SINEKTIKA Jurnal Arsitektur

p-ISSN: 1411-8912
e-ISSN: 2714-6251
http://journals.ums.ac.id/index.php/sinektika

IDENTIFICATION OF THE ECLECTIC IDENTITY OF ARCHITECTURAL DIVERSITY THROUGH COGNITIVE MAPPING TO SHAPE THE IMAGE OF THE AREA AND THE BUILT ENVIRONMENT ON BANGKA ISLAND

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History of the manuscript:
Manuscript submitted May 26, 2025
Final manuscript accepted January 17, 2026

ABSTRACT
Globalization poses a risk of homogenizing urban architectural identities, threatening cities with eclectic heritage such as Pangkalpinang, which reflects the acculturation of Malay, Chinese, and Colonial cultures. This study aims to identify the physical elements that shape the city image through a cognitive mapping method validated quantitatively. Using a sequential exploratory mixed-method design, the research begins with a qualitative stage involving participatory mapping to identify urban elements based on Kevin Lynch's theory (path, edge, district, node, landmark). This stage is followed by a quantitative interactive survey using GeoGuessr involving 50 respondents to measure the accuracy of spatial perception. The findings indicate that landmarks and nodes have the highest levels of spatial recognition, serving as key cognitive anchors for the community. In contrast, paths and edges show more fragmented perceptions and lower accuracy levels. This research contributes a new, more objective methodology for interpreting the city image and provides empirical data applicable to the development of urban design guidelines and heritage preservation strategies based on collective perception.

KEYWORDS: city image, geoguessr, architectural identity, cognitive mapping

*Globalisasi berisiko menyeragamkan identitas arsitektur kota, menjadi ancaman bagi kota dengan warisan eklektik seperti Pangkalpinang, yang memiliki akulturasi budaya Melayu, Tionghoa, dan Kolonial. Penelitian ini bertujuan untuk mengidentifikasi elemen fisik pembentuk citra kota melalui metode pemetaan kognitif yang divalidasi secara kuantitatif. Menggunakan desain metode campuran sekuensial eksploratoris, penelitian diawali dengan tahap kualitatif melalui pemetaan partisipatif untuk mengidentifikasi elemen kota berdasarkan teori Kevin Lynch (*path, edge, district, node, landmark*). Tahap ini dilanjutkan dengan survei kuantitatif interaktif berbasis Geogussr yang melibatkan 50 responden untuk mengukur akurasi persepsi spasial. Hasil penelitian menunjukkan bahwa elemen* landmark *dan* node *memiliki tingkat pengenalan spasial tertinggi, berfungsi sebagai jangkar kognitif utama bagi masyarakat. Sebaliknya, elemen* path *dan* edge *menunjukkan persepsi yang lebih terfragmentasi dengan tingkat akurasi yang lebih rendah. Penelitian ini menyumbangkan sebuah metodologi baru yang lebih objektif dalam membaca citra kota dan menghasilkan data empiris yang dapat diaplikasikan dalam penyusunan panduan rancang kota serta strategi pelestarian warisan arsitektur yang berbasis persepsi kolektif.*

KATA KUNCI: *citra kota, geogussr, identitas arsitektur, pemetaan kognitif*

INTRODUCTION

Globalization and modernization, guided by the principles of construction efficiency and practicality, have led to the homogenization of settlement forms and the built environment across various regions of Indonesia. This condition has contributed to the loss of local characteristics that once served as distinctive cultural identities of each region. The standardization of architectural forms and styles risks eroding the richness of cultural identity, even though such richness is now recognized as one of the key assets in promoting culture-based economic growth.

This phenomenon is also observable in the Bangka Belitung Islands Province, particularly in the city of Pangkalpinang. Although the city possesses a culturally diverse background including Malay, Chinese, European influences, and elements of contemporary architecture the spatial identity of the area tends to fade. The potential of cultural heritage, such as the Malay architectural style, is not significantly reflected in current spatial expressions. Several traditional Malay residential areas also exhibit identity ambiguity (Aufia & Saputra, 2021). Therefore, efforts to reaffirm the urban identity of Pangkalpinang are of critical importance.

This study was conducted using a participatory approach, involving academics, professionals, and architecture students in identifying physical objects (such as buildings, monuments, and streets) in the city of Pangkalpinang based on specific architectural styles. These styles were then examined within the framework of Kevin Lynch's elements of city image, namely paths, edges, districts, landmarks, and nodes. In addition, public perception of these elements was also used as a basis for assessing the strength of architectural identity within an area.

City image is a mental representation formed through visual, emotional, and social experiences of the urban physical environment. (Al Fatih, Hasanah, Taufiq, & Purwantiasning, 2022) state that a strong city image enhances the public's ability to understand and navigate space, while also reinforcing a sense of belonging to that place. In the context of planning and design, a distinctive city image also offers a competitive advantage on a global scale, attracts tourists, and strengthens local identity (Marful, Adzah, Nunoo, Duah, & Anane-Antwi, 2023; Rehan, 2014).

The concept of city image is closely linked to the approach of regionalism in architecture. Regionalism highlights local values and the context of place as the foundation of design, serving as a response to the threat of global homogenization (Audilia & Kurniawan, 2022; El Zeini, 2017). Critical Regionalism, as articulated by (FRAMPTON, 2016), further emphasizes the necessity of resisting generic architectural forms by fostering spatial experiences rooted in local culture and tectonics (Dharmatanna, 2023). In this way, regionalism functions both as an expression of collective identity and as a strategy for cultural sustainability.

In this context, a relationship also emerges between regionalism and the concept of eclecticism. Eclecticism in architecture refers to a style formed by the selective combination of elements from various periods and places. The eclectic process enables the creation of a new architectural identity that represents the cultural synthesis present within a region (Enab, 2018; Florenza ; Bachtiar Fauzy, 2018). T In the city scale, the eclectic combination of various building styles which were engrafted in one area bring forth the symbolic meaning through the thought associated with each style, conveying elements and value in the city form (Meeks, 1953). Therefore, the dynamic eclectic identities in the spatial structure may exude various cues such as color, shape, touch, and other sensation that shape the legibility of the city, an important part for the inhabitant to recognize the image of their environment and intensify the human experience (Lynch, 2014).

Physical objects such as buildings, streets, and urban open spaces in Pangkalpinang were categorized according to specific architectural styles (Malay, Colonial, Chinese, Contemporary), and subsequently mapped based on Lynch's five elements. To understand how the public recognizes and evaluates these objects, a cognitive mapping approach was employed.

Cognitive mapping, or mental maps, was introduced by (Tolman, 1948) and further developed by (Lynch, 2014), referring to the way individuals organize and store spatial information in their minds. With the growing information technology, the emergence of Google Street View (GSV) present a practical methods in expanding the discussion of mental map whether by helping the retrieval process of spatial knowledge from visual experiences, stimulating the spatial cognition through the wayfinding process, and even aiding the production of mental map by stimulating the user's indexicality and habitual perception (Gilge, 2016). In this study, the GeoGuessr application was used as a tool that presents Google Street View (GSV) imagery to guess a location based on spatial visual memory (Berners-Lee, 2023; Chen, 2023).

GeoGuessr served as an experimental instrument to test the strength of public perception toward the urban elements of Pangkalpinang in a participatory and interactive manner. While initially Geoguessr is an online game to test the user's knowledge of existing geographic features by calculating the accuracy of geotag with the provided GSV imagery, this research believe that such quantification and gamification mechanism might fill the gap on cognitive mapping

and spatial identity research which often limited by the logistic cost for direct observation and the quantity of the respondents for constructing the collective memory.

Various previous studies on city image and spatial identity have employed Lynch's theoretical framework and Frampton's concept of regionalism to understand people's attachment to urban space. However, the integration of these approaches with participatory digital mapping tools such as GeoGuessr remains rare in the context of Indonesian cities. This indicates an opportunity to further develop approaches that combine spatial understanding, visual experience, and real-time public responses to the physical elements of the city.

With this approach, the study positions itself within the framework of architectural identity and city image research, utilizing participatory and technology-based methods. The aim of this research is to reveal the architectural elements and styles most strongly embedded in public perception, which can serve as a foundation for formulating strategies for the preservation and reinforcement of Pangkalpinang's urban identity.

METHODS

This study employs a sequential exploratory mixed-method design, combining exploratory qualitative methods with descriptive quantitative analysis. This approach was chosen to understand the public's patial perception of the spatial elements that shape the identity of an area, while also measuring the accuracy of the collectively formed city image. In the context of architectural heritage and historic district analysis, this method operates at the stages of description and interpretation, where the public is actively encouraged to express the character, significance, and evaluation of an area through prepared participatory media (Reinar & Westerlind, 2010).

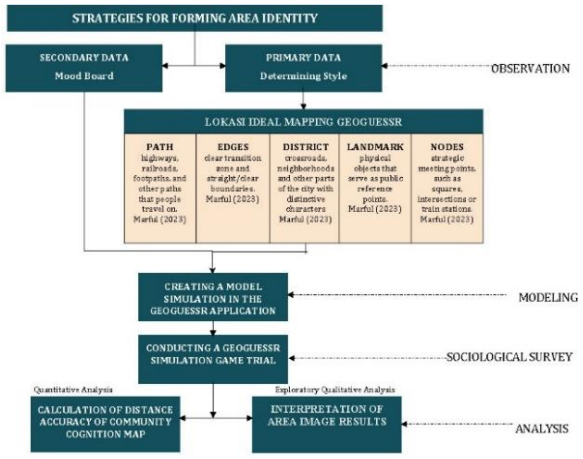


Figure 1. Research Framework
(Source: Author's Document, 2024)

Qualitatively, the study was conducted through observation of the city's physical elements, collection of visual data in the form of architectural style mood boards, and the development of a digital simulation using the GeoGuessr application. This application utilizes Google Maps Street View imagery to present random location visuals, which participants then guess as a form of spatial perception experiment (Girgin, 2017). GeoGuessr was selected as an interactive medium that enables the public, particularly the residents of Pangkalpinang, to actively engage in assessing the city image in an intuitive and visual manner. During implementation, public participation was gathered through a sociological survey to capture responses to the simulation.

Table 1. GeoGuessr results to Lynch's five elements of the city image

Lynch Element	Location Characteristics	GeoGuessr Result Criteria
Landmark	Single object, external reference point, iconic	**High accuracy, low distance deviation**. Recognized as a specific object.
Node	Strategic meeting points, intersections, or active public spaces.	**High accuracy,** often recognized as a "center" or "intersection"
District	Areas with recognizable homogeneous characteristics.	**Moderate accuracy,** respondents recognize the "atmosphere" or general character of the area, not a specific point.
Path	Route or path of movement (road, alley)	**Accuracy varies (tends to be low),** recognition depends on visual sequences along the path. **High distance deviation.**
Edge	Linear boundary between two areas, separator	**The lowest accuracy,** often recognized as the "limit" or "edge," is not the goal. **The distance deviation is very high.**

(Source: Author's Analysis, 2024)

This study takes Pangkalpinang City as a case study because it has a diverse cultural background yet has experienced a crisis of spatial identity over the past few decades. The selection of objects was based on the identification of architectural styles (Malay, Colonial, Chinese, and Contemporary) distributed across urban spaces. The data collection process in this

study included direct observation of buildings and urban areas, as well as the involvement of 50 respondents in a specially designed GeoGuessr simulation referring to representative locations. Respondents were selected using purposive sampling (Campbell et al., 2020), with the main criterion being that they were local residents of Pangkalpinang who had lived there for at least five years.

This consideration was made to ensure that respondents had adequate spatial knowledge and daily experience of the urban environment. The respondent profiles consisted of various professional backgrounds (non-architects) and ages ranging from 20 to 50 years old, so that the perceptions gathered truly represented the general public, not just experts. Primary data was obtained through respondent participation in simulations and surveys, while secondary data was collected from visual documentation and literature related to local architectural styles. This approach is important because the image of a city is essentially formed from the collective perceptions of its residents in their daily lives.

With this method, it is expected to obtain a cognitive map illustrating how strongly certain physical objects shape the collective image of Pangkalpinang City in the public perception. Ultimately, the results of this analysis will contribute to efforts to strengthen the city's visual identity and preserve architectural elements that hold symbolic and historical value for the local community.

RESULTS AND DISCUSSION

This study analyzes residents' perceptions of the elements that shape the city image of Pangkalpinang based on Kevin Lynch's approach. Data were obtained through a GeoGuessr simulation and analyzed using three main parameters: location accuracy, guess distance, and game score. The city image was then examined through five primary elements—landmark, path, district, node, and edge—and correlated with the dominant architectural styles (Malay, Chinese, Colonial, and Contemporary).

Landmark

The analysis results show that landmark elements with Malay architectural style, such as Masjid Jami, have the highest level of identification by respondents, with an average accuracy of 4.8, an average guess distance of 23.1 meters, and an average game score of 4.7 (Figures 3 & 4). These findings indicate that Malay elements are strongly embedded in the spatial memory of the community, reflecting ease of recognition as well as close perception of location. The higher the accuracy and game score values, the easier the landmark is recognized; meanwhile, the smaller the average guess distance, the stronger the element is anchored in the community's mental map.

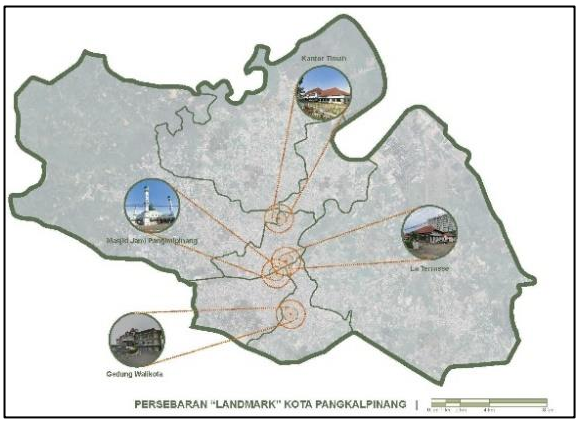


Figure 2. Collection of Physical Objects Based on Architectural Style According to the Group of Physical Elements: Landmarks.
(Source: Author's Document, 2024)

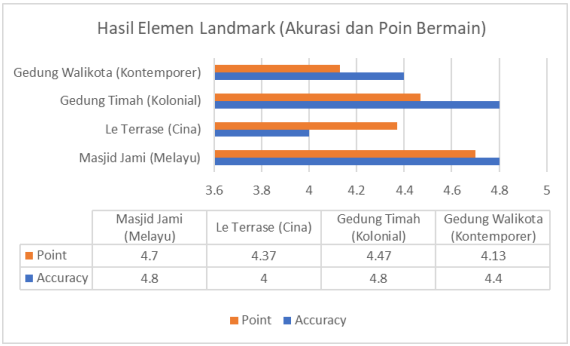


Figure 3. Average Accuracy and Game Score of Respondents Based on Landmark Physical Elements Across Four Architectural Styles in Pangkalpinang.
(Source: Author's Document, 2024)

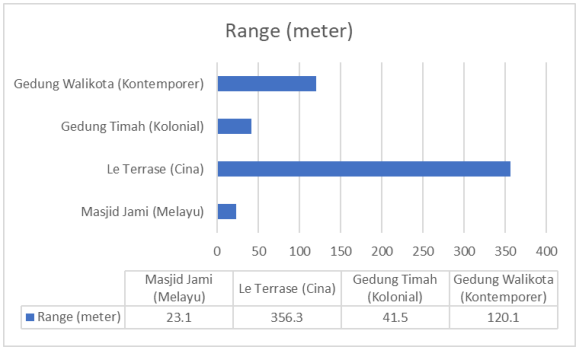


Figure 4. Average Distance (Range) of Landmark Elements Based on Four Architectural Styles in Pangkalpinang
(Source: Author's Document, 2024)

Colonial-style landmarks, such as Gedung Timah, exhibit a similar pattern, with an accuracy of 4.8, an average guess distance of 41.5 meters, and an average game score of 4.47. This confirms the significant contribution of colonial elements in shaping the city's visual perception and historical value, presenting a rich

historical narrative that continues to live in the community's collective memory.

Conversely, Chinese-style landmarks, such as Le Terrasse, recorded a lower recognition level with an accuracy score of 4.0, despite having the farthest average guess distance of 356.3 meters and an average game score of 4.37. This phenomenon indicates visual recognition without a strong spatial understanding, creating a kind of psychological distance in the community's relationship with these elements.

Meanwhile, contemporary-style landmarks, such as the City Hall building, have an accuracy of 4.4, an average guess distance of 120.1 meters, and the lowest average game score of 4.13. This indicates that although contemporary buildings are fairly well recognized visually, they have yet to fully establish a strong bond in the collective perception of the community, unlike older buildings that carry rich historical significance.

These findings reveal an interesting dynamic in the community's perception of city landmarks. Masjid Jami and Gedung Timah not only stand out numerically but also carry profound symbolic meaning. These buildings serve as historical anchors, markers of time that whisper stories of the past to the present generation. They are not merely physical forms; they are living memories. In contrast, Le Terrasse presents an irony: although visually recognized, it still feels distant, both in physical proximity and within the community's mental map. There is a spatial dissonance that makes it less integrated into collective awareness. Meanwhile, the City Hall, representing contemporary architecture, teaches us that modernity is not immediately embraced as a city identity. The newer a building is, the longer it may take to firmly root itself in public memory.

From the perspective of architecture and urban planning, these results offer an important lesson: the design of landmarks is not merely a matter of visual aesthetics but must also consider the depth of historical and cultural meaning. Physical elements that succeed as strong landmarks are those capable of uniting form, function, and cultural symbolism, thereby "speaking" to the community, telling stories, and building an emotional bridge. For the development of Pangkalpinang, these findings can serve as a foundation for formulating strategies to preserve historic buildings while simultaneously strengthening the local architectural identity. Contemporary buildings, although modern, need to be designed with sensitivity to the city's narrative so they can be embraced as part of its future heritage. Thus, the city not only grows physically but also evolves as a meaningful space for its inhabitants.

Path

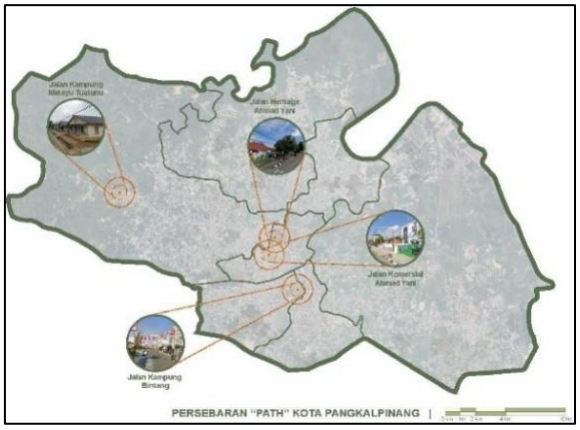


Figure 5. Collection of Physical Objects Based on Architectural Style According to the Group of Physical Elements: Path.
(Source: Author's Document, 2024)

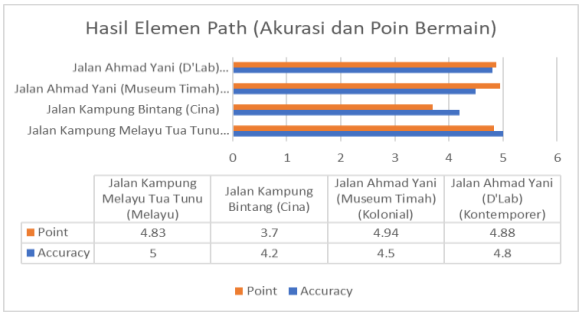


Figure 6. Average Accuracy and Game Score of Respondents Based on Physical Element 'Path' Across Four Architectural Styles in Pangkalpinang.
(Source: Author's Document, 2024)

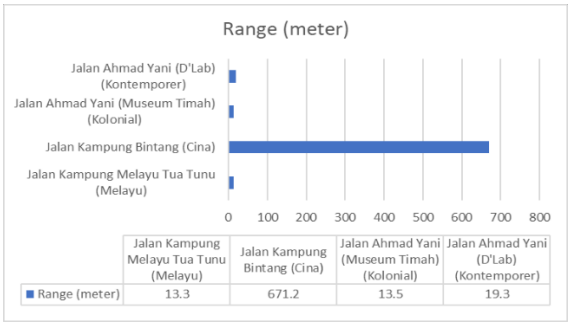


Figure 7. Average Distance (Range) of Path Elements Based on Four Architectural Styles in Pangkalpinang.
(Source: Author's Document, 2024)

The analysis of the path elements in the mental map of Pangkalpinang residents reveals an interesting pattern regarding the influence of architectural styles on recognition and spatial memory. Roads featuring traditional Malay architectural styles, such as Jalan Kampung Melayu Tua Tunu, recorded the highest accuracy of 5, with an average recognition distance of only 13.3 meters and a game score of 4.83 (Figures 6 & 7). These findings indicate how deeply traditional

Malay paths are embedded in the collective memory of the community. The higher the accuracy and score values, the easier the path is recognized and the stronger its spatial proximity in public perception.

These findings reveal that accuracy (the higher, the better) and distance (the closer, the better) are the main indicators in the recognition of paths on an individual's mental map. Paths with Malay and Colonial styles prove to be more dominant in shaping the community's spatial perception due to their longstanding presence, deep historical ties, and rich cultural significance. They act like red threads that bind space, time, and local identity together.

Conversely, paths with Chinese and Contemporary styles tend to face challenges in strengthening this sense of spatial proximity. Although the Chinese style has a long historical root, it appears to be less integrated into the dominant collective narrative shaping the city's spatial perception, creating a gap that is difficult to bridge. Meanwhile, contemporary paths, despite being more visually recognizable, lack sufficient historical depth to significantly influence the community's cognitive maps.

From an urban planning perspective, these findings offer an important reflection: efforts to enhance the community's spatial understanding are not sufficient by merely improving physical elements, but also require strengthening the narratives and meanings behind these paths. Integrating cultural, historical, and local identity elements is key for new pathways to be accepted, remembered, and ultimately enlivened within the collective memory of the city's residents.

District

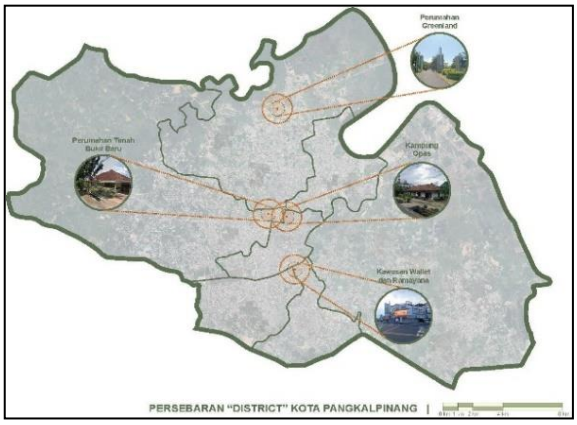


Figure 8. Collection of Physical Objects Based on Architectural Style According to the Group of Physical Elements: District.
(Source: Author's Document, 2024)

A detailed analysis of the district element reveals that the Kwan Tie Miau area, representing Chinese architecture, possesses a very strong spatial identity within the collective perception of the community. This is reflected in an accuracy score of 4.6, the highest game score of 5, and a very short recognition distance of only 8 meters (Figures 5 and 6). The combination of these factors indicates that the visual elements and the functional role of the district are deeply embedded in the residents' awareness, demonstrating a significant cultural attraction. In other words, Kwan Tie Miau is not merely a district but also a symbol that stands out in the community's mental map, like a beacon of memory standing firm amid the currents of everyday experience.

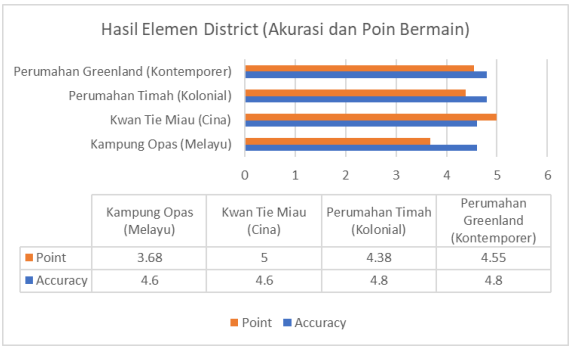


Figure 9. Average Accuracy and Game Score of Respondents Based on the District Physical Element Across Four Architectural Styles in Pangkalpinang.
(Source: Author's Document, 2024)

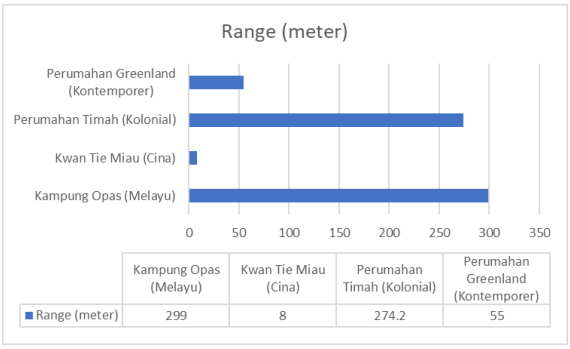


Figure 10. Average Distance (Range) Graph of Path Elements Based on Four Architectural Styles in Pangkalpinang.
(Source: Author's Document, 2024)

On the other hand, the Malay-style area, such as Kampung Opas, recorded an accuracy of 4.6, a game score of 3.68, and a significantly larger recognition distance of 299 meters. This indicates an emotional distance and weaker perception, as if the identity of the area is gradually fading beneath the layers of urban development. Meanwhile, the Colonial-style Timah Housing recorded an accuracy of 4.8, a game score of 4.38, and a recognition distance of 274.2 meters, good results but still less dominant compared to the Chinese or Contemporary style districts. This phenomenon underscores that visual influence and historical significance do not always follow a linear relationship;

perceptual distance can sometimes weaken the city's image despite the area's considerable architectural potential.

Figures 9 and 10 reinforce this interpretation by demonstrating that the strength of a district's identity is strongly influenced by three main factors: accuracy, distance, and game score. The higher the accuracy and score, the stronger the district's impact in shaping the community's mental map. Conversely, the greater the recognition distance, the weaker the district's image strength in the residents' minds. Thus, both traditional and modern architecture play different yet equally important roles in building a network of spatial meaning within the city. Strong visual elements, cultural relevance, and historical proximity have proven to be key catalysts in forming a vivid and dynamic mental map.

Node

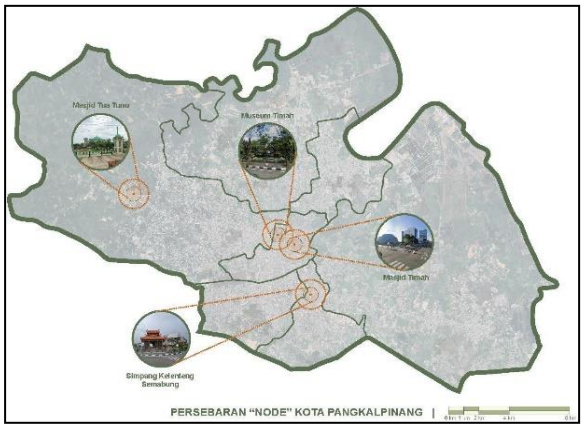
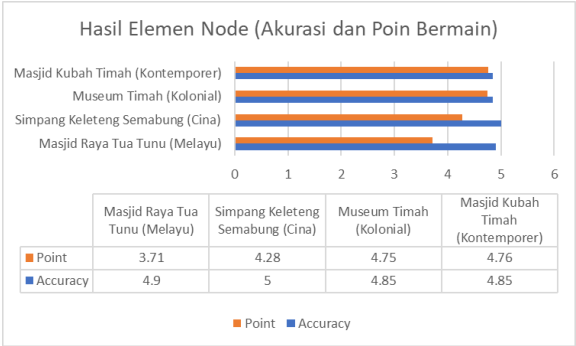


Figure 11. Collection of Physical Objects Based on Architectural Styles According to the Physical Element Group: Node.
(Source: Author's Document, 2024)

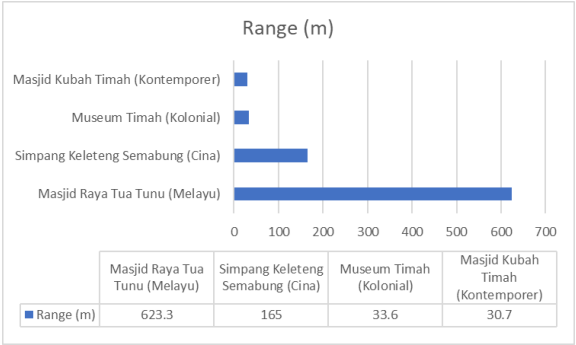
Analysis of the node elements in the city of Pangkalpinang reveals a distinct pattern in the formation of the community's mental map. In this context, nodes are not merely physical points on the city's surface but are meaningful hubs that connect space, culture, history, and collective identity. The findings show that the Timah Museum (colonial architecture) and the Timah Dome Mosque (contemporary architecture) stand out as very strong node elements. Both recorded high accuracy scores (4.85), small average distances (33.6 meters for Timah Museum, 30.7 meters for Timah Dome Mosque), and near-maximum game points (4.75 and 4.76 respectively). These figures are not mere statistics; they reflect how deeply these two elements are embedded in the collective memory of the community, serving as easily recognizable anchors for spatial orientation.

On the other hand, Simpang Kelenteng Semabung (Chinese architecture) exhibits extraordinary visual appeal, with a perfect accuracy score (5), a moderate average distance (165 meters), and a high game point score (4.28). Its vibrant visual character, distinctive ornaments, and the pulse of socio-cultural activities make it a focal point of attention, even though it is not located in the city center. Meanwhile, the Tua Tunu Grand Mosque (Malay architecture) also recorded a high accuracy (4.9), but its very large average distance (623.3 meters) and lower game point score (3.71) indicate that although this element is recognized, its presence is not as strong as other nodes within the everyday spatial network.



	Masjid Raya Tua Tunu (Melayu)	Simpang Keleteng Sembabung (Cina)	Museum Timah (Kolonial)	Masjid Kubah Timah (Kontemporer)
Point	3.71	4.28	4.75	4.76
Accuracy	4.9	5	4.85	4.85

Figure 12. Average Accuracy and Game Points of Respondents Based on Physical Node Elements Across Four Architectural Styles in Pangkalpinang
(Source: Author's Document, 2024)



	Masjid Raya Tua Tunu (Melayu)	Simpang Keleteng Sembabung (Cina)	Museum Timah (Kolonial)	Masjid Kubah Timah (Kontemporer)
Range (m)	623.3	165	33.6	30.7

Figure 13. Average Distance (Range) of Path Elements Based on Four Architectural Styles in Pangkalpinang
(Source: Author's Document, 2024)

This analysis confirms that the strength of a node depends not only on its physical distance or location but also on the intensity of meaning, visual impact, and social functions attached to it. The Timah Museum and the Timah Dome Mosque establish themselves as orientation centers, not merely because of their strategic locations, but because they embody clear symbols of history and modernity, creating a shared city identity. They stand like beacons in the architectural landscape, providing direction and meaning to those who traverse the city.

Simpang Kelenteng Semabung serves as a concrete example that a node can be formed through a combination of the area's functions, social activities, and cultural symbolism, even when it is not the closest in distance. A vibrant public space, intercultural interactions, and strong visual character create an attraction that transcends mere geographic location. Meanwhile, the Tua Tunu Grand Mosque reminds us of the importance of spatial connectivity; despite its historical significance and meaning, a node that is too distant or isolated may lose its influential power within the community's mental map.

Edge

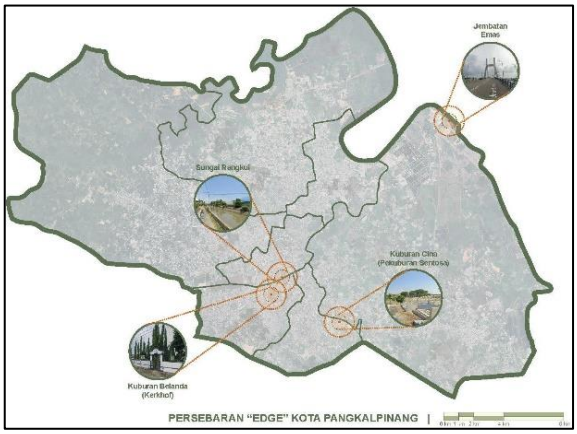


Figure 14. Collection of Physical Objects Based on Architectural Style According to the Group of Physical Elements: Edge.
(Source: Author's Document, 2024)

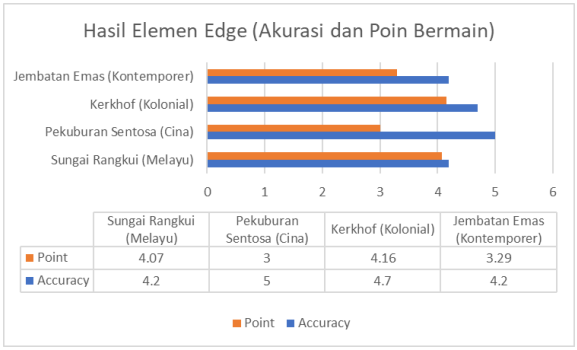


Figure 15. Average Accuracy and Game Score of Respondents Based on Edge Physical Elements Across Four Architectural Styles in Pangkalpinang.
(Source: Author's Document, 2024)

Analysis of the edge elements in Pangkalpinang reveals striking variations in their contribution to shaping the community's mental map. Based on the data results (see Figures 15 and 16), it was found that the Rangkui River element (Melayu architectural style) has an accuracy of 4.2, a score of 4.07, and an average distance of 268.5 meters. This achievement indicates that the element is fairly recognized as a boundary of the urban space, although it does not dominate in forming the collective mental image of the community.

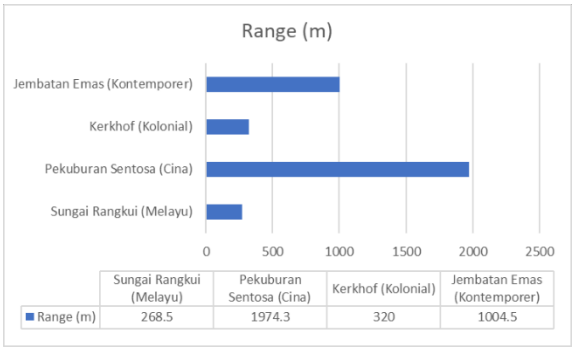


Figure 16. Average Distance (Range) Graph of Path Elements Based on Four Architectural Styles in Pangkalpinang
(Source: Author's Document, 2024)

Meanwhile, Sentosa Cemetery (Chinese architectural style) shows the highest accuracy score of 5, but has a relatively low game score of 3 and a very large distance, reaching 1,974.3 meters. This phenomenon indicates that although this element is visually recognized, its great distance from the center of residents' activities reduces its integration into their everyday spatial experience.

This finding indicates an interesting correlation between distance, accuracy, and game score in shaping the strength of edge elements as spatial boundaries. Elements with closer proximity, such as Sungai Rangkui and Kerkhof, tend to be more effective in anchoring residents' spatial awareness due to their integration into everyday experiences. Conversely, elements with greater distances, like Pekuburan Sentosa and Jembatan Emas, although visually prominent and easily recognizable, tend to be more symbolic in collective memory and are not always present in the community's direct spatial interactions.

From an architectural perspective, this underscores the importance of considering accessibility and visual proximity when designing urban edge elements. An effective edge element not only possesses strong visual character but must also be closely connected to residents' movement patterns, activities, and daily experiences. Urban boundary designs that are merely monumental yet distant from everyday reach risk losing their potential as spatial unifiers.

Overall, this cross-element analysis reveals a hierarchical structure in the mental maps of Pangkalpinang's community. Singular elements with strong visual identities and rich social functions, such as Landmarks (e.g., Masjid Jami') and Nodes (e.g., Simpang Klenteng), demonstrate the highest spatial recognition accuracy. This indicates that these elements serve as primary anchors within the collective memory. In contrast, linear and sequential

elements like Paths and Edges exhibit greater variability in accuracy. This suggests that perceptions of these elements are more personal, fragmented, and highly dependent on the intensity of individuals' daily spatial experiences. Meanwhile, Districts show strength when they have clearly defined boundaries and homogeneous architectural character (such as the Chinatown area), but their influence weakens when boundaries become indistinct.

CONCLUSION

This study successfully mapped the physical elements that shape the image of Pangkalpinang through the cognitive perceptions of its residents. The main findings clearly show that landmarks and nodes (such as the Masjid Jami and Simpang Kelenteng) are the elements most strongly embedded in the collective memory, functioning as the main anchors of spatial orientation. Conversely, significantly weaker recognition of paths and edges indicates a fragility in the legibility of the city's spatial structure. This gap directly addresses the study's initial concern about the fading of spatial character, where connectivity and boundaries between areas are less clearly defined in residents' mental maps.

The main contribution of this study lies not only in its findings regarding the image of the city of Pangkalpinang, but also in its methodological achievements. The mixed-method design, which integrates participatory mapping with quantitative analysis from GeoGuessr, has proven successful in bridging the gap between subjective spatial perceptions and objective recognition measurements. This method is able to measure and map the "strength" of each architectural element in the collective memory of residents, thus providing a strong empirical basis for urban image analysis. Thus, this study not only produced substantive findings, but also validated an innovative approach that can be replicated for other urban studies. Based on these findings, several practical implications can be formulated:

1. For Architects and Designers: The research findings can serve as a perceptual database for designing buildings and public spaces that are more contextualized—not only physically but also psychologically.
2. For Urban Planners: Spatial accuracy data can serve as vital input for the preparation of Detailed Spatial Plans (RDTR) and Urban Design Guidelines, ensuring that new developments respond effectively to the residents' cognitive maps.
3. For Policy Makers: These findings can serve as a foundation for setting priorities in cultural heritage preservation, by focusing resources on elements that have been proven to hold the strongest emotional and cognitive bonds with the community.

Further research is recommended to replicate this methodology in cities with different typologies or to enhance the analysis by integrating additional datasets, such as historical and socio-economic data, in order to achieve a more comprehensive understanding of urban identity.

REFERENCES

Al Fatih, M., Hasanah, C. D., Taufiq, W. M., & Purwantiasning, A. W. (2022). Kajian Elemen Citra Kota Dalam Kawasan Kota Tua Zona Inti (Kevin Lynch). *PURWARUPA Jurnal Arsitektur*, *6*(2), 17–24.

Audilia, C., & Kurniawan, F. (2022). The role of regionalism in the architecture of Santa Maria Assumpta Church by Y. B. Mangunwijaya. *Applied Engineering and Technology*, *2*(1), 11–22. https://doi.org/10.31763/aet.v2i1.672

Aufia, N., & Saputra, A. (2021). Pembacaan Pola Tata Ruang Hunian Tradisional Melayu Bangka Berdasarkan Lagu Daerah Bangka "Yo Miak." *NALARs*, *20*(2), 119. https://doi.org/10.24853/nalars.20.2.119-130

Berners-Lee, B. (2023). The semiotics of digital cartography at the Geoguessr interface: A practice-oriented case study. *New Media and Society*. https://doi.org/10.1177/14614448231160132

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., … Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, *25*(8), 652–661. https://doi.org/10.1177/1744987120927206

Chen, G. (2023). Enhancing Cross-Cultural Communication Skills and Cultural Sensitivity in EFL Students: Integrating GeoGuessr and Problem-Based Learning. *International Journal of Computer-Assisted Language Learning and Teaching*, *13*(1), 1–16. https://doi.org/10.4018/IJCALLT.333716

Dharmatanna, S. W. (2023). Architectonic Regionalisme Dalam Arsitektur Osing. *ALUR : Jurnal Arsitektur*, *6*(2), 115–126. https://doi.org/10.54367/alur.v6i2.2605

El Zeini, I. (2017). The Cities' Identities between Critical Regionalism and Globalization. *The Academic Research Community Publication*, *1*(1), 9. https://doi.org/10.21625/archive.v1i1.125

Enab, M. (2018). Eclecticism Style in the Architecture of Khedivian Cairo. *Journal of Islamic Architecture*, *5*(2), 77–82. https://doi.org/10.18860/jia.v5i2.4747

Florenza ; Bachtiar Fauzy, T. (2018). Eclectic Architecture on Masjid Pusdai Building in Bandung. *Riset Arsitektur (RISA)*, *2*(03), 264–281. https://doi.org/10.26593/risa.v2i03.2946.264-281

FRAMPTON, K. (2016). Towards a critical regionalism. *The Anti-Aesthetic*, pp. 16–30.

Gilge, C. (2016). Google Street View and the Image as Experience. *GeoHumanities*, *2*(2), 469–484. https://doi.org/10.1080/2373566X.2016.1217741

Girgin, M. (2017). Use of Games in Education: GeoGuessr in Geography Course. *International Technology and Education Journal*, *1*(1), 1–6.

Lynch, K. (2014). *The Image of the City, 1st ed* (1st ed.). USA: MIT Press.

Marful, A. B., Adzah, E., Nunoo, F. K. N., Duah, D. Y. A., & Anane-Antwi, E. (2023). Exploring street graphics: Strategies and challenges for city branding in Kumasi, Ghana. *Cogent Arts and Humanities*, *10*(1). https://doi.org/10.1080/23311983.2023.2206235

Meeks, C. L. V. (1953). Creative Eclecticism. *Journal of the Society of Architectural Historians*, *12*(4), 15–18. https://doi.org/10.2307/987646

Rehan, R. M. (2014). Urban branding as an effective sustainability tool in urban development. *HBRC Journal*, *10*(2), 222–230. https://doi.org/10.1016/j.hbrcj.2013.11.007

Reinar, D. A., & Westerlind, A. M. (2010). *Urban heritage analysis. A handbook about DIVE*. Retrieved from http://brage.bibsys.no/xmlui/handle/11250/176994

Tolman, E. C. (1948). Cognitive maps in rats and men. *Psychological Review*, *55*(4), 189–208. https://doi.org/10.1037/h0061626