AN ASSESSMENT OF PLACE ATTACHMENT IN ADAPTIVE REUSE: REFLECTION ON SELECTED HISTORICAL PUBLIC BUILDINGS IN COLOMBO, SRI LANKA

NUSHAREE H. P. T. D.[1]* & RAJAPAKSHA. U.[2]
[1,2]Faculty of Architecture, University of Moratuwa, Sri Lanka
[1]tachinusharee@gmail.com, [2]rajapaksha_upendra@yahoo.com

Abstract: Adaptively reused historically significant buildings serve as enduring expressions of a city's cultural heritage. The relationship between people and the built environment, conceptualized as "place attachment," plays a key role in sustaining the socio-cultural fabric of urban contexts. Prior studies on place attachment in contemporary and historical buildings focused mainly on intangible factors such as meaning, memory, and emotional associations, leaving tangible and spatial dimensions underexplored. In Sri Lanka, adaptive reuse often prioritizes economic objectives over cultural values, reducing user interaction with architectural spaces. This study reviewed existing research to address the gap between place attachment and architectural interpretation in Colombo's adaptively reused historical buildings. A mixed-methodological framework was adopted, integrating qualitative and quantitative approaches, including observational assessments and structured on-site surveys with 30 randomly selected participants across selected case studies. A theoretical framework was employed to evaluate the influence of specific architectural parameters. The analysis, based on percentage comparisons and a visual coding system, identified Arcade Independence Square as exhibiting the highest levels of place attachment, followed by the Dutch Hospital, with Trace Expert City reflecting the lowest. The findings highlighted the value of integrating architectural features into both historical and modern public buildings. The recommendations provided based on these findings can be utilized to guide architects, planners, and policymakers in future adaptive reuse and modern public design projects in Sri Lanka.

Keywords: *Sense of place attachment, adaptive reuse, historical buildings, architectural features, public buildings*

1. Introduction

The legacy of a city is often reflected in its historically significant buildings, which serve as enduring symbols of its cultural and architectural identity. Adaptive reuse has emerged as a sustainable approach to preserve these buildings while accommodating contemporary needs amid modernization. In Sri Lanka, particularly in Colombo, many adaptively reused colonial-era buildings have prioritized economic and functional objectives, often neglecting socio-cultural dimensions that enable meaningful human interaction with space (Simon, 2024). This study highlights the significance of place attachment—the emotional and functional bonds people develop with places—as a key aspect of socio-cultural sustainability in adaptive reuse (Wahyudie et al., 2021). Despite the rising popularity of adaptive reuse, public architecture frequently overlooks community connection and human experience (Gehl, 2013). This research examines how architectural features influence users' sense of place attachment in adaptively reused historical public buildings in Colombo, promoting a neighborhood-focused approach to heritage preservation and sustainable urban development.

1.1. ISSUES AND JUSTIFICATION

Adaptive reuse of historical buildings is a complex process requiring substantial economic investment for effective implementation. However, it becomes ineffective if reused buildings fail to foster a strong sense of attachment among users, which remains a key challenge in contemporary Sri Lanka. Many projects prioritize commercial and economic objectives, often overlooking the needs of communities and users. According to Yung and Chan (2012), profit-driven approaches can undermine the preservation of historical and cultural values, diminishing the socio-cultural significance of these buildings and limiting their contribution to community engagement and urban heritage sustainability.

1.2. RESEARCH QUESTION

This study emphasizes achieving place attachment as a socio-cultural sustainability factor in adaptive reuse, focusing not only on preserving physical structures but also on revitalizing connections with local communities to promote deeper engagement and cultural continuity. Accordingly, two sub-arguments guide the research, (1) Adaptive reuse should respond to human needs and engage both local and wider communities (Arfa et al., 2022); and (2) **The place attachment can be enhanced through the architectural features of adaptively reused historical buildings.** Based on these arguments, the research questions are: Do the architectural features of adaptively reused historical public buildings influence users' sense of place attachment, and how? To what extent have adaptively reused historical public buildings in Colombo fostered place attachment following adaptation?

*Corresponding author: Tel: +94 717027237 Email Address: tachinusharee@gmail.com
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1.3 AIMS AND OBJECTIVES OF THE STUDY

The aim of this study was to develop a method to assess place attachment in the adaptive reuse of historical public buildings. The research proposed a theoretical framework based on key architectural parameters and sub-criteria identified through literature analysis, considering both tangible and intangible elements. The study examined adaptively reused heritage buildings in Colombo, established the relationship between selected architectural features and users' place attachment, and validated the framework through local case studies. The developed framework was then applied to evaluate place attachment in the selected adaptively reused historical buildings.

1.4 METHODOLOGY

This study used a mixed-methods approach based on the theoretical framework developed from key architectural parameters linked to place attachment. The buildings were evaluated through on-site observations, photographs, and a 1–5 Likert scale to measure each parameter. User perspectives were collected through short on-site questionnaires with 30 randomly selected visitors at three different times of the day. These combined methods helped examine how architectural features shape place attachment in adaptively reused historical public buildings.

1.5 SCOPE AND LIMITATIONS

This study examined place attachment within historically significant, adaptively reused public buildings in Colombo. It focused on developing a method to evaluate place attachment by creating a theoretical framework grounded in key theories and architectural characteristics. The selected public buildings, which accommodate frequent user interaction, provided a suitable context for observing varying levels of place attachment in an urban adaptive reuse environment.

Due to time constraints, the study excluded sub-theories such as place affect and social bonding, as well as financial and energy-related considerations. The scope was therefore limited to architectural parameters and experiential aspects directly influencing place attachment within the selected urban public buildings.

2. Literature review

Revitalizing heritage buildings positively impacts not only the sustainability of the cultural heritage, but also strengthens visitors' sense of identity and emotional connection to place (Chan et al., 2024). These emotional bonds are explained through place attachment theory, which describes how individuals develop emotional bonds with their physical environment. (Mohamadhoseini n.d.) The theory identifies three primary forms of attachment that shape how people connect with and experience places.

Table 1: Types of bonds formed between people & their environment *(Source: Mohamadhoseini, n.d.).*

	Type of Relationship	Details of Relationship	Place components
Interaction between humans and places	Cognitive	General perception in order to understand the geometry of space and orientation	Form
	Behavioral	Perception of space capabilities to obviate the needs	Function
	Emotional	Perception of satisfaction and attachment to place	Meaning

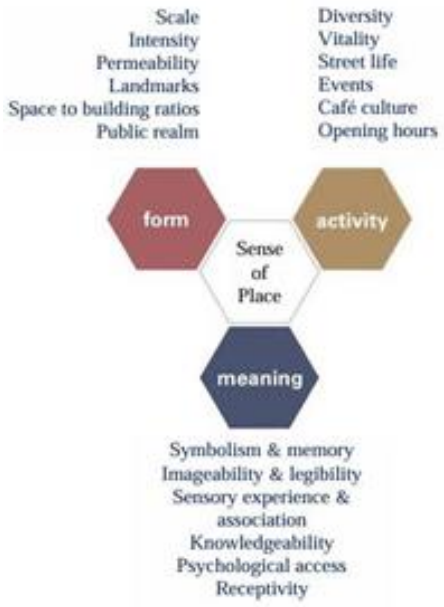

Figure 1: Three components of sense of place & subcomponents
(Source: Montgomery, 1998)

Complementing this, Montgomery (1998) argues that a sense of place emerges through the interplay of form, activity, and meaning, each comprising multiple subcomponents that influence user experience.

2.1. PLACE ATTACHMENT: RELEVANCE TO THE BUILT ENVIRONMENT

Researchers stress that, "The place attachment theory is one of the essential theories in learning the reciprocal relationship between humans and the built environment" (Wahyudie et al., 2021). Scholars highlighted that public buildings, particularly historic ones often serve as anchors of collective memory, enabling users to form strong symbolic and affective ties (Lewicka, 2008).

However, most literature focused on socio-psychological components, while limited attention was given to how architectural design features themselves foster or weaken attachment. This gap became more evident in research on adaptive reuse, where architectural transformations change the way users perceive continuity, identity, and usability of historical spaces.

2.2. INTEGRATING PLACE ATTACHMENT THEORY INTO ADAPTIVE REUSE PROCESS

Arfa et al. (2022) highlight the interdependent relationship between users, adaptively reused heritage buildings, and their surrounding context. Their study identifies key architectural factors that influence the performance and effectiveness of adaptively reused historical buildings.

Figure 2: Architectural factors influencing effective Adaptive Reuse of Historical Buildings
(Source: Arfa et al., 2022)

2.3. ARCHITECTURAL FEATURES AS DRIVERS OF PLACE ATTACHMENT

Recent studies have begun to show that specific architectural and spatial characteristics influence how users develop emotional attachment to place. Gehl (2001) demonstrated that proportion, scale, visibility, and spatial quality directly influence comfort, interaction, and sense of belonging. Similarly, Whyte (2001) emphasized that human-scale environments foster pride and sustained engagement, reinforcing attachment. Adaptive reuse buildings often serve as cultural and social hubs, strengthening ties between people and their environment through collaborative activities, events, and everyday interactions (Maligi & Shigli, 2023).

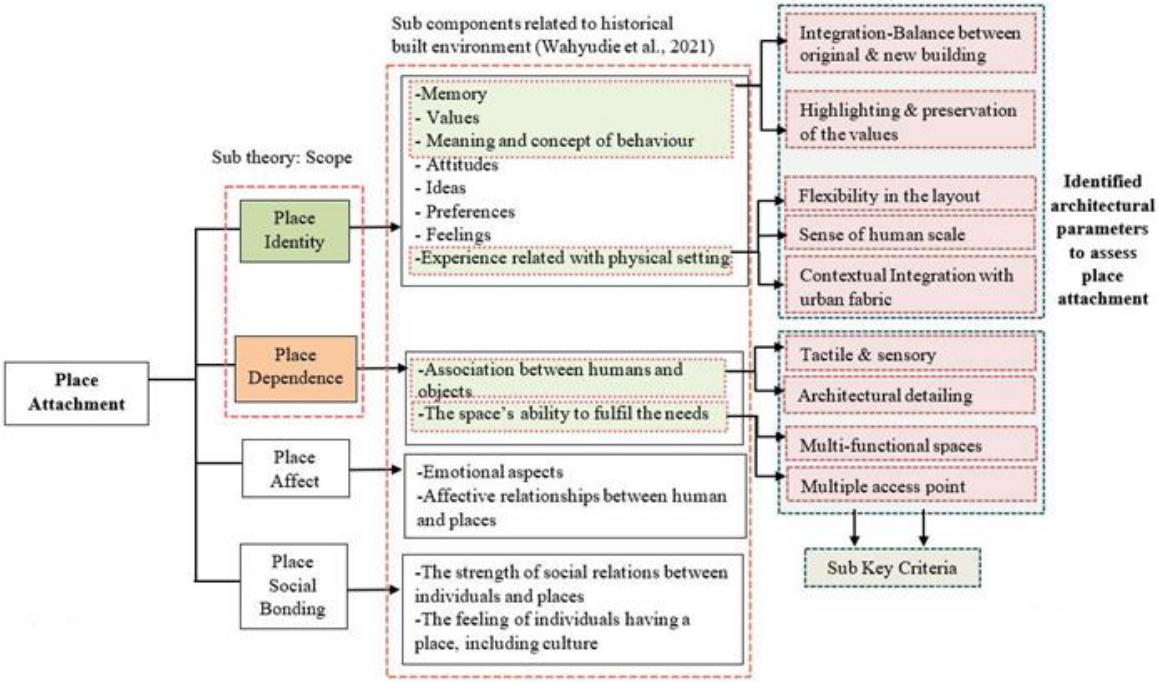

Figure 3: Relationship Between Place Attachment and Architectural Parameters
(Source: Author)

Studies in cultural identity also illustrated that preservation of architectural craftsmanship, ornamentation, and symbolic features strengthens users' cognitive and emotional ties to place (Maligi & Shigli, 2023). These findings indicate that

architectural detailing, spatial organization, and integration strategies play a critical role in shaping user perception within reused heritage buildings.

Furthermore, the study aims to investigate the association between the identified architectural parameters & sub key criteria, based on place identity and place dependence theories, with place attachment in the adaptive reuse of historical buildings, as outlined in the proposed theoretical framework.

3. Research design

Three case studies are selected based on significant criteria, focusing on colonial heritage buildings in Colombo which have transformed into functional spaces in line with the research objectives and buildings with different levels of public interaction (low, moderate & high) enable evaluation of how such variations influence place attachment. The case study one is Arcade Independence Square, Colombo. The case study two is Old Dutch Hospital, Colombo. The case study three is Trace Expert City, Maradana, Colombo.

3.1 TYPES OF RESEARCH METHODS

Two main approaches have been identified and presented as the methodological framework for this study. Quantitative and qualitative research approaches were utilized throughout the research. The main attention is given to the analyzing of architectural parameters of each case studies with the methodology of observation assessment (Svärd, 2020), photograph study or graphical representations utilizing Likert scale (1-5 increase scale) to assess the relationship between identified architectural parameters and the place attachment in the adaptive reuse of historical buildings with on-site questionnaire survey with randomly selected users (30 participants) in the selected case studies. They were observed at three different times: during the morning, midday and afternoon to ensure clarity and consistency in data collection for the research. Identification of relevant theories validating these relationships were further utilized.

Table 2: Research objectives, data & data collection method *(Source: Author)*

Specific Objectives	Required Data	Data Collection Method
To identify Architectural Parameters & sub criteria and create a theoretical framework for the assessment of place attachment considering both tangible & intangible elements	Data related to architectural aspects of adaptive reuse historical buildings	Based on the literature review – Theoretical approach
To establish the relationship between identified Architectural Parameters & sub criteria and the place attachment in the adaptive reuse of historical buildings	Identification of theoretical discussions for each architectural parameter, developed through the study of literature-based theories that validate their relationship to place attachment	Qualitative analysis through observation assessment & photograph study/ graphical representations Through literature review
Studying local case studies to validate the proposed theoretical framework and test the theoretical discussions	Data related to identified key parameters & sub criteria for case studies	Observation assessment & photograph study/ graphical representations & On-site questionnaire survey with randomly selected users in the selected case studies
Application of local case studies to assess the place attachment in adaptive reuse of historical buildings	Data on cases, based on identified architectural Parameters & Sub Criteria and data presented with texts based on observation of each case study	Observation assessment & photograph study/ graphical representations Utilizing Likert scale (1-5 increase scale) based on observations & On-site questionnaire survey results of randomly selected users in the case studies

3.2 RESEARCH DESIGN FRAMEWORK

Observations were carried out based on the identified architectural parameters and key criteria, using descriptive notes and graphical representations supported by a photographic study. A 1–5 Likert scale was used to score each criterion according to its influence on place attachment, and the scores were converted into percentages to determine each criterion's contribution. A percentage-based visual coding scheme, applied in three categories, was then used to assess place attachment across all selected case studies.

Table 3: Identified parameters & sub criteria to assess the place attachment *(Source: Author)*

	Identified Architectural Parameters & Sub key Criteria	**Observations**	**1**	**2**	**3**	**4**	**5**	**score**	**Percentage**
Criteria based on Sub Components of Place Identity	Integration-Balance between original & new building								
	Transparency in Design								
	Functional Synergy								
	Harmonization of Styles								
	Highlighting & preservation of the values								
	Minimal Intervention								
	Sensitive Integration of new design elements								

	Sense of human scale								
	Proportion								
	Depth & volume of space								
	Flexibility in the layout								
	Diverse & pleasant atmosphere								
	Peaceful and structured spatial organization								
	Acoustic comfort & visual peace								
	Openness								
	Contextual Integration with urban fabric								
	Physical connectivity								
	Visual continuity								
	Community engagement								
	Interaction of the heritage building with the surrounding natural landscape								
Criteria based on Sub Components of Place Dependence	Multi-functional spaces								
	Hosting different functions								
	User variation								
	Increment in the functionality of the heritage buildings								
	Multiple access point								
	Offering disable access								
	Intuitive navigation & wayfinding								
	Architectural detailing								
	Preservation of original craftsmanship								
	Symbolism & Ornamentation								

Visual Coding Scheme (Percentage)	Scale Level
100% - 75%	Strong place attachment based on adaptive reuse of historical buildings
74% - 65%	Moderate place attachment (Reasonably good connection)
64% or below	Minimal place attachment (Limited connection)

Figure 4: visual Coding Scheme
(Source: Author)

3.3 RESEARCH FRAMEWORK

Table 4: Theoretical Framework for the assessment of the place attachment of Adaptive Reuse Historical Public Buildings
(Source: Author)

Sub-structures of place attachment sub theory related to historical context			Identified Architectural Parameters & Sub key Criteria	Theoretical Foundation- Literature based theories (Validity of architectural parameters with place attachment reference to researchers' ideas)	Theoretical Discussion
(Wahyudie et al., 2021)	Values (Wahyudie et al., 2021) (Social values, Cultural values, historical values, Aesthetic values and Recreation values) (Scannell & Gifford, 2010)	Sub Components of Place Identity	Integration- Balance between original & new building - Transparency in Design - Functional Synergy - Harmonization of Styles	"The district must mingle buildings that vary in age and condition, including a good proportion of old ones" (Jacobs, 2015) The buildings of varying ages and physical conditions must be balanced, which involves the active use of planning tools by the government. Through such balance, the sustainable growth of cities and districts can be achieved (Jacobs, 2015) That sustainability growth of cities contributes to the socio-cultural, emotional, and functional attributes which increase people's attachment to a place	If the original and new building are well balanced (Transparency in Design, Functional Synergy, Harmonization of Styles), users may develop an emotional bond due to the continuity of heritage and modern relevance
	Memory (Wahyudie et al., 2021)	Literature Review- Theoretical Approach	Highlighting & preservation of the values	Preserving the character and integrity of the host building without highlighting or hiding the original while contrasting the designs (Wong, 2017)- with minimal intervention Buildings that preserve common memories can become symbols of local cultural identity for residents (Rugwiji, 2019; Cittati et al., 2022)	If the heritage building's values are preserved, users may feel a deeper sense of attachment due to an identity and legacy connection
	Meanings & concept of behaviour		-Minimal Intervention -Sensitive Integration of		

	(Wahyudie et al., 2021)			new design elements		
	Experience related with the physical setting (Wahyudie et al., 2021)			Sense of human scale	Buildings and spaces should be proportioned to correspond to the human dimensions, ensuring they are neither overwhelmingly larger nor disconnected from human senses, movements, and behaviours that design aims to create a scale that is comfortable, relatable, and aligned with human experiences and actions; (Gehl, 2001) spaces designed with human proportions encourage strong interaction and pride from individuals enhancing a sense of place attachment, as people feel more connected with their surrounding environment (Whyte, 2001)	Users may feel more comfortable and connected, when the space maintains a sense of human scale with human proportions
				- Proportion		
				- Depth & volume of space		
				Flexibility in the layout	With multifunctional spaces with a human scale can create the environment more inclusive and comfortable for visitors (Schmidt III & Austin, 2016) The ability to see & navigate into the distance and views unhindered by buildings or other obstructions, interesting views, and lighting as appropriate; (Gehl, 2001) Possibilities for communication are enhanced by maintaining low noise level, and benches or seating arranged such that people can easily sit in different arrangements that facilitate conversation; (Gehl, 2001)	If the layout ensures the flexibility with multi- functional spaces while respecting the historical context, it may create comfortable for users with positive sense of attachment to the space
				Diverse & pleasant atmosphere		
				Peaceful and structured spatial organization		
				Acoustic comfort & visual peace		
				Openness		
				Contextual Integration with urban fabric	Visual linkages encourage interaction among people, communication between spaces and people, and flexible working environment. Physical linkages enhance multiple connections, legibility, and effectivity that encourage growth (Schmidt III & Austin, 2016, p. 105) Involving the locals in restoring and preserving the historical buildings can strengthen a feeling of pride in the town and a sense of identity with the sense of place attachment (Maligi & Shigli, 2023) “Cultural activities engagement has a positive impact on place attachment” (Chan et al., 2024)	Well-designed physical and visual linkages between heritage buildings and the urban fabric encourage interaction among people, enhancing a deeper sense of place attachment
				Physical connectivity		
				Visual continuity		
				Community engagement		
				Interaction of the heritage building with the surrounding natural landscape	The sense of place attachment is greatly increased when local natural components are included into urban landscape design; (Liu et al. (2021))	If the heritage building integrates with the surrounding natural landscape, users may feel increased sense of place attachment
(Wahyudie et al., 2021)	Space’s ability to fulfill the needs	Sub Components of Place Dependence		Multi-functional spaces	A properly designed multi-functional space is also known as an effective space that enhances interactivity between people and the space (Schmidt Iii & Austin, 2016, p. 105) Public areas inside and outside of adaptive reuse historical buildings can host festivals, cultural events, and group art installations that strengthen the ties between the local community and its history. These cultural projects create a lasting connection between the past and the present by encouraging a solid feeling of place attachment; (Maligi & Shigli, 2023) Possibilities for play and other activities (possibilities for various physical activities, including exercise and play; space for entertainment, both day and night and in different seasons); (Gehl, 2001)	If the place fulfills with both functional and user variation that place enhance interaction and attachment between user and space
				Hosting different functions		
				User variation		
				Increment in the functionality of the heritage buildings		

				Multiple access point	Multiple access points of the building help to attract different user groups into the building premises encouraging their interaction and sense of attachment (Schmidt III & Austin, 2016)	If multiple access points are properly designed, users may experience an enhanced sense of belongingness and inclusivity, encouraging interaction and accessible environment
				Offering disable access		
				Intuitive navigation & wayfinding		
	Association between humans & objects			Architectural detailing	Careful focus and attention to details can strengthen neighborhood's identity, enhancing a sense of community attachment, and stimulate pride in its citizens (Gehl & Svarre, 2013) "Colorful customs, rich history, and distinctive architectural forms may create a strong, high sense of place attachment" (Maligi & Shigli, 2023)	If architectural detailing reflects and enhances heritage, users may feel connected through its craftsmanship and Sri Lankan identity
				Preservation of original craftsmanship		
				Detailed Transitional spaces		
				Symbolism & Ornamentation		

3.4 CASE STUDY 1: ARCADE INDEPENDENCE SQUARE, COLOMBO

Table 5: Assessment of Place Attachment of Arcade Independence Square, Colombo (*Source: Author)*

	Identified Architectural Parameters & Sub key Criteria	1	2	3	4	5	Score	Percentage%
Criteria based on Sub Components of Place Identity	Integration-Balance between the original & new building						2	2/10 X100%
	Transparency in Design	✓						20%
	Harmonization of Styles	✓						
	Highlighting & preservation of the values						8	8/10 X100%
	Minimal Intervention			✓				80%
	Sensitive Integration of new design elements					✓		
	Sense of human scale						6	6/10 X100%
	Proportion		✓					60%
	Depth & volume of space				✓			
	Flexibility in the layout						15	15/20 X100%
	Diverse & pleasant atmosphere				✓			75%
	Peaceful and structured spatial organization		✓					
	Acoustic comfort & visual peace				✓			
	Openness					✓		
	Contextual Integration with urban fabric						14	14/15 X100%
	Physical connectivity					✓		93.3%
	Visual continuity				✓			
	Community engagement					✓		
	Interaction of the heritage building with the surrounding natural landscape					✓	5	5/5 X100%
								100%
Criteria based on Sub Components of Place	Multi-functional spaces						12	12/15 X100%
	Hosting different functions				✓			80%
	User variation					✓		
	Increment in the functionality of the heritage buildings			✓				
	Multiple access point						8	8/10 X100%
	Offering disable access			✓				80%
	Intuitive navigation & wayfinding					✓		
	Architectural detailing						8	8/10 X100%
	Preservation of original craftsmanship				✓			80%
	Symbolism & Ornamentation				✓			

Table 6: Visual Coding Scheme of the Assessment *(Source: Author)*

Level Of Place Attachment Based on Each Criterion			
	Identified Architectural Parameter	**Percentage %**	**Visual Coding Scheme**
Criteria based on Sub Components of Place Identity	Integration-Balance between original & new building	20%	
	Highlighting & preservation of the values	80%	
	Sense of human scale	60%	
	Flexibility in the layout	75%	
	Contextual Integration with urban fabric	93.3%	
	Interaction of the heritage building with the surrounding natural landscape	100%	
Criteria based on Sub Components of Place Dependents	Multi-functional spaces	80%	
	Multiple access point	80%	
	Architectural detailing	80%	

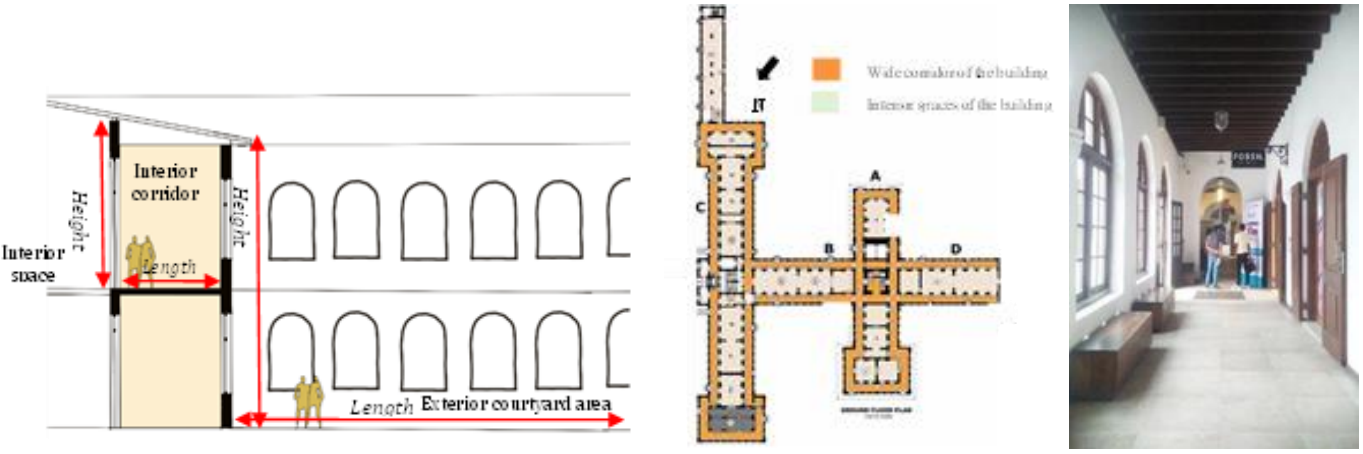

Figure 5,6 & 7: Images of case study 1 *(Source: Author)*

3.5 CASE STUDY 2: OLD DUTCH HOSPITAL, COLOMBO

Table 7: Assessment of Place Attachment in Old Dutch Hospital, Colombo *(Source: Author)*

	Identified Architectural Parameters & Sub key Criteria	1	2	3	4	5	Score	Percentage%
Criteria based on Sub Components of Place Identity	Integration-Balance between the original & new building						8	8/10 X100%
	Transparency in Design				✓			80%
	Harmonization of Styles				✓			
	Highlighting & preservation of the values						8	8/10 X100%
	Minimal Intervention				✓			80%
	Sensitive Integration of new design elements				✓			
	Sense of human scale						10	10/10 X100%
	Proportion					✓		100%
	Depth & volume of space					✓		
	Flexibility in the layout						15	15/20 X100%
	Diverse & pleasant atmosphere					✓		75%
	Peaceful and structured spatial organization			✓				
	Acoustic comfort & visual peace			✓				
	Openness				✓			
	Contextual Integration with urban fabric						9	9/15 X100%
	Physical connectivity	✓						60%
	Visual continuity			✓				
	Community engagement					✓		
	Interaction of the heritage building with the surrounding natural landscape		✓				2	2/5 X100%
								40%
Criteria based on Sub Components of Place	Multi-functional spaces						10	10/15 X100%
	Hosting different functions				✓			66.6%
	User variation		✓					
	Increment in the functionality of the heritage buildings				✓			
	Multiple access point						10	10/10 X100%
	Offering disable access					✓		100%
	Intuitive navigation & wayfinding					✓		
	Architectural detailing						8	8/10 X100%
	Preservation of original craftsmanship				✓			80%
	Symbolism & Ornamentation				✓			

Table 8: Visual Coding Scheme of the Assessment (*Source: Author*)

Level Of Place Attachment Based on Each Criterion			
	Identified Architectural Parameter	Percentage%	Visual Coding Scheme
Criteria based on Sub Components of Place Identity	Integration-Balance between original & new building	80%	
	Highlighting & preservation of the values	80%	
	Sense of human scale	100%	
	Flexibility in the layout	75%	
	Contextual Integration with urban fabric	60%	
	Interaction of the heritage building with the surrounding natural landscape	40%	
Criteria based on Sub Components of Place Dependence	Multi-functional spaces	66.6%	
	Multiple access point	100%	
	Architectural detailing	80%	

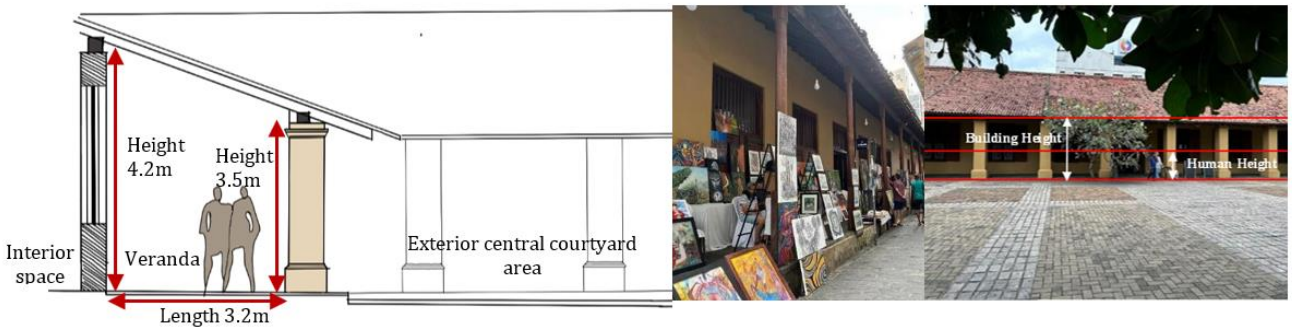

Figure 8,9 & 10: Images of case study 2 (*Source: Author*)

3.6 CASE STUDY 3: TRACE EXPERT CITY, MARADANA, COLOMBO

Table 9: Assessment of Place Attachment in Trace Expert City, Colombo *(Source: Author)*

	Identified Architectural Parameters & Sub key Criteria	1	2	3	4	5	Score	Percentage%
Criteria based on Sub Components of Place Identity	Integration-Balance between the original & new building						8	8/10 X100%
	Transparency in Design				✓			80%
	Harmonization of Styles				✓			
	Highlighting & preservation of the values						7	7/10 X100%
	Minimal Intervention			✓				70%
	Sensitive Integration of new design elements				✓			
	Sense of human scale						5	5/10 X100%
	Proportion		✓					50%
	Depth & volume of space			✓				
	Flexibility in the layout						15	15/20X100%
	Diverse & pleasant atmosphere				✓			75%
	Peaceful and structured spatial organization				✓			
	Acoustic comfort & visual peace			✓				
	Openness				✓			
	Contextual Integration with urban fabric						10	10/15X100%
	Physical connectivity				✓			66.6%
	Visual continuity			✓				
	Community engagement			✓				
	Interaction of the heritage building with the surrounding natural landscape			✓			4	4/5 X100%
								80%
Criteria based on Sub Components of Place Dependence	Multi-functional spaces						8	8/15 X100%
	Hosting different functions			✓				53.3%
	User variation		✓					
	Increment in the functionality of the heritage buildings			✓				
	Multiple access point						4	4/10 X100%
	Offering disable access	✓						40%
	Intuitive navigation & wayfinding			✓				
	Architectural detailing						8	8/10 X100%
	Preservation of original craftsmanship				✓			80%
	Symbolism & Ornamentation				✓			

Table 10: Visual Coding Scheme of the Assessment *(Source: Author)*

Level Of Place Attachment Based on Each Criterion			
	Identified Architectural Parameter	Percentage%	Visual Coding Scheme
Criteria based on Sub Components of Place Identity	Integration-Balance between original & new building	80%	
	Highlighting & preservation of the values	70%	
	Sense of human scale	50%	
	Flexibility in the layout	75%	
	Contextual Integration with urban fabric	66.6%	
	Interaction of the heritage building with the surrounding natural landscape	80%	
Criteria based on Sub Components of Place Dependence	Multi-functional spaces	53.3%	
	Multiple access point	40%	
	Architectural detailing	80%	

3.7 CASE STUDY SUMMARY AND REFLECTION

Table 11: Place Attachment level compared to Architectural parameters as visual coding (Source: Author)

Identified Architectural Parameter	Place Attachment Level Relating to the Architectural Parameters as Visual Coding		
	Arcade Independence Square	Dutch Hospital	Trace Expert City
Integration-Balance between original & new building			
Highlighting & preservation of the values			
Sense of human scale			
Flexibility in the layout			
Contextual Integration with urban fabric			
Interaction of the heritage building with the surrounding natural landscape			
Multi-functional spaces			
Multiple access point			
Architectural detailing			

4. Discussion and conclusion

As concluded from the assessment of place attachment levels compared to architectural parameters as percentages and visual coding system, Arcade Independence Square demonstrated a high level of place attachment achievement compared to majority of parameters. Following this, the Dutch Hospital ranked second in place attachment achievement, while Trace Expert City ranked the lowest among the assessment of parameters. (Table 11)

At Arcade Independence Square, the architectural parameters of contextual integration with urban fabric (93.3%) and interaction of the heritage building with the surrounding natural landscape (100%) have contributed for the high level of place attachment between people and the Arcade premises due to its open massing of built forms which create extroverted nature encouraging the natural movement of people between the spaces, enhancing the user attachment towards the place. Similarly, at Dutch Hospital, Colombo, the architectural parameter of sense of human scale (100%) significantly contributed to the high level of place attachment between people and the premises. This is due to the building aligns with human dimensions enhancing user interaction with their attachment in both interior and exterior spaces. According to the on-site questionnaire results, 26.6% of users feel comfortable at both indoor and outdoor areas due to its comfortable human scale. Therefore, for the future adaptation processes, especially for public historical buildings, it is effective to consider the building and spaces which align with human dimensions connecting with human senses, movements and behaviour enhancing user experience and attachment. At Trace Expert City, the architectural parameters of multiple access point (40%) and sense of human scale (50%) resulted for low levels of place attachment due to limited access points reduce the user encouragement with less inviting for the place and less alignment with human dimensions create less interaction with their attachment to place.

As concluded from the research analysis, it is clear that, the place attachment is a significant attribute in adaptively reused historical buildings, as analyzed through architectural parameters. However, this depends on the level and clarity of integration in this process. This is further validated by the research findings, contributing with significant conclusion for this study. The identified architectural parameters and their sub criteria which relevant to the adaptive reuse of historical public buildings impact in varying levels on the sense of place attachment between people and their built environment.

5. Recommendations

This research can be expanded in future through various research approaches; however, this research conducted within several limitations with timeframe. In this study, the theoretical framework was established utilizing only two sub theories of place attachment; 'place identity' and 'place dependence'. With their sub components relevant architectural parameters were built based on various theoretical approaches. Therefore, other two sub theories; 'place affect' and 'place social bonding' can also be utilized for the overall assessment of place attachment in adaptively reused historical buildings effectively for future research.

As the result of the final research outcomes, the following specific factors need to be taken into consideration by the future architects, urban planners and designers when they contribute for adaptive reuse historical or modern buildings with the purposes of enhancing the sense of place attachment.

- Responding to the sense of human scale is a critical parameter for above three case studies. Therefore, it is needed ensure that the buildings align with the human dimensions to enhance the user attachment of the buildings

- Within the adaptation process of historical buildings, the sense of human scale can be enhanced by adding suitable elements which align with human dimensions
- Properly established physical and visual connections between the buildings and the surrounding context
- Within the adaptation process, preserving the character and integrity of the old building with harmonization of elements of the building is needed to enhance the users' sense of connection, identity and place attachment

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