Defining Townscape Characteristic of Chiang Mai Old City of Thailand through Townscape Character Assessment

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Abstract

Townscape in urban heritage sites contributes a vital visual perception of the public realm. It consists of the streetscape, buildings, natural features, and human perception, which include the social, cultural, and way of life on the scenes. Historic Townscape represents tangible and intangible scenes related to historical artifacts and the historical value of the places. Townscape Character Assessment (TCA) can apply to evaluate the quality of urban elements which represent the significance of social, cultural, and human perception of urban heritage. However, Chiang Mai City Council should have paid more attention to the valued process of establishing a townscape character assessment policy and has not been part of the ongoing heritage preservation process. In the critical urban heritage environment of Chiang Mai Old City, the aim is to define the townscape characteristics of the city and to be used as fundamental knowledge to establish the suitable Townscape Character Assessment (TCA) for Chiang Mai Old City.

This research study has considered four aspects in terms of townscape Character Assessment Policy study that could establish the Townscape Characteristics of Chiang Mai Old City. These are the quality of the streetscape; cultural expression; perceptual factors; and socio-cultural values. Generally, Townscape Character Assessment employs the four significant factors to value townscape characteristics. This study has considered the ongoing new world heritage site as Chiang Mai is a "living heritage" which has faced the loss of greenery, cleanliness, and identity in its inner city and is likely to have issues when the city becomes a heritage tourism destination. The study involved twenty-five local participants and used a mixed methodology consisting of questionnaires, photo-elicitation interviews (PEI), needle method, and in-depth interviews. The results found that the connection of religious places, urban heritage artifacts, cultural activities, and the natural colors of local flowers in the city represented its characteristics. The study revealed possible factors to evaluate a townscape character assessment policy for CMOC, including the physical need for

streetscape improvement, cultural expression along the streetscapes, perception of the quality of the streetscapes, and representation of socio-cultural values of the streetscapes. These results can be implemented in developing assessment guidelines for any heritage sites undergoing heritage nomination or any historical cities concerned with townscape character.

1. Introduction

The identity of Chiang Mai old city can be found in its unique places which are informed by the perception of local people, Phetsuriya and Heath (2021) mentioned five such distinctive places in the city that represent the urban heritage identity. These consist of two significant temples in the city, two urban spaces, and the Chiang Mai City Moat which reflect the cultural heritage values and the city's outstanding universal value. The place has provided an extraordinary aspect for the nomination process to the UNESCO World Heritage Site Committee. Unfortunately, in its application, the Chiang Mai Heritage Committee (CMHC) has neglected to focus upon the built environment, despite this being crucial in maintaining and improving the city's unique townscape scenes and developing a townscape character assessment plan. Townscape character assessment policies are standard worldwide in cities with important urban heritage assets; however, they have been traditionally underused in Thailand. The city has been losing its quality of urban life and townscape character due to rapid urbanization (Moe ,2001; UNESCO,2020). Furthermore, the local council continues to introduce conservation areas according to the history of the areas with no attention to townscape assessment. This is likely to lead to further issues when the city becomes a world heritage site with the associated impact of an expanded tourist industry.

Chiang Mai Old City has been announced as the 'tentative list' of World Heritage Sites. Currently, the Chiang Mai Heritage Committee (CMHC) is proposing its dossier to the advisory bodies of UNESCO. Although the nominated places are the majority of the nomination process, thus the built environment is also linked to the distinctive places that affect the heritage city's environment. In addition, the built environment plays a key role in affirming the cultural, economic, and social (Watson & Bentley,2007). The main advantage of townscape characterization is that it encourages developers and stakeholders to follow the policies and guidelines of the planning system. Townscape character assessment policies provide a beneficial description of the townscape character and, therefore, assist in negotiations

for modifying the planning system. A townscape's visual aesthetic perception contributes to a positive experience for the city and its communities. The defining process of the townscape character assessment policy is based on the understanding and response from the Chiang Mai community, which encourages communities to increase their sense of local identity. A description of townscape character provides valuable information for the tourism industry and can support preventing inappropriate development from devaluing a city's identity (Walsh, 2012).

In Chiang Mai, the valued process of establishing a townscape character assessment policy needs to be addressed and be part of the ongoing heritage preservation process. In a critical urban heritage environment such as Chiang Mai, the city's approach must embrace the community and the local council. The positive perception of urban space requires local communities to participate in the conservation process as part of increased engagement between the authorities and the community. As such, this study focuses on the early stage of policy development for a townscape character assessment of Chiang Mai Old City. The research aims to examine a community's perception in terms of the socio-cultural value and the streetscape qualities that represent the heritage value of the city. This study employed mixed methods, and the result define the townscape characteristics and informs the city's initial townscape character assessment policy and suggests that the city should take a step backward and consider developing the policy parallel with the nomination process.

2. Theory

2.1 Townscape Character Assessment (TCA)

'Townscape' as an approach to understanding one aspect of quality in the built environment and it has had mixed fortunes over the last few decades. Nonetheless, it remains a useful category within which the question of how places work at an aesthetic level can be considered (Reeve et al., 2007, p.25).

Guidelines for Landscape and Visual Impact Assessment mentioned townscape as "Townscape is the landscape within the built-up area, including the buildings, the relationship between them, the different types of urban open spaces, including green spaces and the relationship between buildings and open spaces." (Landscape Institute, 2020, paragraph 2.7)

Townscape characters involve the interaction of the physical, social, and cultural elements of cities, which consider the historical development associated with an urban environment, cultural and heritage qualities, the mass and scale of the existing built form and existing urban structure (Jeffery, 2020; Rooney & Houlston, 2017; Colchester Borough Council, 2006). It also includes green infrastructure, streetscapes, vistas, skylines, public realm, legibility, landmarks, connectivity, utilities, and perceptual qualities (Jeffery, 2020). The significance of townscape character assessment is to present distinctiveness supported by maps, illustrations, and photographs of places. This evidence leads to understanding the evolution of places and development over time in response to nature, social life, and economic aspects (Rooney & Houlston, 2017). Assessment can form the fundamental for evaluation related to the effects of change in multiple ways. The information from the assessment can also guide the developers in positive decision-making to promote and maintain the distinctive townscape characteristics and the sense of place (Rooney & Houlston, 2017; Colchester Borough Council, 2006).

Interestingly, it can assist stakeholders and developers with an evidence-based approach to their objectives. The assessment allows for more robust evidence linked to specific sites and neighborhoods. To inform development policies is to ensure that new development contributes positively to townscape distinctiveness and contributes to the pride of the place feeling and ownership of the cities, which in turn contributes to environmental, social, and economic vitality (Rooney & Houlston, 2017; Colchester Borough Council, 2006).

2.2 Value in the view

The relationship between urban space and architecture on streetscapes can reveal the distinctiveness and sense of place, which is evaluated through the quality of urban attributes and natural features (Phetsuriya, 2023). Moreover, describing streetscape characters contributes significant data influencing city identity development (Walsh, 2012). The positive visual image of cities represents the value of sociocultural places and urban spaces (Gibson, 2009). A city's views are promoted as 'brandscape' or place-branding, and tourism reveals underlying tensions between the demands of cities to develop and grow while at the same time retaining their historical form and relationship to nature. Indeed, city views are promoted as historical or natural 'assets' for the consumption of a growing number of
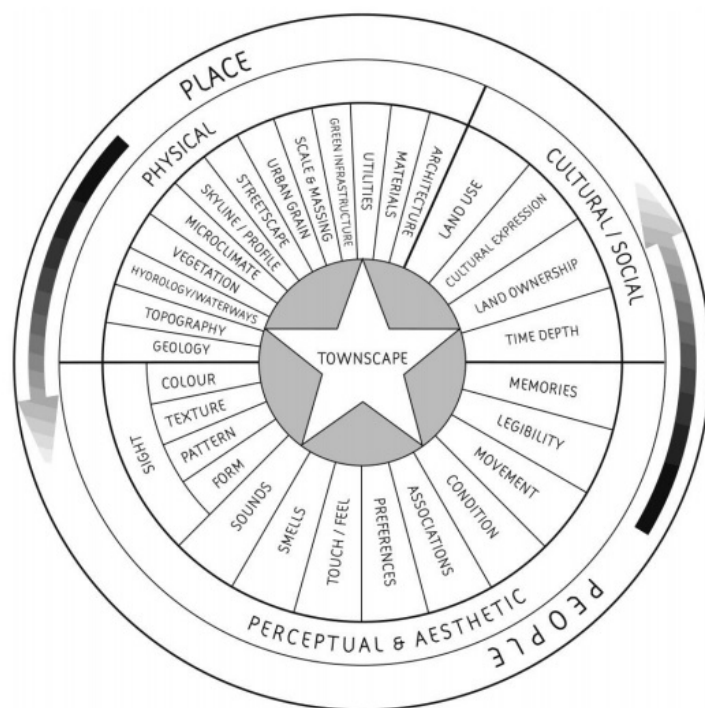

Figure 1. 'An Approach to Landscape Character Assessment' (Rooney & Houlston, 2017, p3)

tourists (Brigden, 2018, p.122). Significantly, scenic beauty also contributes to residents' quality of life and attracts visitors. Due to the dynamic relationship between people, land, and rural development, there is an increasing interest in estimating the value of scenic quality using non-market valuation techniques (Mathews et al., 2004). To look at the scene of a city economically, 'brandscape' would be a persuasive

lifestyle and powerful identity. The identification and value of significant views should be informed by consultation with local communities (Brigden, 2018). Visual perception is one of the translation tools from visual information to the brain. It can be divided into three parts: perceptual organization, depth perception, and size constancy (Romcai, 2007).

Visual perception relates to the process of user experience of a place, which focuses on the stimulation of physical elements of public spaces such as commercial signs, shapes, colors of buildings, street furniture, and so on. It also involves symbolic meaning associated with places and can be influenced by the user's urban context, values, culture, and individual experiences (Portella, 2014). To value the visual resource is focused on the visual impact in the city is the method to identify problems of visual culture, such as the diversity of signs in the city or the signs that disturb the visual culture of the community. This method can be used to preserve the visual resource by studying the visual impact on the city and the visual corridor to specify the vital views of the city (Sourachai, 2006).

2.3 Sociocultural Values is Heritage Values

'Social value' relates to the value of objects and places within communities and people rather professionals identification of meaning. Gibson (2009, p.73) notes that a report on social value commissioned by the Australian Heritage Commission, defines places with social value as those which firstly, can provide a spiritual connection or traditional connection between past and present and tie both periods together. Moreover, in terms of community relations, the social value can connect people back to their history, provide an essential reference point in a community's identity, loom large in the daily comings and goings of life, provide an essential community function that develops into an attachment, and shape some aspects of community behavior or attitudes.

This value consists of historical values, social values, aesthetic values, and spiritual values (Lipe, 1984; Mason, 2002; Doğan, 2020). Historical values are the core of the heritage concept and the capability to react to the

past of heritage objects is significant in explaining their meaning. There are several ways to accrue the value, such as the age, people's association, events, uniqueness, and documentary potential (Lipe, 1984; Mason, 2002). The two sub-types of historical value consist of the education values and the artistic values. Education values relate to the potential of heritage knowledge gains and looking forward from the past to further knowledge combined with another knowledge field. The expression of uniqueness or being good or best in any aspect is included as the artistic value in historical value (Gibson, 2009; Mason, 2002). Cultural values are similar to historical values, heritage always relates to cultural values, and the advantage is to build cultural values in the present to continue the historical meaning.

Social values are essential in the field of social science, the social values of heritage sites include the assembly of people in social space for purposes such as celebrations, markets, picnics, or other activities (Gibson, 2009; Mason, 2002). All activities do not necessarily need to relate to the historical value or the cultural purpose but can share the space qualities within neighborhood or groups with the same interest. Social values can also contribute to the "place attachment" aspects of heritage value. These include aspects such as social cohesion and community identity, which are derived from specific characteristics of the heritage and environment (Gibson, 2009). Aesthetic values refer to the qualities of the visualization of heritage. The sense of aesthetic is widely interpreted to beauty, the ruins and the fundamental senses of humans such as smell, sound, touch, and sight. These contribute a strong sense of well-being of place through human perception. Spiritual values relate to the religious or sacred meanings that evolve from beliefs or religions (Lipe, 1984; Mason, 2002).

Finally, spiritual values are mainly related to the evolution from belief and religion to sacred meanings (Lipe, 1984; Mason, 2002). Otherwise, the rootedness of non-religion in human experience also contributes to spiritual value, such as the experience with loved ones in the city or the priceless memory of loved ones (Willson, 2016). The bonding of spiritual value is combined with emotional, intangible, or tangible (Cross, 2001).

2.4 Quality of Streetscape

In this study, the quality of streetscape has been concerned into a part of the townscape character assessment which consists of walkability, accessibility connectivity, transparency, safety, livability, vitality, diversity, adaptivity, social value, form and visual quality (see table 1). Rehan (2013:p.174) articulates that:

Table 1 Quality of streetscape divided into ten aspects (Phetsuriya, 2023, p.148).

Indicators for streetscape quality	Definition	Question design in this study
Walkability	Walkability as '...the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network' Southworth (2005, p.248).	(Q1) The street is clean and well organized. (Q2) I feel satisfied walking on this street.
Accessibility	'Access' as a key component of ideal urban form consists of multipurpose, firstly, access to other people and certain activities: it is the fact that human beings are social animals. Moreover, the resource accessibility to various other goods and basic supportive energy and environment sources. The natural environment on urban space such as open space, landscapes, wasteland, or places with recreational activities. Lynch (1981, pp.188-190)	(Q5) I can easily access the pavement.
Connectivity	Street connectivity and walking is partly mediated through other environmental attributes, particularly utilitarian destinations (such as local shops and services) that are found well-connected areas (Koohsari et al.,2014, p.119).	(Q4) The street is perfectly connected between each of the pavements.
Connectivity	Tucker et al. (2005) Connectivity is well connected to urban space to improve quality and concerns to the connection of urban transport, such as public transport, bicycle lane, continuous and accessible pavement.	(Q6) The pavement/space on the street has been designed for universal users.
Transparency	'...ability to see beyond whatever it is that defines a street' (Jacobs, 2010, p.165). Transparency of street is mainly related to an 'active frontage' which involves an interaction between indoor and outer space; and presents the inner life to citizens to let them in, it is a component of urban life and space in the meaning of access to buildings and continuity of urban space (Erkartal & Uzunkaya, 2018).	(Q9) I can easily access the shops along the street.
Safety	A great street is physically comfortable and safe (Jacobs, 1993).	(Q3) I feel safe walking on this street.
Livability	Urban livability refers to places where people can live in relative comfort. This starts with the availability of most basic things such as places with clean air, clean water, a well-managed environment relatively devoid of dirt, trash, noise, danger, overcrowding; a physically healthy living environment (Jacobs, 2011,p.177).	(Q13) I have a social life integrated with this street.
Vitality	Lynch (1981) mentioned vitality of place is supposed to encourage the health and survival of species. The vitality of a street is defined as the presence of people engaged with activities. (Mehta, 2011). Accordingly, vitality reflects activity, alongside a diversity of transactions (not necessarily economic) between people (Montgomery, 1995, p.106).	(Q15) I feel engaged with the streetscape.
Adaptivity	'This may be achieved by adaptation of the place to the activity, or vice versa, and also by mutual adaptation . . . adaptability in the more general sense is also achieved by the presence of adaptable persons . . . .' (Lynch, 1981, p.167)	(Q7) I think everyone can use the street for commercial purposes.
Adaptivity	The concept of adaptability is an adaptable urban settings, therefore, have '...a greater chance of taking the impact of a stressor, addressing its impact, and then quickly reconfiguring itself to continue its operation and generate value' (Desouza & Flanery, 2013, p.96)	(Q8) I think everyone can use the pavement for commercial purposes.
Form Visual Quality	The aesthetic of visual character of urban places included colour, texture and surfaces can defined urban space character (Carmona et al., 2010).	(Q10) It has an attractive landscape.
Form Visual Quality	An excellent visual quality of city streetscape will give a good visual aesthetic experience for the community and Psychologically create a positive thought and action. Moreover, forms of urban environment both physical and non-physical form an interwoven perception and appreciation closely with humans (Santosa et al., 2018, p.2).	(Q16) The façade design represents the historical value. (Q12) The streetscape/space is green and shady to the streetscape.
Social Value	The social value of public space is wide ranging and lies in the contribution it makes to 'people's attachment to their locality and opportunities for mixing with others, and in people's memory of places. Places can provide opportunities for social interaction, social mixing and social inclusion, and can facilitate the development of community ties (Worpole, 2007, p.5).	(Q11) The streetscape brings the value of history of CMOC. (Q14) I consider the socio-culture value of this street reflects the value of CMOC.

"Streetscape is a term used to describe the natural and built fabric of the street, and defined as the design quality of the street and its visual effect, particularly how the paved area is laid out and treated. It includes buildings, the street surface, and also the fixtures and fittings that facilitate its use – from bus shelters and signage to planting schemes."

The inter-relationship of defining townscape characteristics primarily concerns place and people; these two factors can be explained more through the physical, cultural/societal, and perceptual/aesthetic. However, the study applies the sociocultural value to explain the depth of heritage values because the case study location is located in a heritage site. Finally, the physical of its streetscape can be vital to evaluate the perception and value of townscape characteristics.

3. Chiang Mai Old City, Thailand

Chiang Mai is in the basins of the Chiang Mai-Lamphun slope and Ping River in the north of Thailand. The city itself contains unique tangible and intangible urban heritage attributes. Chiang Mai Old city was nominated on the "tentative list" of UNESCO in 2015 (UNESCO, 2020), however, it remains in the process of presenting to the nominating bodies for UNESCO. Chiang Mai was the capital city of Lanna Kingdom and embodies the initial ideology of Lanna culture and ways of life for current local people. Chiang Mai's extraordinary urban planning combines Lua belief and Chaiyaphum, and this reflects the respect of nature and belief that a city is a human body and was called *"Wananakorn"* or city of forest (Ongsakul et al., 2005) which represents the value of physical setting of the city.

Furthermore, one of the Lua beliefs is linked to the Doi Suthep (Suthep Mountain), which appears as the backdrop to the west side of the city. According to the Relic stupa of Buddha, the mountain is a location of Wat Phra Tard Doi Suthep (Doi Suthep temple), which is a sacred place for the people of Chiang Mai. Doi Suthep Mountain has therefore become part of the significant cultural landscape of the city with the study of Muangyai and Lieorungruang (2008, p.66) acknowledging Doi

Suthep's interpretative value as: "Doi Suthep Mountain can stimulate people to feel its importance as both a sacred mountain and a great influence and factor for the location of the city of Chiang Mai." Chiang Mai's old city displays considerable cultural landscape significance, which mixes both natural and cultural heritage (figure 2 (d)). Following the importance of urban planning to the sacred mountain belief, Chiang Mai life still reflects the socio-cultural value of "Lanna Wisdom" and embraces the local people with a "Spiritual Identity". However, figure 3 (a, b) illustrates the current situation of Chiang Mai Old City townscape. The visual disharmony appears in every streetscape of the city and disturbs the value of its city's identity. The city is losing its identity due to the lack of concern for townscape characteristics and visual impact assessment of the city.

3.1 The selection of heritage scenes in the study: Chiang Mai Old City, Thailand

These eight key heritage scenes were selected based on their connection between distinctive places in the city following the study of Phetsuriya and Heath (2021). They consist of: the Chedi Luang temple; Pra Singha temple; Three Kings monument; Tha Pare Gate square; and Chiang Mai Old City Moat.

4. Methodology

The research study has applied four methods, which consist of questionnaire; in-depth interviews; PEI (Photo Elicitation Interviews); and the Needle method. The fundamental methods of questionnaires and in-depth interviews were implemented using the PEI and Needle methods.

4.1 Questionnaires and in-depth interviews

Questionnaires are a research instrument which was invented by Sir Francis Galton in the late 18th century, with the aim of collecting information from participants (Roopa & Rani, 2012). This study designed a mixed questionnaire with in-scaled questions (Likert scale), consisting of sixteen questions related to streetscape quality. The in-depth interview is a data collection method that engages participants individually to understand their unique perspectives. It has the advantage of being able to have follow-up questions and also to provide additional information to explain the questions if participants are confused (Brounéus, 2011).

In this study the research used face-to-face interviews with open-ended questions, which involved the PEI and Needle methods.
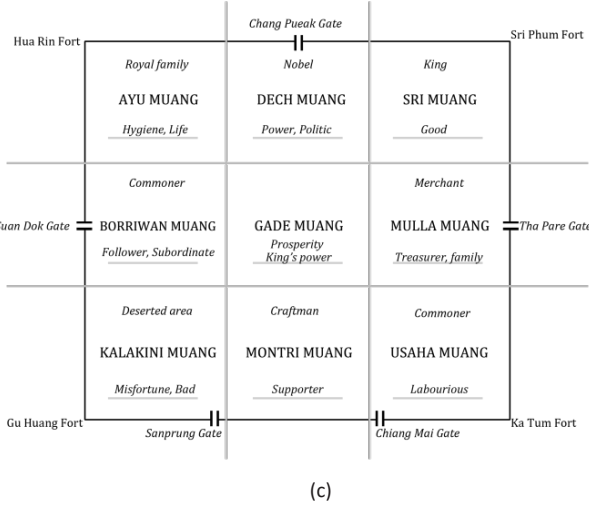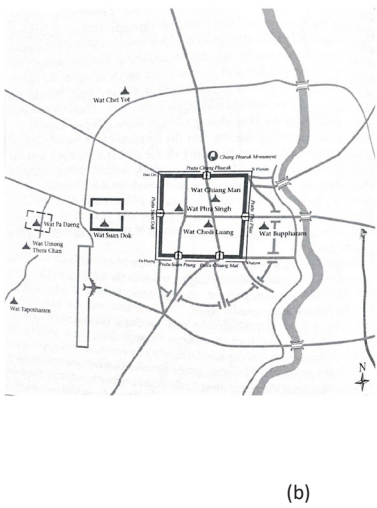
(a)

(b)

(c)

(d)

Figure 2 (a) Chiang Mai location on map. (Author) **(b)** Chiang Mai Old City and its relation to Vieng Suan Dok and Significant temples. (Ongsakul et al., 2005, p. 68) **(c)** "Taksa" the belief of the city as a human body which has influenced on hierarchy of space in the city (Author). **(d)** The scene of urban heritage artifact, Chiang Mai Old City moat and Suthep Mountain (Doi Suthep). (Author)

Figure 3 (a) A commercial sign on the shophouse façades at Chang Pueak gate (Phetsuriya, 2023, p.359) **(b)** A commercial sign on the shophouse façades at Tha-Pare gate square (Phetsuriya, 2023, p.359)

E001

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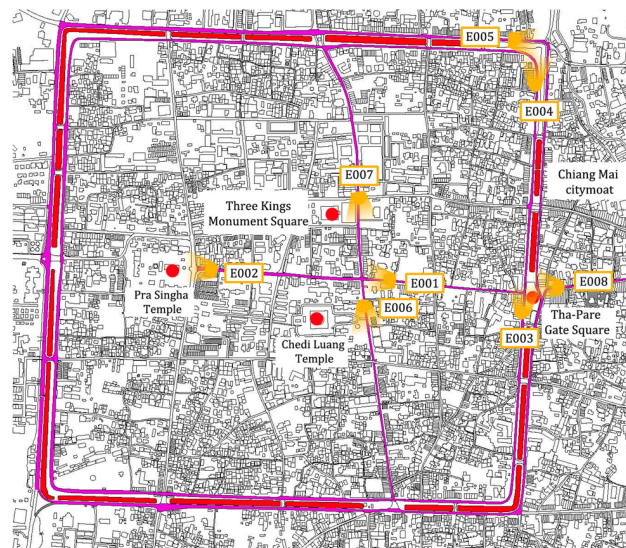**Figure 4** The selection of Eight scenes in the study

Figure 5 The key heritage scenes selected from distinctive places following the study from Phetsuriya (2023, p.288)

4.2 PEI (Photo Elicitation Interviews)

Visual tools have been used for social science research since the 1900s, to enable an understanding of multiple aspects (Heisley & Levy,1991). The use of photographs has increased in social science research applied to the investigation of social groups (Stanczak, 2004) and the use of PEI as a research tool has been significantly enhanced by two sociologists: Haper (1997) and Bank (2001). In ethnographic and social studies research, PEI has been used to invoke comments from participants, to help them express their memories, and contribute to discussions in semi-structured interviews. The structure of the PEI process in this study began with the researcher taking photographs of eight key townscape scenes which relate to distinctive places in Chiang Mai Old City following the study of Phetsuriya and Heath (2021). The pictures were modified using panoramic pictography techniques which increased the accuracy of the picture and the effective data (Shao, 2016).

4.3 Needle Method

Following the study of Shao (2016), the researchers used the needle method mixed with the PEI process to define local identity identification and assessment. Shao mentioned the original concept from Deinet (2009) to describe the identification of objects in the photograph (PEI). The method has been commonly applied in social science research. The concept of the Needle Method focuses on the relationship between participant memories

Figure 6 The example of needle method in this study (Author)

and decision-making. This involves using different coloured needles (pins) or adhesive dots on the picture to indicate places or objects which participant prefers to make significant in each case. Shao's research (2016) also mentions how this contributes to understanding the connections between social spaces from dynamic social and physical aspects in social science research. The Needle Method is suitable for evaluating the visualization of townscape by reflecting on social and cultural dynamics of a scene.

The researchers asked twenty-five respondents to mark the key elements with different colours on eight townscape scenes. These were evaluated from four aspects consisting of: the Historical Value (Yellow); the Social Activities Value (Orange); the Aesthetic value (Pink); and the Spiritual Value (Blue). An electronic device (I-Pad) was used to collect the results and this data collection method effectively enabled the visualization of the choices in the PEI and was also time efficient. However, this method has a limitation on in-depth information available for selecting the elements and it does need interviews after the labeling process to fully understand the decisions taken in making the selections.

4.4 Sample size

Sample sizes in qualitative studies are generally smaller than in quantitative research with qualitative research concentrating on the meaning and analytic process and therefore often more intensive (Mason, 2010). Bertaux (1981) suggests that the smallest number of respondents for a qualitative study is fifteen participants; however, Ritchie et al. (2003) suggested that the number for samples should "lie under fifty". Meanwhile, Morse (1994) suggests that thirty-fifty respondents are needed for interviews, however, in this study it was decided that twenty-five respondents would be recruited on site and eligible respondents who were living in Chiang Mai Old city ,were over eighteen years old

and mix of genders. The estimation of the sample size of respondents in this study was estimated to be between fifteen and fifty respondents because the respondents were recruited during the COVID-19 period, and the data collection process takes more than 40 minutes per person. The interview process asked the respondents about their perception and memory of the eight significant heritage scenes in relation to their distinctiveness and the quality of streetscapes.

This study used mixed methods corporation both quantitative and qualitative research by using questionnaires, needle method, and in-depth interviews. The questionnaire concentrated on defining the physical aspects, social aspects, and the perception aspects that contributed to the quality of the streetscape and heritage value on scenes. The Needle method mainly contributed to the participant's opinions on the socio-cultural values of these townscape scenes and the in-depth interviews focused on the expression of distinctive memories of these townscape scenes.

5. Qualitative results: *PEI, Needle Method, and in-depth interviews*

The PEI method was used to define the socio-cultural values in the significant scenes of Chiang Mai Old City' townscapes through the questions related to participant's memories of these scenes. The eight scenes were located on Radchadumnoen Road, Pra Pokklow road, Tha Pare Road, and Moon Muang Road. The PEI was used to collaborate with the Needle method to highlight the elements on the scenes.

The results revealed that the respondent's' perceptions of the socio-cultural values of the scenes from four aspects consisting of the Historical Value, Social Value, Aesthetic Value, and Spiritual Value. The respondents mostly highlighted the urban heritage artifacts on the scenes in every aspect. Secondly, the religious
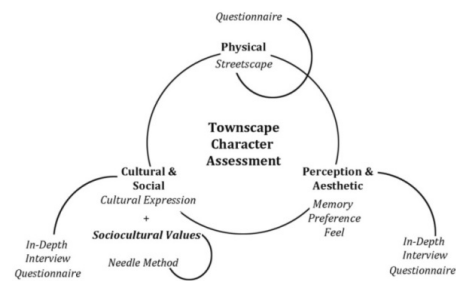

Figure 7 Theory and Analysis Process in this Study (Author)
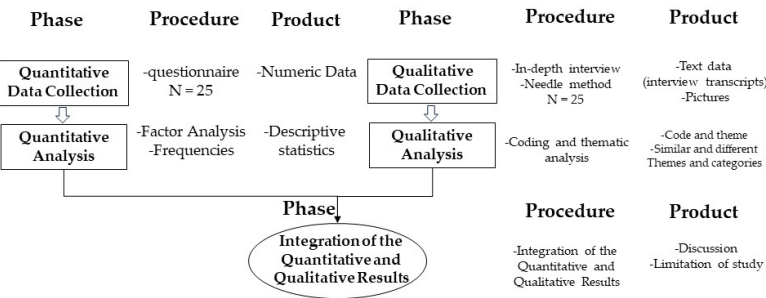
Figure 8 The diagram explains the data collection and analysis process (Author)

	Religious Place	Urban Heritage Artifacts	General Building	Vehicle	Road	Tree
Historical Value	4	11	0	0	1	1
Social Value	2	8	2	2	4	1
Aesthetic Value	4	14	1	0	4	2
Spiritual of Place Value	4	15	0	2	2	2
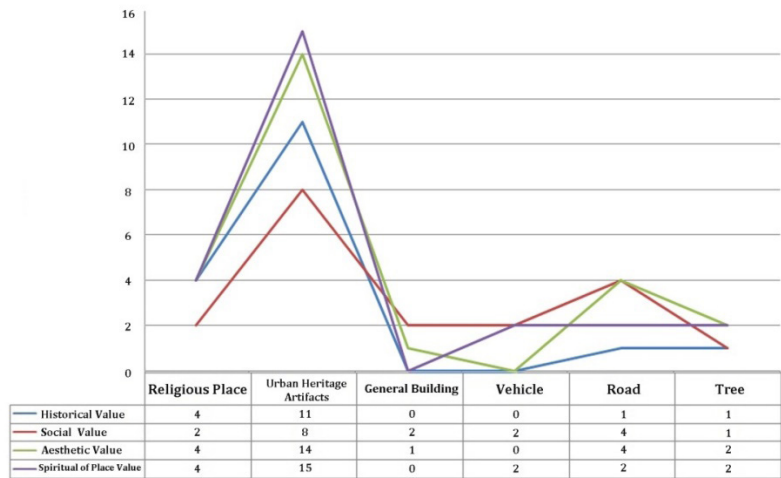
Graph 1 The conclusion of socio-cultural values of the scenes (Author)

places were indicated in every scene, and even if it was obscured by the built environment the respondents could remember the temples from their memories. Roads and trees were also mentioned in all of the values whereas general buildings were only identified in the social activities value and the aesthetic value. Nevertheless, respondents highlighted the vehicles in the scenes related to the social activities value and specifically local people pointed to the "Red Truck" (unique Chiang Mai local transportation) with regards to the spiritual value of the city (Phetsuriya, 2023, p.294).

Historical Value

Twenty-five respondents drew upon their memories of the study sites from diverse perspectives. For example, respondent In-St-F-29-012 mentioned that: *"I have joined the floating lantern parade in November for the Loy-Kra-Tong festival (worship of the goddess of water in the Lunar Calendar Full Moon). It was the first time I wore authentic and priceless Lanna traditional dress and held the light lantern on the parade; such a memorable experience for me."* In-St-M-22-002 described the memory of the Songkran Festival, at Thai New Year and Lanna New Year on 13th April, saying that: *"I can remember since I was young, I spent all day around this road and walked around the Chiang Mai City Moat, enjoyed the festival with friends until now when we have any special cultural occasion. It is held at Tha-Pare Gate Square and parade goes along the road."* (Phetsuriya, 2023, p.295)

To conclude, historical value appears in urban heritage artifacts and the cultural festival events which can be described in social value as well. This defining is relevant to Landry (2002) who described that image of place can be defined from a strong culture and urban characteristics can be defined through cultural activities and 'meaning' to support the identity and value of the city (Phetsuriya & Heath 2021, p.13).

Social Value

Respondents pointed social value in urban heritage attributes and Road. The respondent In-St-F-45-015 described the community event on the road: *"I have joined in walking on the street in the old city every weekend, as it normally is held on Sundays at Radchadumnoen Road and Pra Pokklaow road. I also like to join the lantern decoration art at Three Kings Monument in November."* The participants In-St-F-31-013 and In-St-F-0-018 shared the same experience: "I used to ride a motorcycle through the narrow alleys in the old city; this made me know this place better than the main road because it had a local community hidden in those alleys and it remains their

social life if compared to the outside where all of the buildings are for tourism." Although, In-St-F-31-021 described bonding to the streets by revealing that *"I always meet friends on this street."* (Phetsuriya, 2023, p.296). Road becomes a vital element to express the social value of the streetscape. The expression of respondents can be explained to the study of Yatmo (2008) and Oranratmanee and Sachakul (2014) which mentioned streets in Southeast Asian culture create livability and encourage the growth of social and economic in a community.

Aesthetic Value

In-St-M-65-025 explained the city's cultural attractiveness: *"On the old city's streets were always assembled beautiful cultural and religious parades especially in the Songkran Festival when all of the trees on the streets were in full bloom, the magenta colour of Inthanin tree, and yellow petals in the air in the Summer of the "Lom Lang" flower or Ratchepruek (Cassia fistula)."* Meanwhile, respondent In-St-F-0-009 explained that they were *"reminded of the archaeological sites in the city, they are beautiful and perfectly blended to the city."* Also, one respondant mentioned the cultural landscape in the background of the city with In-St-M-31-014 describing how: *"I joined the walking street on Sunday at Phapokklow road around 6 pm., I could see the sun set behind the Inthakin temple with the shadow of Suthep Mountain, and the light of Suthep temple-mountain induced me to take a moment to look at it."* (Phetsuriya, 2023, p.297). Aesthetic of natural attractiveness related to Todorova et al. (2003)'s study that described the increasing of street quality can be found in the natural appreciation such as street flowers and trees that plays a vital role and influenced the preference on streetscape design and encouraging communities to keep on planting and remaining the greenery of the city.

Spiritual Value

Most respondents revealed a perception of the urban heritage attributes as spiritual value. However, it was not related to the in-depth interview that mentioned positive feelings about places and the uniqueness of Chiang Mai people's personalities. In-St-F-0-009 said: *"The city reminded me of the past when I was joining the Songkran festival; the weather was like a flame in the air, but I had been soaked by water along the way from Tha-Pare Gate to Pra Singha temple."* The participant In-St-M-45-007 mentioned that: "People in this city have a unique personality if compared to other regions; they are always polite and courteous, and I feel comfortable, and

it is safe to walk in this city." (Phetsuriya, 2023, p.297). It can be concluded that spiritual value was involved in social value and aesthetics of places. The diverse streets ability in Chiang Mai can emerge from cultural festivals and monitor social life following the mix used and flexible and multipurpose of streets (Oranratmanee & Sachakul, 2014). Moreover, the aesthetics of the urban landscape also reveal the spiritual value of the historical urban landscape that combines humanity and nature.

6. Quantitative result: *Questionnaires*

The questionnaire asked sixteen questions which were divided into ten sections to describe the quality of the streetscape of the eight scenes. The results are illustrated in graph 2 with E007 being valued highest in every question suggesting that the local people rated this most representative of the streetscape quality of Chiang Mai Old City.
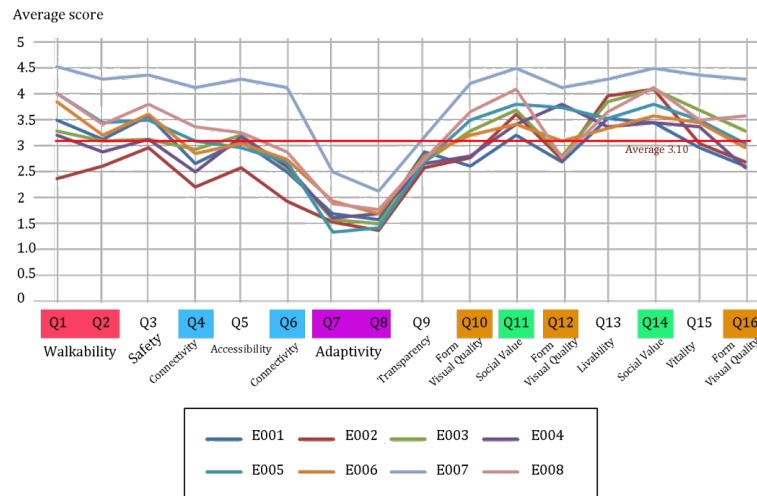
Walkability, Accessibility, Connectivity, Safety, Form and Visual Quality
Walkability *(Q1) The street is clean and well organized. (Q2) I feel satisfied walking on this street.* ***Connectivity*** *(Q4) The street is perfectly connected between each pavement. (Q6) The pavement/space on the street had been designed for universal users. Accessibility (Q5) I can easily access the pavement. Safety (Q3) I feel safe walking on this street. Form and Visual Quality (Q10) It has an attractive landscape. (Q12) The streetscape is green and shady (Q16) The façade design represents the historical value related to the streetscape.*

Respondents were mostly satisfied with the walkability aspect of scene E007 (Q1= 4.52, SD= 0.58) (Q2= 4.28, SD= 1.10), which is a central urban space of the city. The Three Kings Monument Square is the most satisfying place to walk and with easy access to the pavement. However, most participants felt uncomfortable in terms of walking and access to the pavement in the E002 scene (Q1= 2.36, SD= 1.46),

(Q2= 2.60, SD= 1.63), (Q4= 2.20, SD= 1.41), (Q5= 2.56, SD= 1.44). This is the end of the Radchadumnond Road, and it leads to the significant religious place that is a nominated site in the Chiang Mai Heritage dossier. The pavement in E002 is crowded with people and vehicles and it is a significant point for tourists and local people. Most buildings along the street have been changed from private residences

Table 2 The conclusion of quality of streetscape scenes (Phetsuriya, 2023, p.298)

Pic / Question no.	E001	E002	E003	E004	E005	E006	E007	E008
Q1	3.48	2.36	3.28	3.20	4.00	3.84	4.52	4.00
SD.	1.12	1.46	1.33	1.00	0.95	0.98	0.58	0.81
Q2	3.12	2.60	3.08	2.88	3.44	3.20	4.28	3.40
SD.	1.20	1.63	1.35	1.20	1.26	1.15	1.10	1.00
Q3	3.56	2.96	3.12	3.12	3.48	3.60	4.36	3.80
SD.	1.12	1.56	1.61	1.20	1.22	1.15	0.75	0.86
Q4	2.64	2.20	2.92	2.48	3.08	2.84	4.12	3.36
SD.	1.35	1.41	1.32	1.15	1.32	1.21	0.97	1.15
Q5	3.08	2.56	3.20	3.16	2.96	3.04	4.28	3.24
SD.	1.32	1.44	1.19	1.06	1.27	1.51	0.84	1.09
Q6	2.48	1.92	2.56	2.60	2.68	2.72	4.12	2.88
SD.	1.26	1.32	1.41	1.19	1.31	1.33	1.12	1.30
Q7	1.68	1.52	1.56	1.60	1.32	1.92	2.48	1.88
SD.	1.10	1.15	1.19	1.04	1.02	1.38	1.58	1.45
Q8	1.56	1.36	1.48	1.68	1.40	1.68	2.12	1.76
SD.	1.12	1.15	1.12	1.02	1.19	1.43	1.58	1.42
Q9	2.88	2.56	2.68	2.64	2.68	2.80	3.16	2.72
SD.	1.09	1.12	1.10	1.03	1.31	1.32	1.40	1.1
Q10	2.60	2.76	3.28	2.80	3.48	3.20	4.20	3.64
SD.	1.11	1.23	1.13	1.15	1.15	1.25	1.00	1.22
Q11	3.20	3.60	3.68	3.40	3.80	3.40	4.48	4.08
SD.	1.11	1.41	1.02	0.91	0.81	1.19	0.58	0.99
Q12	2.68	2.72	2.80	3.80	3.72	3.08	4.12	2.76
SD.	1.14	1.27	1.19	1.08	1.20	1.15	1.16	1.12
Q13	3.52	3.96	3.84	3.36	3.52	3.32	4.28	3.64
SD.	1.19	0.97	1.06	1.18	1.04	1.14	0.89	0.99
Q14	3.44	4.08	4.08	3.44	3.80	3.56	4.48	4.12
SD.	1.15	1.25	0.95	0.82	0.81	1.22	0.65	1.01
Q15	2.96	3.04	3.68	3.36	3.48	3.44	4.36	3.48
SD.	1.05	1.33	1.24	0.95	1.08	1.08	0.70	1.04
Q16	2.60	2.68	3.28	2.56	3.04	2.96	4.28	3.56
SD.	1.11	1.34	1.24	1.32	1.33	1.27	1.17	1.29

Average score

Graph 2 The conclusion of quality of streetscape (Phetsuriya, 2023, p.299)

to hotels, shops, convenience shops, spas, and education institutes. The accessibility aspect can be described following local people's perception of E007 the most, which scored (Q5 = 4.28, SD= 0.84). They identified that the pavement and public space is easier to access than E002 (Q5= 2.56, SD= 1.44). Most local people agreed that the connectivity aspect was shown in E007 (Q4 = 4.12, SD= 0.97, Q6= 4.12, SD= 1.12) and less in E002 (Q4= 2.20, SD= 1.41, Q6 = 1.92, SD= 1.32). It can be assumed that people can see the improved space and streetscape clearly in E007. People also feel safe in E007 (Q3= 4.36, SD= 0.75) and less safe in E002 (Q3 = 2.96, SD= 1.56). On the form and visual quality, respondents rated E007 with the highest score, which included the most attractive landscape (Q10 = 4.20, SD= 1), the greenest and shady streetscape (Q12= 4.12, SD= 1.16), and the façade of the scene mainly representing the historical value of the city (Q16 = 4.28, SD= 1.17). Contrastingly, E001 scored lowest in terms of the attractive landscape and green aspects (Q10= 2.60, SD= 1.11, Q12= 2.68, SD= 1.14). Moreover, E004 was rated as the lowest in terms of how the façade represented the historical value.

Transparency, Livability, Vitality and Adaptivity
Transparency (Q9) I can easily access the shops along the street. **Livability** (Q13) I have a social life integrated with this street. **Vitality** (Q15) I feel engaged with the streetscape. **Adaptivity** (Q7) I think everyone can use the street for commercial purposes. (Q8) I think everyone can use the pavement for commercial purposes.

Scene E007 again scored highest in terms of the transparency, livability, vitality, and adaptivity aspects (Q9 = 3.16, SD= 1.40, Q13= 4.28, SD= 0.89, Q15= 4.36, SD= 0.70, Q7= 2.48, SD= 1.58, Q8=2.12, SD= 1.58). However, in relation to the adaptivity aspect, respondents gave scores below the average, with respondents reacting negatively to the commercial functions and pavement in every scene. However, E002 was rated lowest (Q9= 2.56, SD= 1.12) in the transparency aspect, and E004 in terms of the lack of social life integrated to the people (Q13= 3.36, SD= 1.18). Respondents also did not feel engaged when walking in E001 (Q15= 2.96, SD= 1.05), whilst the adaptivity of the street and pavement to commercial purposes was rated the lowest for E005 (Q7= 1.32, SD= 1.02) and E002 (Q8= 1.36, SD= 1.15).

Social Value
(Q11) The streetscape reflects the value of history in Chang Mai Old City. (Q14) I consider the socio-cultural value of this street to reflect the value of Chang Mai Old City.

E007 was achieved the highest score on both questions, with the values of history (Q11= 4.48, SD= 0.58) and socio-cultural value (Q14= 4.48, SD= 0.65) both clearly demonstrated in this scene. Contrastingly, E001 recorded the lowest in terms of both the social value (Q11= 3.20, SD= 1.11) and the socio-cultural value (Q14= 3.44, SD= 1.15).

Physical	Cultural / Social		Perception / Aesthetic			Sociocultural Value			
Streetscape	Cultural Expression	Social Activities	Sight	Memories	Feeling	Historical Value	Social Value	Aesthetic Value	Spiritual Value
-Walkability Accessibility Connectivity Transparency Safety Livability Vitality Diversity Adaptivity Creativity Form and Visual quality	Religious activities and festivals	Use urban space for meeting friend and gathering for cultural activities.	- Local plant on streets Archeology sites	Positive memories to the streets and mostly related to everyday life of local people which tied with religion and cultural activities	Positive feeling on local people and the streets. Negative feeling on direction on the city.	- Urban heritage artifacts -Religion places	- Urban heritage artifacts -Religion places -Road -Vehicle -General building -Tree	- Urban heritage artifacts -Religion places -Tree	- Urban heritage artifacts -Religion places -Tree
E007	-Song Kran, -Inthakin, -Floating lantern	Community gathering for cultural activities	Inthanin flower Ratcha-pruek flower	Make merits at temples	People with a nice personality				

7. Discussion

The results revealed that most local participants agreed that scene E007 represented the archetype of Chiang Mai Old City's streetscape quality regarding the physical aspects. According to E007, streetscapes have been improved by architects who are concerned with the connection of spaces aesthetic of the place, and it is still used for cultural and religious activities of Three Kings Monument Square and the former city court, which has been changed to the local museum on the other side of the square. Furthermore, it has been improved in designing public spaces to prepare for the nomination process to UNESCO since 2015 by famous Thai architects (Prachatum, 2021). It is relevant to the study of Eliciting cultural heritage values: Landscape preferences versus representative images of the city by Ginzarly and Teller (2018), which mentioned that the most preferred urban space photo needs to be designated by a designer that represents the quality of open space. Comparatively, to the Chiang Mai locals who participated in this research, their perception indicated the strengths of scene E007 from every aspect; however, this was not stated as a nominated heritage site. It can be assumed that the participants chose the scene that mainly reflected the space's visual quality and streetscape.

Regarding the adaptivity aspect that focused on the commercial activities on streets and pavement, there was no consensus regarding the local people's opinions. Many studies have described the significance of the street as a place of commercial activity. For example, Allison et al. (2021) examined mobilizing the streets: the role of food vendors in urban life, which contrasts with the results from the adaptivity section in the research presented in this paper. Allison et al. (2021) mentioned that streets provide temporary practice toward commercial density that supports livelihood for the community. Also, Yatmo (2008) explained that in Southeast Asian culture, the street market is a regular urban phenomenon with mobility and flexibility characteristics. These outcomes contrast with the results of

this study. Even though the advantage of the commercial activities in supporting the community is a part of a livable city, the participants revealed that the commercial activities on the street disturbed the visual perception in each of the eight heritage scenes. Also, they suggested that they preferred a permanent place for commercial activity rather than temporary spaces and the inherent problems that arose. Furthermore, Oranratmanee and Sachakul (2014) study is relevant in that it mentions the significance of streets in Southeast Asia and the city's socio-economic development growth. However, the study pointed to the possible over-consumption of space and the over-proliferation of commercial activities on streets due to the higher demand, alongside a lack of awareness and control from the local authorities.

The respondents in this research can recall memories of religious festivals along the streets for each scene in the cultural expression and social activities sections. They agreed that religious festivals are a magnet for community assembly relevant to the history of Chiang Mai. They also mentioned the Three Kings Monument Square as a significant urban space for local ritual and as the gathering place for religious occasions and festivals (Ongsakul et al., 2005; Phetsuriya & Heath, 2021). Perry et al. (2020), research also highlights that festivals represent a transformative role and capability to contribute to unique cultural identities. Indeed, drawing upon the memories of local participants reveals that festivals contribute significant intangible value to the city's street scenes. The spiritual value and aesthetic values of the participants also revealed three significant elements: the flower petals, religious activities, and people's personalities.

Interestingly, Kim et al. (2021) also identify that city street trees contribute various benefits and are most accessible to citizens' perception. Significantly, trees contribute a high emotional component that stimulates positive emotions. The Inthanin flowers and Ratcha-pruek flowers (local species of trees) can positively affect people and positively represent the aesthetics of the urban visual characteristics. Regarding feelings, it is relevant to consider the Chiang Mai people's opinions on the Old City's personality. Interestingly, Kluckhohn and Mowrer (1944) study "Culture and Personality: A Conceptual Scheme" mentioned the definition of personality as an individual's "social stimulus value" based on research by May (1930). The researchers suggested that there was a difficulty with the statement and suggested that "communal personality" and "social character" described the components of personality in a biological, cultural, social, and physical environment. As such, identifying local people's personality in Chiang Mai Old City reveals the community's social character and communal personality. The most significant part of this study is the socio-cultural value, which analyses the historical, social, aesthetic, and spiritual values of the Old City. Socio-cultural value has been found chiefly in urban heritage artifacts and religious places in the city. The results related to Mason (2002, p.11) research, which explained that socio-cultural values are at the traditional core of conservation. Indeed, values are attached to an object, building, or place because they hold meaning for people or social groups due to their age, beauty, artistry, or association with a significant person or event or (otherwise) that they contribute to processes of cultural affiliation.

Conclusion

Respondents mostly felt engaged with the E007 and referred to cultural activities and festivals in cultural and social sections. It is relevant to their memories that remind the religious activities in the perception section. Moreover, the color of the local flower and local people's personalities are also attached to participants feeling. Finally, the urban heritage artifacts on every scene could reveal the city's socio-cultural value. The characteristics of this city's historical townscape have been utterly hidden in the people's memory rather than in the physicals that appeared in the sample pictures. It could be assumed that local people recognized the socio-cultural value of each streetscape scene through their personal experiences.

The research study has presented an implementation of how to define a townscape character of Chiang Mai Old City by using social science methodology. This has been informed from an architectural perspective regarding an urban and architectural study that can aid relevant policy development, community plans, infrastructure plans, a project design brief, a visual impact assessment, and place-making. Furthermore, it supports mixed-method development in social science research, consisting of questionnaires, in-depth interviews, PEI, and the Needle method.

Moreover, the suggestion for an appropriate Townscape Character Assessment Policy for Chiang Mai Old City identified by this study suggests the need for close interaction between local people, developers, academics, the Chiang Mai Heritage team, and local authorities. This level of engagement would enable appropriate and sustainable planning to carefully define the heritage in both the nominated places and the historic urban landscape, which includes significant townscape, visual, and streetscape scenes. Comparatively, the townscape character assessment methodology results are

supplemented by several other studies on the procedure identified in this paper. However, townscape character assessment also requires participation from multiple disciplines, such as geology, engineering, ecology, and agriculture. Moreover, this implementation's contribution is to propose a townscape character assessment for any historical cities with townscape visual issues or that remain in the nominating process as World Heritage sites.

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