.129$, t-value = 2.843, $p < 0.05$), physical factors on neighbourhood attachment (H2; $\beta = 0.240$, t-value = 4.419, $p < 0.01$) and social factors on neighbourhood attachment (H3; $\beta = 0.422$, t-value = 7.759, < 0.01) are positive and significant. Following earlier research, economic, physical and social factors affect neighbourhood attachment (Brown & Raymond, 2007) (Lewicka, 2010) (Brown & Perkins, 1992). The R^2 value of the neighbourhood attachment is 0.414; this model explains 41.4% of the variation in neighbourhood attachment. According to Chin (1998), the f^2 value 0.02 represents a small, 0.15 represents a moderate, and 0.35 represents a substantial effect size. Economic and physical factors show small effects on neighbourhood attachment with effect size values of 0.024 and 0.070, respectively, while social factors moderate neighbourhood attachment (0.215). Table 4 presents the results of the VIF, path coefficient of direct relationships and effect size. The fold, k and repetitions used in this study are 10. The Q-square, Q^2 values for all constructs are greater than 0. Thereby suggesting that the model has sufficient explanatory power and predictive relevance.

Table 4: Results of path coefficient and hypothesis testing (direct effects).

Hypothesis	Relationship	β	T value	P value	Decision	f^2	VIF
H1	EF -> NA	0.129	2.843	0.004	Supported	0.024	1.173
H2	PF -> NA	0.240	4.419	0.000	Supported	0.070	1.413
H3	SF -> NA	0.422	7.759	0.000	Supported	0.215	1.416

Note: EF = Economic Factors, PF = Physical Factors, SF = Social Factors, NA = Neighbourhood Attachment

DISCUSSION

According to the results, the average neighbourhood attachment score is 3.784. Place dependence and social bonding had average measurement values of 3.930 and 3.638 out of 5.0, respectively. A strong sense of attachment is demonstrated through nearly 80% of the respondents who think their neighbourhoods are the best places to do what they like and are satisfied with living there instead of other places. People feel attached to a place when they have a functional dependence (Stokols & Shumaker, 1981) and connection to social networks (Low & Altman, 1992).

According to the questionnaire, most respondents claimed they could afford the goods and property prices. This direct impact of economic factors on neighbourhood attachment is supported by previous studies (Alawadi, 2017). Regarding the direct influence of physical factors on neighbourhood attachment, green areas have a positive impact, in agreement with the research conducted by Alrobaee & Al-Kinani (2019). Sense of safety is fostered when they feel secure living and walking alone around the neighbourhood day and night (Loukaitou-Sideris, 2006). Upkeep, cleanliness and maintenance are essential in building a liveable neighbourhood and ultimately affect attachment; this aligns with the study (Lewicka, 2010). Mesch & Manor (1998) found that residents feel attached to their neighbourhoods when the community supports their needs, which aligns with this study's findings. Lewicka (2010) discovered that people who were more place-attached tended to have higher levels of social trust; this conclusion is consistent with this study.

Theoretical and practical implications

Studies of economic effects on neighbourhood attachment are comparatively lesser. However, economic factors were included in this study to provide a comparatively comprehensive idea of the influencing factors of neighbourhood attachment. This study confirmed that economic, physical and social factors impact neighbourhood attachment by using this scenario-based study in the Penang context. The study's practical contributions are expected to offer direction for all stakeholders in developing neighbourhoods, such as local governors, developers, urban planners and designers. They may learn about what to consider from the residents' standpoint when developing a neighbourhood that promotes attachment to it.

Limitations and Direction for Future Studies

Those who reside in the Penang Island neighbourhoods are the only participants in this study's sample. A larger sample of residents from different locations can be suggested because the outcomes elsewhere differ. Additionally, the analysis only included three factors to be studied, which are economic, physical and social. It is also suggested that, depending on the criteria looked at in the study, research on other aspects or factors may produce different final results. This research only discusses neighbourhood attachment after the event of COVID-19 pandemic. Thus, comparing before and after an event is another comparison that could be performed, such as assessing the place attachment before and after urban renewal.

ACKNOWLEDGEMENTS

The authors would like to thank the Universiti Sains Malaysia under Short Term Grant Scheme with Project Code: 304/PPBGN/6315315 and the School of

Housing, Building and Planning, Universiti Sains Malaysia, for financially supporting this research.

REFERENCES

Abdul Latip, N. S., Zulnaidi, N. Z., Redzuan, N., Mohamed Osman, M., & Harun, N. Z. (2023). PLACE MAKING OF PUBLIC SPACES WITHIN TRANSIT-ORIENTED DEVELOPMENT (TOD): A REVIEW. *Journal of the Malaysian Institute of Planners*, *21*(1), 516–531.

Adewale, B. A., Ibem, E. O., Amole, S. A., & Adeboye, A. B. (2020). Place attachment in Nigerian urban slums: Evidence from inner-city Ibadan. *Cities*, *p. 107*, 102902. https://doi.org/10.1016/J.CITIES.2020.102902

Alawadi, K. (2017). Place attachment as a motivation for community preservation: The demise of an old, bustling, Dubai community. *Urban Studies*, *54*(13). https://doi.org/10.1177/0042098016664690

Alrobaee, T. R., & Al-Kinani, A. S. (2019). Place dependence is the physical environment's role function in the place attachment. *IOP Conference Series: Materials Science and Engineering*, *698*(3). https://doi.org/10.1088/1757-899X/698/3/033014

Altman, I., & Low, S. (1992). Place Attachment - Human Behavior and Environment. In *Human Behavior and Environment - Advances in Theory and Research* (Vol. 12).

Bonaiuto, M., Fornara, F., & Bonnes, M. (2003). Indexes of perceived residential environment quality and neighbourhood attachment in urban environments: A confirmation study on the city of Rome. *Landscape and Urban Planning*, *65*(1–2). https://doi.org/10.1016/S0169-2046(02)00236-0

Brown, B., & Perkins, D. D. (1992). Place Attachment. *Place Attachment*, *March 2016*. https://doi.org/10.1007/978-1-4684-8753-4

Brown, B., Perkins, D. D., & Brown, G. (2003). Place attachment in a revitalising neighbourhood: Individual and block levels of analysis. *Journal of Environmental Psychology*, *23*(3). https://doi.org/10.1016/S0272-4944(02)00117-2

Brown, G., Brown, B. B., & Perkins, D. D. (2004). New housing as neighbourhood revitalisation: Place attachment and confidence among residents. *Environment and Behavior*, *36*(6). https://doi.org/10.1177/0013916503254823

Brown, G., & Raymond, C. (2007). The relationship between place attachment and landscape values: Toward mapping place attachment. *Applied Geography*, *27*(2). https://doi.org/10.1016/j.apgeog.2006.11.002

Brown, G., Raymond, C. M., & Corcoran, J. (2015). Mapping and measuring place attachment. *Applied Geography*, *57*, 42–53. https://doi.org/10.1016/j.apgeog.2014.12.011

Chin, W. W. (1998). *The Partial Least Squares Approach to Structural Equation Modeling*. *April*.

Counted, V., Neff, M. A., Captari, L. E., & Cowden, R. G. (2020). Transcending Place Attachment Disruptions During A Public Health Crisis : Spiritual Struggles, Resilience, and Transformation. *Journal of Psychology and Christianity*, *39*(4), 276–287.

Curley, A. M. (2010). Relocating the poor: Social capital and neighbourhood resources. *Journal of Urban Affairs*, *32*(1). https://doi.org/10.1111/j.1467-9906.2009.00475.x

Department of Statistics Malaysia. (2017). *Migration Survey Report Malaysia 2016*.

Department of Statistics Malaysia. (2021a). *Current Population Estimates, Malaysia, 2021*. Department of Statistics Malaysia. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=155&bul_id=ZjJOSnpJR21sQWVUcUp6ODRudm5JZz09&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09

Department of Statistics Malaysia. (2021b). *Demographic Statistics Fourth Quarter 2020, Malaysia*. Department of Statistics Malaysia. https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=430&bul_id=Szk0WjBlWHVTV2V1cGxqQ1hyVlppZz09&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09

Fattah, H. A., Badarulzaman, N., & Ali, K. (2020). NEIGHBOURHOOD QUALITY ASSESSMENT: A VIEW OF TENURE OWNERSHIP AND MOBILITY DECISIONS IN PENANG, MALAYSIA. *Journal of the Malaysian Institute of Planners*, *18*(1), 92–101.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1). https://doi.org/10.2307/3151312

Garson, G. D. (2016). Partial Least Squares: Regression & Structural Equation Models. In *Multi-Label Dimensionality Reduction*.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage Publications. *European Journal of Tourism Research*, *6*(2).

Hedayati Marzbali, M., Tilaki, M. J. M., & Abdullah, A. (2017). Assessing the effect of neighbourhood structure on residents' perceptions of safety in gated communities: A case study of Iran. *Safer Communities*, *16*(1). https://doi.org/10.1108/SC-09-2016-0019

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, *43*(1). https://doi.org/10.1007/s11747-014-0403-8

Henseler, J., Ringle, C. M., & Sarstedt, M. (2016). Testing measurement invariance of composites using partial least squares. *International Marketing Review*, *33*(3). https://doi.org/10.1108/IMR-09-2014-0304

Hidalgo, M. C., & Hernández, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology*, *21*(3), 273–281. https://doi.org/10.1006/jevp.2001.0221

Kamalipour, H., Yeganeh, A. J., & Alalhesabi, M. (2012). Predictors of Place Attachment in Urban Residential Environments: A Residential Complex Case Study. *Procedia - Social and Behavioral Sciences*, *35*(December 2011), 459–467. https://doi.org/10.1016/j.sbspro.2012.02.111

Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. *Environment and Behavior*, *37*(2). https://doi.org/10.1177/0013916504269654

Lestari, W. M., & Sumabrata, J. (2018). The influencing factors on place attachment in the neighbourhood of Kampung Melayu. *IOP Conference Series: Earth and Environmental Science*, *126*(1). https://doi.org/10.1088/1755-1315/126/1/012190

Lewicka, M. (2010). What makes the neighbourhood different from home and the city? Effects of place scale on place attachment. *Journal of Environmental Psychology*, *30*(1), 35–51. https://doi.org/10.1016/J.JENVP.2009.05.004

Loukaitou-Sideris, A. (2006). Is it safe to walk? Neighbourhood safety and security considerations and their effects on walking. *Journal of Planning Literature*, *20*(3). https://doi.org/10.1177/0885412205282770

Low, S. M., & Altman, I. (1992). Place attachment - Human Behavior and Environment Advances in Theory and Research. *Place attachment*.

Makroni, G., Irandist, K., & Habibi, K. (2015). Quality of life assessment in urban settlements. *1st International Conference on Human, Architecture, Civil Engineering and City*, 1–9.

Malek, N. A., Mohammad, S. Z., & Nashar, A. (2018). The determinant factor for quality green open space assessment in Malaysia. *Journal of Design and Built Environment*, *18*(2). https://doi.org/10.22452/jdbe.vol18no2.3

Manzo, L. C., & Perkins, D. D. (2006). Finding common ground: The importance of place attachment to community participation and planning. *Journal of Planning Literature*, *20*(4). https://doi.org/10.1177/0885412205286160

McGuire, J. B. (1997). The reliability and validity of a questionnaire describing neighbourhood characteristics relevant to families and young children living in urban areas. *Journal of Community Psychology*, *25*(6). https://doi.org/10.1002/(sici)1520-6629(199711)25:6<551::aid-jcop5>3.0.co;2-s

Mesch, G. S., & Manor, O. (1998). Social ties, environmental perception, and local attachment. *Environment and Behavior*, *30*(4). https://doi.org/10.1177/001391659803000405

Mishra, S., Mazumdar, S., & Suar, D. (2010). Place attachment and flood preparedness. *Journal of Environmental Psychology*, *30*(2), 187–197. https://doi.org/10.1016/j.jenvp.2009.11.005

Poortinga, W., Calve, T., Jones, N., Lannon, S., Rees, T., Rodgers, S. E., Lyons, R. A., & Johnson, R. (2017). Neighbourhood Quality and Attachment: Validation of the Revised Residential Environment Assessment Tool. *Environment and Behavior*, *49*(3). https://doi.org/10.1177/0013916516634403

Rahimiashtiani, Z., & Ujang, N. (2013). Pedestrian satisfaction with aesthetic, attractiveness and pleasurability: evaluating the walkability of ChaharaghAbbasi Street in Isfahan, Iran. *ALAM CIPTA, International Journal on Sustainable Tropical Design Research & Practice*, *6*(2).

Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology*, *30*(4), 422–434. https://doi.org/10.1016/j.jenvp.2010.08.002

Schreyer, R., Jacob, G. R., & White, R. G. (1981). Environmental meaning as a determinant of spatial behaviour in recreation. *Proc. of Applied Geography Conferences, Vol. 4, 1981*.

Stedman, R. C. (2003). Is it just a social construction? The contribution of the physical environment to a sense of place. *Society and Natural Resources*, *16*(8). https://doi.org/10.1080/08941920309189

Stokols, D., & Shumaker, S. A. (1981). Cognition, social behaviour and environment. In *People in places: A transactional view of settings* (pp. 441–488). Lawrence Erlbaum Associates.

The British Academy. (2021). The COVID decade: Understanding the long-term societal impacts of COVID-19. *British Academy for the Humanities and Social Sciences*.

Ujang, N. (2012). Place Attachment and Continuity of Urban Place Identity. *Procedia - Social and Behavioral Sciences*, pp. *49*, 156–167. https://doi.org/10.1016/j.sbspro.2012.07.014

Wu, R., Huang, X., Liu, Y., & Li, Z. (2019). Place attachment of urbanites in Guangzhou: Measurement and mechanism. *Dili Xuebao/Acta Geographica Sinica*, *74*(2). https://doi.org/10.11821/dlxb201902013

Zhu, D., Jia, Z., & Zhou, Z. (2021). Place attachment in the Ex-situ poverty alleviation relocation: Evidence from different migrant communities in Guizhou Province, China. *Sustainable Cities and Society*, *75*. https://doi.org/10.1016/j.scs.2021.103355

Received: 26th June 2023. Accepted: 11th August 2023