

Original Article

Transition to Destination: Semiotic Design Strategies for Thematic Pedestrian Bridges in Jakarta

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Abstract - This study reveals that the infrastructure of Jakarta experienced a paradigm shift towards place-making/destination design strategies from bridges for functional pedestrian use. From an architectural semiotic perspective, this study identifies a design strategy that uses visual form, elements, and signifiers (space) to convey the signified meaning (conceptual) related to iconic public spaces. This shift is investigated utilizing three case studies of pedestrian bridge infrastructure in Jakarta, which are recognized as Jembatan Penyebrangan Orang: Tebet Ecopark (the Link JPO), the Gelora JPO in Sudirman, and Phinisi JPO in Karet. These issues were chosen due to the robust characteristics of their design, which are capable of representing public behavior through intentional visitation from transit. Utilizing a qualitative approach, the study generates a formal evaluation of elements of semiotic architecture across visual, formal, and spatial dimensions. The research uncovers specific strategies of semiotics in every issue: the metaphor of the ship for Phinisi JPO, the Gelora JPO lighting dynamics, and the Ecopark JPO organic connectivity. The discussion illustrates that effective design strategies of semiotics transcend the infrastructure's technical functions, functioning as design narratives and a communication medium while building the identity from functionality. The objective of the study is to provide insights into the discourse of architecture concerning the meaning-making and narrative significance in establishing future architectural urban infrastructure, making sure its function as a sustainable and dynamic catalyst for urban life.

Keywords - Pedestrian bridge design, Transformation of urban infrastructure, Design narrative, Place-making strategy, Architectural semiotics.

1. Introduction

This research aims to evaluate the connection between destination meaning formation and the physical design within urban infrastructure. By examining three specific pedestrian bridges (JPO) in Jakarta, the Phinisi, Gelora, and Link bridges, this research aims to formulate semiotic-based design strategies capable of revitalizing public spaces. These infrastructures are explored as mediums of communication and narrative that establish urban identity through enhanced functionality. The study seeks to contribute to architectural discourse regarding the importance of meaning-making in ensuring city infrastructure serves as a sustainable catalyst for dynamic urban life.

This research is grounded in a significant paradigm shift where urban infrastructure has evolved from purely utilitarian facilities into intentional strategies for place-making. Historically, JPOs were viewed as standard technical tools for mobility, but recent revitalizations have transformed these structures into iconic "destination architecture". This transformation conveys the shift to a "tectonic cultural poetic"

from functional transit [1] in which the construction itself revives deeper meaning. Such developments highlight how pedestrian bridges now serve as essential elements of a new urban identity [2]. By treating the cityscape as a form of "city language," designers can utilize eco-semiotic approaches to renew urban discourse [3]. In this context, the visual perception of semiotic space becomes a primary driver for how visitors experience and value the city [4].

Whereas the recent architectural discourse recognises the transformation of pedestrian bridges into urban iconographies, the existing literature is still heavily preoccupied with superficial visual consumption, aesthetic novelty, or generic 'instagrammability'. The spatial mechanics of these threshold spaces or *ruang jeda*, which interrupt movement and purposefully convert functional transit into meaningful urban destinations, are often ignored in existing studies. Additionally, although general semiotic frameworks have been employed to analyse urban spaces, there is a significant lack of comparative, systematic analyses that explore the systematic impact of different material-driven signifiers (e.g.,



naautical metaphors, luminous dynamics, and organic eco-connectivity) on pedestrian behaviour and urban identity in high-density South-east Asian tropical metropolises such as Jakarta.

To this end, this study proposes a tripartite architectural framework, combining form, space, and visual, to deconstruct three prominent Jakarta JPOs: Phinisi, Gelora, and Link. Contrary to previous studies that evaluate urban infrastructure based on utilitarian mobility metrics or general urban branding, this research constitutes a novel comparative assessment of the active role of tangible metaphors and material signifiers in re-programming public behaviour. As such, this work fills the theoretical gap between architectural semiotics and user experience, offering a scalable methodological model for re-imagining standard transportation infrastructure as sustainable socio-cultural catalysts.

2. Literature Review

2.1. From Utilitarian Transit to Urban Destination: The Evolution of Pedestrian Infrastructure

Recent studies in world cities show a paradigm shift in the integration of pedestrian networks in high-density cities. International best practices-such as Singapore's network of elevated green connectors and London's strategic pedestrianisation initiatives-prove that modern infrastructure must work beyond basic mobility to foster social resilience and environmental continuity. Recent studies show that the existing pedestrian infrastructure is a powerful driver of the transformation of surrounding city structures and new spatial identities [2, 5]. This demonstrates how biophilic design and cultural narratives can be embedded in urban footbridges to transition them from isolated engineering assets to vital components of a smart, sustainable city ecosystem.

The functional perspective has dominated pedestrian infrastructure traditional discourse, seeing the JPO mainly as a crossing technical solution [6]. These structures, historically, were analyzed due to their capability in facilitating movement, frequently remaining in "utilitarian transit" functioning as an urban barrier rather than a city's cohesive part [7]. Nevertheless, recent research recommends a paradigm change in which the bridges are currently acknowledged as landmarks of critical city designating urban identity [2, 8]. The transformation emphasizes a developing tension between high-level aesthetic design desire and the basic accessibility necessity [9]. This evolution demonstrates a deeper evaluation of how truly functional objects start to join the iconic and social role in the city.

The current study has started to analyze the "placemaking" potential in the transit spaces, stating that the everyday locations can be served as bridges within the high-density environments [10]. The evolution of JPOs in Jakarta into "thematic" places like Gelora or Phinisi bridges has

evolved the city's potential by design [11]. An infrastructure is not a mere concern of these projects, but more enormous urban image components that design the way the public views a specific district [12, 13]. By combining different concepts in the pedestrian bridge design, architects strive to connect the social interaction and mobility gaps [14]. The shifts identify that the bridge's physical experience is connected inextricably to the more extensive identity of the urban sphere.

The debate recently concerns the connection between meaning, function, and form, highlighting that the expression of architecture should balance those elements to work [15, 16]. While several researchers are concerned with a transit denotative function, others focus on tectonic culture poetic in which the process of construction results in a narrative [1]. The cityscape is treated by this perspective as a city language, in which the infrastructure connects through codes of eco-semiotic [3]. When the architects design the bridges utilizing this intentionality level, they develop a location identity that is significantly represented in the daily experience of the pedestrian [17]. Nonetheless, a vivid gap results in comprehending particular spatial mechanisms that change transit to the location of the destination.

A significant missing connection in recent literature is the threshold spaces formal analysis or *ruang jeda* as a design strategy of movement disruption [18]. Whilst numerous studies emphasize the "instagrammability" or visual appearance of the novelty [4], they frequently overlook the pauses' semiotic potential in supporting the city to acquire the cultural continuity and [19, 20]. It is required to shift beyond usual urban image evaluations onto the detailed framework, which integrates the behavioral change with the design methods [21]. Comprehending it needs a transformation toward meaning methods, which could be perceived through the architectural semiotic lens.

2.2. Architectural Semiotics and Meaning-Making in Pedestrian Infrastructure

Semiotics of architecture offers the foundation of theory for comprehending infrastructure and building as means of communication [22]. The method attempts to explore the connections between the physical form (signifier) and the conceptual meaning (signified) [23]. The designers utilize the specific signifiers of semiotics in this framework, like geometry and material, to revive the desired framework in the public minds [24]. This mechanical design perspective lets researchers formulate the method of a bridge in communicating history, ecology, or modernism [25]. The designer is able to perceive that the method of specific forms is selected intentionally to generate ideas of strategic design. The recent semiotic research trend highlights the architectural shift from symbolism to complex configurations of space [26]. It incorporates an interpretation of semiotic sign forms, in which the spatial meaning is not merely its appearance, but the method of the organized form [27]. Architects frequently

utilize a profound design approach to evaluate that a structure is directly recognized by the public [28]. By a transfer frame or a concept-based framework, abstract perspectives are conveyed into architectural elements that are tangible [29]. This architectural poetic process employs metaphors to generate a deeper connection of emotion between the built environment and the user [30]. The methods are significant in transforming the conventional structure into an urban symbol that is meaningful.

Scholars are rapidly concerned with how visual perception construction through philosophy and images is able to unveil the city's connotative meanings [31, 32]. This approach perceives the design idea communication as the main method of urban entanglement, not as a byproduct [33]. By evaluating the *citra ruang urban*, researchers are able to scrutinize the contribution of semiotic markers to social fabric [34]. This study is specifically correlated with the intelligent city initiatives, in which semiotics is expanded to encourage the sustainability of the city [35]. Despite these advancements in theory, the disconnections between design's practical application and the semiotic theory of the infrastructure of pedestrians still exist.

The gap in recent studies is the specific comparative analysis weakness on the method of different semiotics, which includes nautical metaphors and luminous dynamics, that influences the behaviour of users in case studies of the particular city of Jakarta. In literature, there is a wide concept of a semiotic sign, but it is not usual to speak about the relation between the transformation that the destination undergoes from transit and concrete physical indicators (as the oblique disposition). Most of the studies deal only with the general level of visual perception and do not consider the elaboration of specific narrative spatialization, which encourages the pedestrian to be involved [33]. The importance of signifying the gap is essential in developing a framework for urban designers who are leaving and expecting to use semiotics as a tool in designing more sustainable and vibrant public spaces.

3. Materials and Methods

The study uses a qualitative descriptive case study design, which is architectural research-by-design [36]. The purposive sampling method was used to select three of the major pedestrian bridges (Jembatan Penyeberangan Orang/JPO) in Jakarta. There are three pedestrian bridges, namely JPO Phinisi (Karet), JPO Gelora (Sudirman) and JPO Link (Tebet Eco Park). These particular examples were chosen because they exemplify three different thematic architectural paradigms – nautical metaphor, luminous dynamics, and ecological connectivity – that are actively transforming utilitarian transit infrastructure into urban destinations.

Qualitative approach is positioning this research as an activities [37, 39] to analyze the pedestrian infrastructure transition into city destinations. The research, as a study form

concerning design [39, 40] emphasizes the method of architectural expectation that is interpreted into artifacts physically communicating the detailed meanings. A dismantling design process is followed by the methodology in comprehending the highlighting construction [41], offering a thorough relationship investigation between the semiotic messages and physical structures they disseminate publicly. In conducting a reliable examination, the research employs parallel redrawing [42] in assessing the production of knowledge that is deconstructing JPO Gelora, Link, and Phinisi case studies.

The framework of analysis highlights the analysis of semiotics, combining space, visual, and form in uncovering the meaning of architecture [31]. As Figure 1 illustrates, the research is performed through three major elements: Form that concerns movement and layout [26], assessing principles of canonicity of grid systems and structural order [28]. Space investigates the experience of humans, material textures, and scales [18], encompassing the lighting dynamic and surrounding context, creating potential social zones or threshold spaces. Visual evaluates the aesthetic impressions and enclosure design offering for conceptual ideas as signifiers [15, 24].

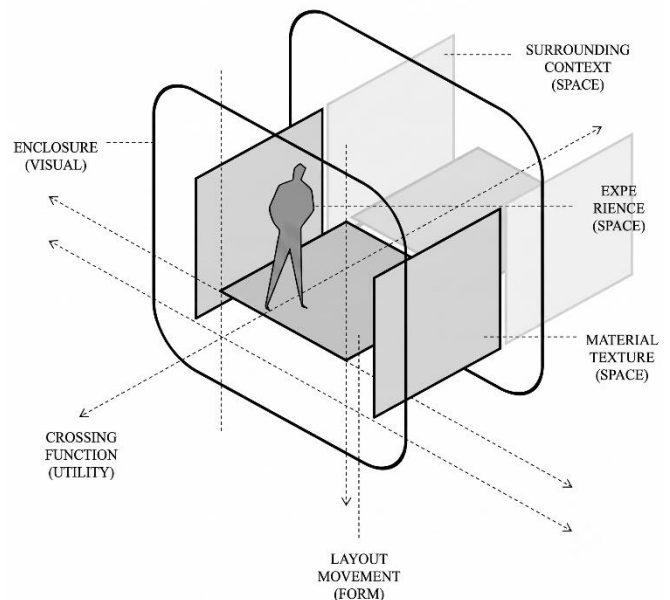


Fig. 1 The framework of analysis combining visual (enclosure), form (layout/movement), and space (experience/texture)

By deconstructing the dimensions, the study constructs the method the designers acknowledge the ideas of design as an approach [33]. The poetics of architecture [30] is drawn upon in the research to comprehend how intangible and tangible metaphors are employed to shift the undefined narratives into forms that are concrete. In addition, the research implements the architecture as a communication concept [22] to differentiate between the bridge's secondary meanings, which are connotative, and its main utilitarian

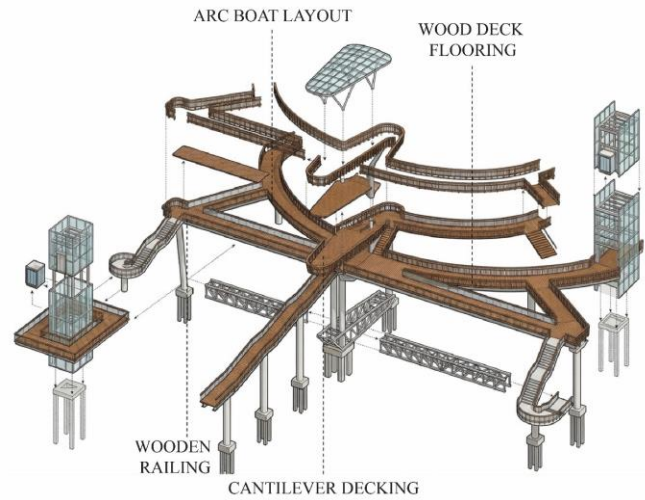
function. This multi-layered method emphasizes that the semiotic approach, whether symbolic, iconic, or indexical [23], is constructed across visual, formal, and spatial elements of thematic bridges of pedestrians in Jakarta.'

The data was collected through multi-modal fieldwork, including visual architectural auditing, photographic documentation and parallel redrawing to deconstruct the spatial and formal configurations of each bridge. The

analytical framework is based on a tripartite architectural matrix that combines Form (spatial layout, grid systems and structural order), Space (human scale, material textures, lighting dynamics and threshold spaces/ ruang jeda) and Visual (aesthetic impressions and enclosure design). Methodologically, these dimensions are assessed by means of the semiotic models of Charles Sanders Peirce and Umberto Eco [22], which systematically map physical elements (signifiers) to conceptual and cultural meanings (signified).



Fig. 2 Analysis of Phinisi JPO form presenting the arc boat cantilevered and layout decking



4. Result and Discussion

4.1. The Phinisi JPO: Nautical Metaphor as a Signifier of Historical Identity

The JPO Phinisi (Karet) conveys a high-end application of metaphor that is tangible, in which a traditional ship of Indonesia or a physical object is employed as the main design

inspiration in creating a destination. This expression of architecture expands beyond common utilitarian crossing, as a communication medium broadcasting a national identity narrative to the public. Through the adaptation of Phinisi form (Figure 2), as an iconic signifier, the bridge builds itself in connecting modern Jakarta with the history of the archipelago's maritime strength.

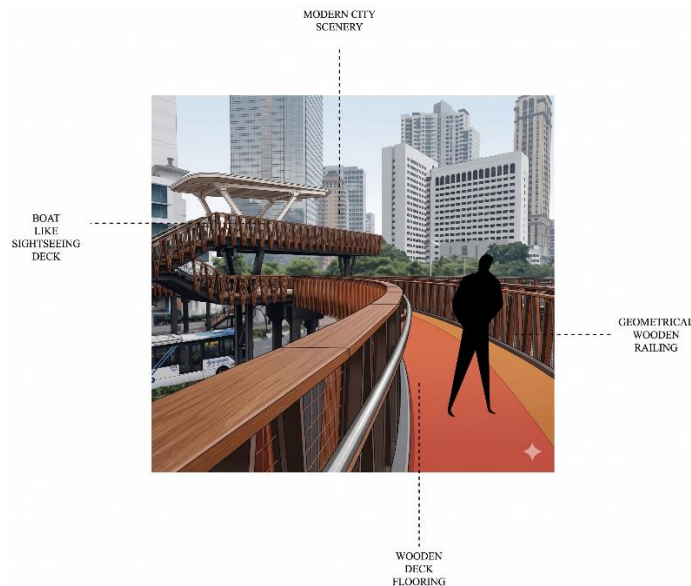
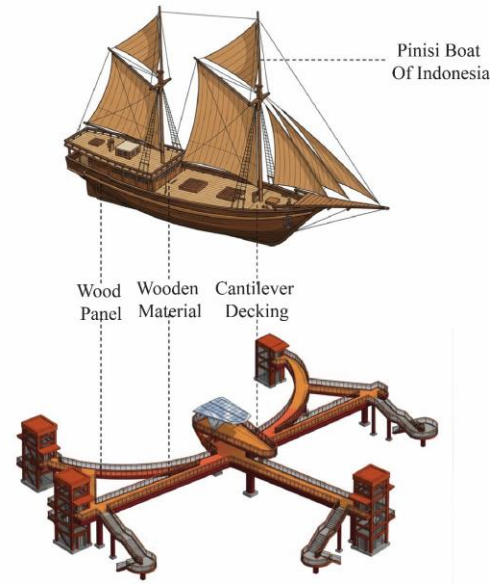


Fig. 3 Analysis of the space of Phinisi JPO emphasizing the boat-like sightseeing deck and wood deck flooring



Fig. 4 Analysis of JPO Phinisi visual demonstrating the specific mapping between the architectural form and traditional boat metaphor



The Space in the JPO Phinisi is generated to offer a detailed atmospheric experience, transforming from the city's speedy pace to a nautical environment of contemplation. Based on Figure 3, the WPC (Wood Plastic Composite) used for the geometrical and flooring wooden railings provides a visual and tactile connection to the ship decks that are historical. This selection of the material serves as a signifier communicating a sense of heritage and warmth, turning the transit zone effectively into an experience space in which users are motivated to linger than merely pass through.

Visually, the bridge provides a significant contrast to the modern Sudirman skyscrapers' metallic backdrop. Figure 4 illustrates the method on the physical form of the Phinisi boat concept, utilizing cantilevered structures and wooden materials to create a maritime symbol. The redundancy of visuals, in which the elements of aesthetics extend the necessity technically, is a strategy of semiotics employed to build the bridge as a symbol of an urban landmark than simply an infrastructure piece.

This design signified meanings, historical strength and nationalism are encountered primarily at the upper side of the sightseeing deck. The detailed area plays a role as a pause space (*ruang jeda*) which disrupts the movement flow, slowing the body and shifting the historical vantage view of the city to the modern scenery. In this location, the main denotation (crossing) function is exceeded by the connotation or symbolic communication as the secondary function, elaborated in a theory of architectural semiotics.

The JPO Phinisi, overall, illustrates the way the design idea communication strategy is able to succeed in transforming public behavior. By combining the nautical metaphors with a transit that is functional, the architect offers

a poetic tectonic culture, which justifies the bridge functioning as a destination. The transit-to-destination transition is acquired through a proper orchestration of visual signifiers, form, and material resonating with the Indonesian people's collective memory.

4.2. The Gelora JPO: Luminous Dynamics and Urban Modernity

An architectural transformation is represented by the Gelora JPO in Sudirman for the luminous dynamics, employing sophisticated lighting and materials as the main urban modernity signifiers. This bridge acts as a means of active media, presenting the energy of the central business area in Jakarta. By utilizing a rhythmic, repetitive structure, the design provides a symbolic presence reflecting the dynamism and sportive spirit of the Senayan area.

The Gelora JPO form is identified by a linear layout that characterizes a white rib or fins modular configuration. As demonstrated in Figure 5, the metallic structural dimensions are built in a pattern that is spiral with varied angles of rotation in providing a sense of movement, like a wave portraying the spirit. This method employs a design method that is canonical, in which the modular system's mathematical regularity produces a sense of structural sophistication and technological progress.

The space in the bridge is built to be cinematic and immersive, transforming the perception of users through shadow and light. As illustrated in Figure 6, the experience of the interior is characterized by an intimate, narrow scale explored by the spiral enclosure's rhythmic repetition. The wooden deck flooring integration creates a tactile contrast to metallic ribs, providing a threshold area in which the shift through the bridge produces framed urban view sequences.

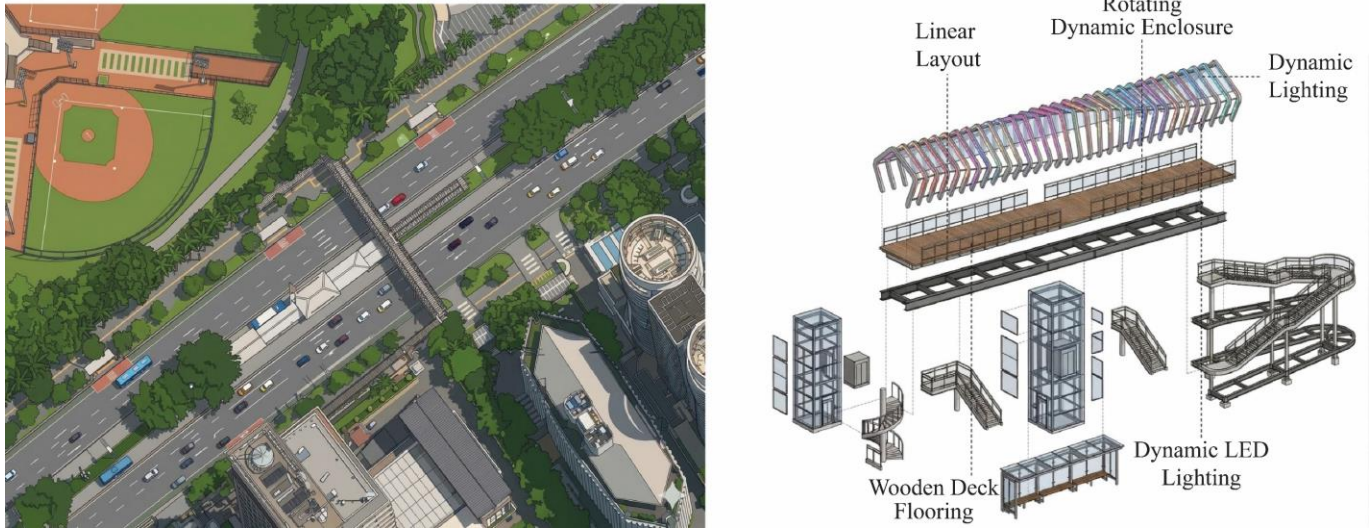


Fig. 5 Analysis of Gelora JPO form analysis demonstrating the structural fins, linear layout, and rotating dynamic enclosure

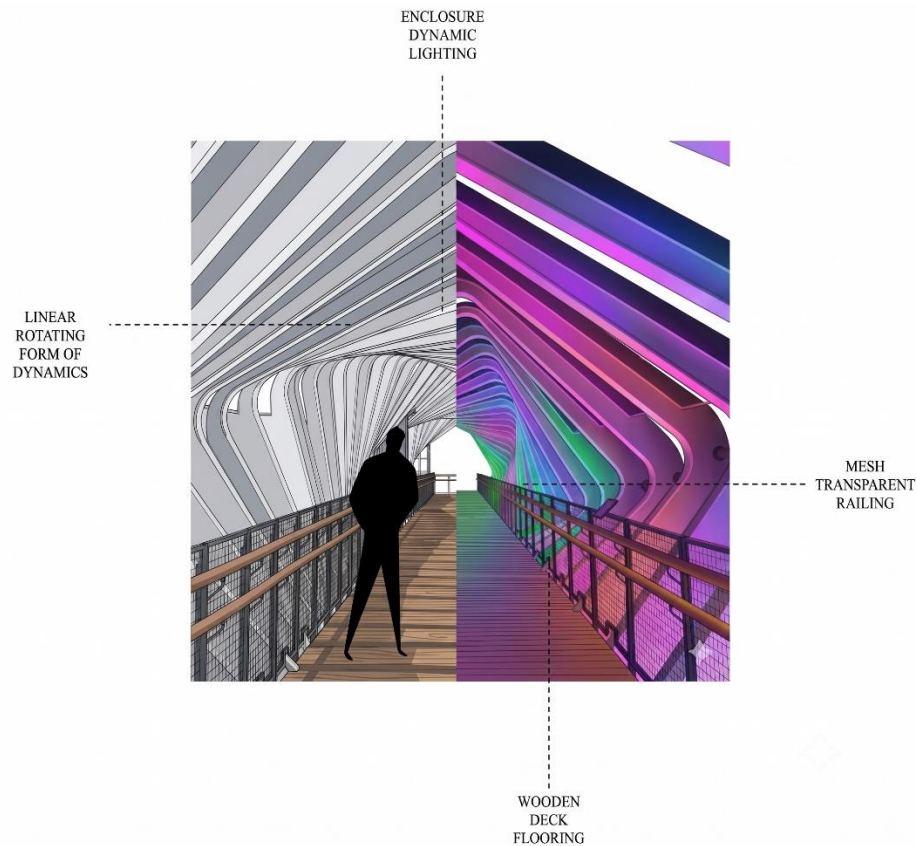


Fig. 6 Analysis of Gelora JPO Space focusing on the transformation of mesh railing, dynamics, and wooden deck flooring

The eye-catching is the bridge is a metropolis activity vibrant index with dynamic LED RGB lighting. As demonstrated in Figure 7, the exterior view underlies a spatial form displaying as moving in the evening, mimicking the urban life speed. This display of visual strategy acts as an indexical symbol, in which the color and intensity of the light provide a direction to the heart of the city's bustling energy.

The meaning of signified energy and modernity is understood through the futuristic impression and high-tech aesthetic of the bridge. The design directs to embrace urban symbolism, secondary functions from utilitarian primary functions. This semiotic change highlights that the pedestrian experiences are correlated to Jakarta's status as a forward-looking, globalized city.



Fig. 7 Analysis of Gelora JPO visual illustrating the dynamic movement, spiral form, and colorful ambiance

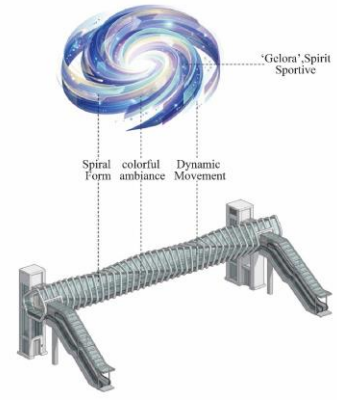
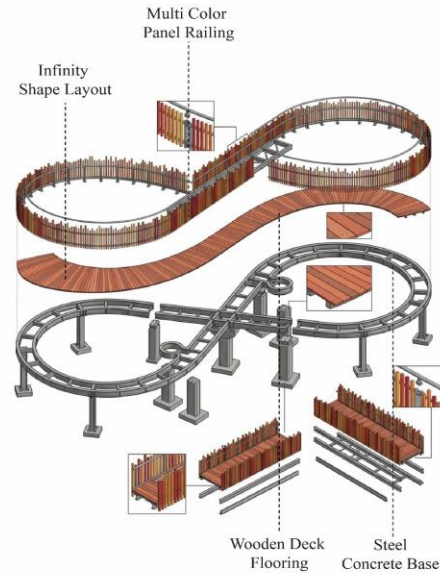


Fig. 8 Analysis of link JPO form presenting the structural composition and infinity shape layout



The Gelora JPO, overall, illustrates the way the architecture as a communication is able to transform a common crossing into an urban vitality landmark. By employing dynamic lighting and modular repetition as ideas of strategic design, the bridge creates the destination successfully, resonating with the modern urbanite's fast-paced lifestyle. This shift justifies the semiotic design role in establishing a recognizable and strong urban identity.

4.3. The Link JPO: Organic Connectivity and Ecological Transition

The Tebet Eco Part or Link JPO acts as a sophisticated implementation of intangible and combined metaphors, in which the unidentified ideas of river flow and organic connectivity are conveyed into a structure that is physical structure. Different from common infrastructure that frequently functions as an urban limit, this bridge is built as a park, providing a crucial role for ecological transformation. By incorporating greenery, the establishment creates an iconic presence, promoting the fragmented city ecosystem's reunification.

The Link JPO form is understood as a layout that is curvilinear, meandering through without-stairs-use tree canopies, establishing a figure-eight pattern, which is sustainable.

The structure has a steel-concrete base (see Figure 8) to reduce the ground footprint, supported by slender columns. Deck flooring in wood is used for the surface of the walking pathway. This infinity shape is a strong signifier of circular connectivity and environmental sustainability in the park.

The bridge space is designed to create a forest-walk experience that is contemplative, intentionally transforming the pace of pedestrians from transit to relaxation.

Figure 9 provides a sense of spatial form to a railing by the contrasts between the random-size panels of bright orange modular and the natural park background. This area acts as a ruang jeda or threshold space, which the physical enclosure produces an elevated, safe environment supporting users for nature engagement.



Fig. 9 Analysis of link JPO space emphasizing the modular railing details and forest-walk experience

Table 1. Case studies comparison

Aspect	JPO Phinisi (Karet)	JPO Gelora (Sudirman)	JPO Link (Tebet Eco Park)
Form (Layout and Structure)	Asymmetrical layout with oblique (sloping) poles and an open viewing deck; configuration utilizes WPC material to mimic a ship's hull.	Linear modular layout with white fins arranged in a spiral pattern with varying rotation angles.	Curvilinear, meandering "infinity" shape without stairs; integrated directly as a "bridge-as-a-park".
Space (Experience and Texture)	Human scale feels spacious at the deck; provides the sensation of "sailing" amidst traffic; uses warm wood tones.	Intimate and enclosed scale; creates a "cinematic" experience through the rhythmic play of light and shadow.	Scale harmonizes with nature; provides a "forest walk" experience under the tree canopy with a vibrant orange contrast.
Visual (Impression & Enclosure)	Powerful impression of a traditional vessel in a modern concrete forest; stands out as an iconic historical landmark.	Modern, futuristic, and vibrant; spiral form reflects the rapid movement and spirit of the metropolis.	Organic, harmonious, and peaceful; emphasizes the "infinity" symbol as a marker of environmental sustainability.
Signifier (Physical Signs)	Ship-like deck, nautical materials (WPC), and protruding sightseeing platforms.	Spiral rhythmic structure, dynamic RGB LED lighting, and metallic materials.	Curving organic forms, bright orange color, and direct forest integration.
Signified (Conceptual Meaning)	Maritime Nationalism: Represents the strength of Nusantara's history and maritime identity.	Modernity & Energy: Reflects the dynamic spirit and speed of urban life in the city center.	Ecological Connectivity: Symbolizes the reconnection of nature and the harmony between humans and the environment.
Secondary Function (Beyond Crossing)	Functions as a city landmark and a prime destination for swafoto (selfies).	Acts as a vibrant element of urban lighting and a symbol of urban progress.	Serves as environmental education and a social extension of the green open space.

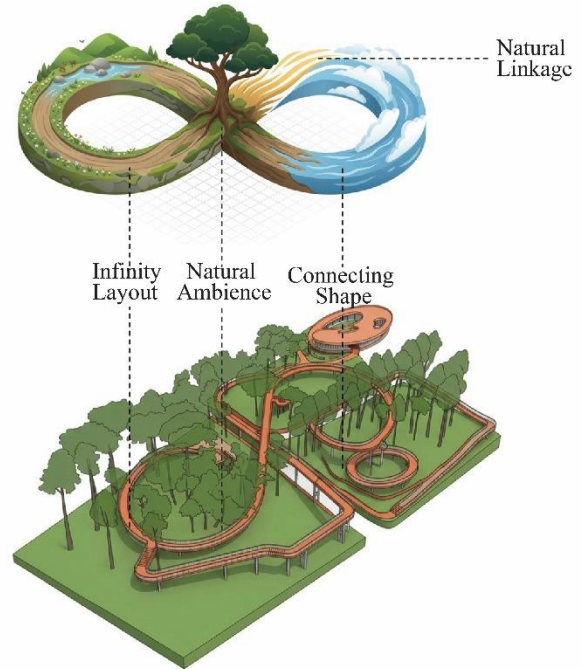
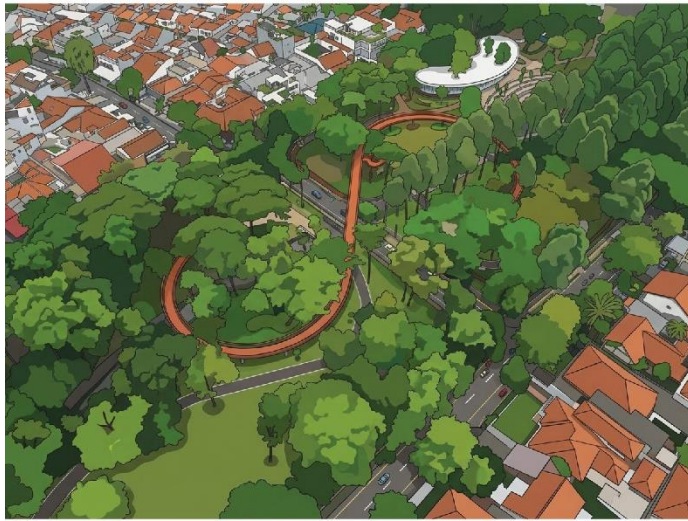


Fig. 10 Analysis of link JPO visual illustrating the urban park integration and the natural linkage concept

Regarding the Visual aspect, the bridge functions as a significant architectural location through its organic and color geometry and striking use. As demonstrated in Figure 10, the method of the curvilinear form produces a natural connection between the park south and north zones. The hue of bright orange provides a distinguished signifier which harmonizes with the vibrant identity of the park as a public space that is revitalized while differentiating with the green foliage.

The harmony and ecological connectivity signified by the meaning are conveyed through the seamless integration of the bridge with the identified landscape. The design shifts beyond a simple crossing primary function to embrace a social and educational destination for a secondary function. The semiotic method emphasizes that the infrastructure should be seen as an ecosystem organic extension of the park.

Eventually, the JPO Link illustrates the way the architecture is able to facilitate communication for a more significant emotional link between nature and urban residents. By employing intentional threshold spaces and organic forms as on-point design ideas, the crossing act is transformed successfully by the bridge to a poetic voyage through trees. This study justifies the semiotic design potential to encourage the sustainability of the city by establishing a robust, ecological, and cultural identity of a grounded place.

The following table organizes the deconstructed architectural elements of the three case studies; JPO Phinisi, JPO Gelora, and JPO Link, based on the analytical framework of form, space, and visuals, alongside their respective semiotic components.

The three infrastructures illustrate that technical utility could be achieved through an effective semiotic design. By employing the tangible metaphors in the Link bridge for connectivity, in Phinisi bridge by tangible metaphors, and in Gelora bridge in canonic modular systems, Jakarta has succeeded in transforming the transit destinations into urban destinations that are meaningful.

Apart from direct visual improvements, this design of infrastructure has great socio-cultural and environmental effects. High-rise buildings are linked with car-free green pathways (e.g. JPO Link in Tebet Eco Park), which is an effective way to connect fragmented urban ecosystems by rebuilding biological corridors and creating open spaces for environmental education for the surrounding communities. From a cultural point of view, these buildings create a feeling of civic pride and a shared urban identity, as they function as open public interfaces that decrease social stratification in densely populated urban settings.

4.4. Function Deconstruction: To Communicative Media from Utilitarian Transit

The Jakarta thematic pedestrian bridges represent a pivotal shift from utilitarian, passive infrastructure to active visual communication media. Conventionally, JPOs were created as utilitarian transit or standard technical facilities, with the simple objective of transferring individuals to point B from point A [15]. But the JPO Link, Phinisi and Gelora projects have redundancy of linkage at the level of the visual, beyond the technical need to communicate ideas about the bridge that functions as a symbol. Using a theoretical framework of architecture semiotics [22], these organisations

are described as languages that mediate ideology and identity to the urban masses. The evolution shows that the major strategy in recent times for assimilation with the dynamic urban life is communicating the design ideas [33].

This excess of architecture, represented by organic curves, nautical metaphors or dynamic RGB lighting, plays a role as a major semiotic medium to announce the message that the urban symbols are these bridges. By means of architectural poetics [30], the transposition of ecological or abstract historical ideas into concrete forms allows the infrastructure to give breath to specific memories and feelings. The physical form serves as a signifier pointing towards the signified and conceptual meanings, including technological modernity or maritime pride. Thus, the design offers a tool for narratives, creating another place identity in anonymous landscapes of metropolitan areas [2].

The transformation semiotic core is that pedestrians do not perceive the bridges solely as crossing tools, but more as aesthetic value and powerful signs of urban progress. The city constructs the urban discourse and global image through the use of structures emphasising the connotative or secondary function [22], meaning. This transformation illustrates that as infrastructure is intentionally engineered with semiotics, it becomes an urban barrier rather than cultural continuity and sustainable urban life. However, the bridge as a symbol redefines the link between the built environment and the citizen through a shared visual language.

Specific local strategies allow a contextualization of the thematic pedestrian bridges of Jakarta in a global benchmark from a comparative perspective. While global models like London's Garden Bridge or Singapore's Helix Bridge tend to lean towards ecological leisure or high-tech structural spectacle, the JPOs (Phinisi, Gelora, and Link) of Jakarta are notable for their weaving of local cultural stories—maritime nationalism, kampung social fabric—within dense transit nodes. Unlike Western or Singaporean models, which are primarily driven by corporate-led waterfront regeneration or strict transit efficiency, Jakarta's JPOs are a form of grass-roots urban acupuncture that has successfully transformed the quotidian corridors of transit into democratic and culturally resonant community destinations.

4.5. Narrative Spatialization: Producing Transit Paths Threshold Spaces

The strategies of semiotic design implemented on the pedestrian bridges deliberately produce damage in the movement flow of users to encourage a transformation to the destination from transit. The thematic JPOs are primarily on the threshold space creation, providing social interaction potential [18], while infrastructure that is traditional is frequently assessed due to the technical speed and accessibility [6]. By transferring the highlight from functional mobility that is pure to the tectonic culture poetic [1], the

design emphasizes the pedestrian in viewing the bridge establishment as a cohesive part of the city experience instead of a sole barrier [7].

The design communicates the concern to tectonic culture poetic [1] from functional mobility. So the pedestrians perceive the bridge building as a cohesive part of the urban experience, not as a sole barrier [7]. For general JPO designs, layout is preferred for the fastest crossing. Paradoxically, thematic JPOs of Jakarta suggest such detailed features as organic meanders, viewing decks or asymmetrically extended floors as stopping semiotic markers. These elements serve as place-making signifiers [10], effectively transforming a conventional transit path into daily social space. The design methodology uses a symbolic method [28] that ensures the physical threshold is understood by the citizen as an engagement with the surrounding cityscape.

This strategy's semiotic core happens in insisting that the body of the pedestrian stop, consumes, and slows down the visual environment. The intentional damage affects the transit or movement, meaning to the destination or static meaning. By proposing pause spaces or threshold spaces or *ruang jeda*, the architecture establishes a new urban narrative connectivity, fostering a more significant place sense identity through the experience of pedestrians [18]. This type of narrative spatialization illustrates the way semiotic potential is able to be extended to encourage urban sustainability by shifting functional infrastructure into a vibrant catalyst for urban life.

Empirical observations and Post-Occupancy Evaluations (POE) show that these semiotic interventions actively re-program pedestrian behaviour [4, 10]. Behavioural mapping of the three case studies shows that the addition of widened observation decks (*ruang jeda*) transforms user velocity from rapid transit to stationary dwelling. User interviews consistently reveal that tactile materials (e.g. Wood Plastic Composite on the Phinisi bridge) and dynamic lighting (Gelora JPO) create psychological pauses that promote spontaneous activities such as mobile photography (selfie), social lingering, and informal recreational viewing.

4.6. Metaphor and Materiality as Spatial Materiality and Metaphor as Determinants of Spatial Identity

The metaphorical and material forms of deliberate selection act as an arrangement of cultural codes validating these bridges of pedestrians as a worthy destination. These design selections function as signifiers communicating detailed identities to the city's public, shifting the organizations beyond the anonymous infrastructure realm. By employing communication architecture [22], designers interpret undefined ideologies to the physical reality, making sure that the city's inhabitants' values and collective memory resonate with the bridge.

This iconic mapping is emphasised in the detailed case studies: JPO karet or JPO Phinisi uses a tangible, nautical metaphor to grasp the collective memory, using boat-like configurations and wood-deck materials to signify historical strength and maritime nationalism. Tebet or JPO link uses contrasting orange tones and organic curvilinear forms to illustrate a concept of bridge-as-a-park and ecological connectivity. Sudirman or JPO Gelora, however, uses rhythmic fins and metallic materials in signifying futuristic energy and urban modernity.

This making of ideas into form is often called an architectural poetic [30]. This process structures the awakening of users' imaginative and deep emotional responses. The semiotic essence of this strategy is that form and materiality are not just aesthetic choices but primary strategies in establishing city identity. Aside from specific material signifiers and robust metaphors implementation, the bridges would result in transit points of anonymous utilitarianism that lack the required international visit attraction. Through the success of the communication design perspectives for the strategy [33], the city engineers a grounded cultural identity that encourages social engagement and urban sustainability.

The semiotic design strategies observed in Jakarta's thematic bridges excel on the socio-spatial outcomes, compared to the state-of-the-art techniques or conventional urban infrastructural planning. Traditional infrastructure assessments tend to emphasise pure technical efficiency and vehicle throughput, which often results in urban barriers. The multi-layered semiotic framework applied here provides functional mobility with cultural resonance. The results of this study show that, in contrast to previous studies that limit pedestrian bridge evaluations to structural metrics or isolated visual novelties, the integration of tangible metaphors (e.g. Phinisi nautical forms) and spatial pauses (*ruang jeda*) actively re-programmes public behaviour from rapid transit to intentional destination visitation. In this way, it provides a more resilient and dialogic platform than the usual utilitarian forms of producing a cohesive city identity and social interaction.

4.7. Digital Tools and Innovation

Digital and parametric innovations are increasingly underpinning recent advances in semiotic bridge design. The parametric modelling and computational design methodologies, applied to the Gelora and Link bridges, are characterised by complex organic geometries, variations of rotation angles and modular rhythmic configurations. Architects can use algorithmic variation in the conceptual phase to precisely control structural enclosures, shadow

dynamics, and light-material interactions, ensuring that intended semiotic narratives are structurally optimised.

Also, novel tools like virtual reality (VR) and digital fabrication allow designers to assess human-scale visual perception and tactile transitions (*ruang jeda*) before physical construction. This digital integration bridges the gap between abstract semiotic theory and structural execution, allowing contemporary urban infrastructure to function not only as static physical forms but as responsive, data-driven communication mediums within smart city frameworks.

5. Conclusion

This research concludes that the revitalisation of pedestrian bridges in Jakarta is a crucial paradigm transformation from utilitarian transit to an architecture of intentional destination. From the architectural semiotics lens, it is proven that JPO Link, Phinisi, and Gelora use detailed signifiers such as organic curvilinear layouts, nautical metaphors, and rhythmic spiral forms to communicate the conceptual meanings of ecological connectivity, maritime history, and urban modernity. This organisation of structures, by producing intentional pause spaces and using strategic materiality, succeeds in disrupting the movement flow, insisting on a shift in user behaviour to intentional visitation, from a sole crossing.

The study's main limitation exists in the qualitative concern on the analysis of formal architecture and the deconstruction of semiotics. While it succeeds in acknowledging the way the design strategies act as a communication means, the research does not encompass extensive empirical data related to socio-economic impacts, quantitative evaluation, or perceptions of long-term visitors. Moreover, the evaluation is performed towards the case studies of three thematic approaches in Jakarta, which may not thoroughly represent the accessibility and diverse technical challenges encountered by distinguished urban contexts infrastructure of standard pedestrians.

The possibilities of future study encompass extending the framework of semiotics in assessing the accessibility and inclusivity of destination infrastructure towards the vulnerable urban groups. A significant potential in investigating the way the instagrammability and digital interaction could be combined into future planning of a smart city in encouraging the cultural identity and urban sustainability. Eventually, this research functions as a foundation for city planners and architects in perceiving infrastructure as a pivotal narrative means, not solely as technical tools, able to create sustainable and dynamic urban life.

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