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Material Story in Narrative Architecture: Capturing Dialogue Between Material and Nature

Irfany Roihana Putri[1] , Rini Suryantini[1] , Paramita Atmodowirjo[1]

[1] *Department of Architecture, Faculty of Engineering, Universitas Indonesia, Indonesia*
r.suryantini@ui.ac.id

ABSTRACT

This paper explores how material story constructs narrative architecture by highlighting the dynamic interplay between material and its surroundings. It argues that a story embedded within a material can hold greater importance than its physical form, providing a basis for developing narrative architecture. When material is viewed as something alive, its journey becomes essential to study. The story serves as a vehicle to reveal the nature of a material, including the hidden aspects, allowing other agencies to be part of the narrative. Focusing on brick materiality as a case study, this paper examines how material responses emerge through interactions between the brick and nature. Based on the grouping of the responses, four material-nature dialogues can be categorized: patterning, reflecting, growing, and nesting. This analysis demonstrates that material story allows materiality to be interpreted narratively, generating multiple stories as a basis for scenarios within narrative architecture, enriching the architectural design process.

Keywords: Material Story, Hidden Nature, Capture Dialogue, Agencies, Narrative

1. Introduction

This paper explores the material story as a means to expand the discussion of materiality-based narrative architecture. It focuses on the dialogue between materials and nature around them, which is rather limitedly discussed. Every material has its own unique story to tell, implying the real value of materials is beyond their physical reality [1]. Thus, the dialogue between material and nature, due to the interaction, relationship, and connection, suggests a greater importance than the material in its physical form.

The material is 'the thingly' aspect of the work of art, out of which art entities are made [2]. Architecture materiality is commonly defined by its physical components, emphasizing the substance of things as its main attention [3]. It is an important element in architecture, making it irremovable from architectural discussion. However, there are also times when architectural material is considered secondary, which leaves it under discussion, and this can create problems for the discipline and its critical accounts [4].

Material properties are the stories of what happens to materials as they flow, mix, and mutate [5]. Bannett (2010) emphasizes that materials are not static entities that passively wait for human intervention to catalyze them but are inherently active [6]. Material can also respond or react to external forces in the surroundings by changing its appearance as it forms into different shapes, making such interaction not easily disentangled [7]. Such relationships arguably lead to a dialogue between material and nature, which is

interesting to explore as part of the material story.

Rather than withstanding the nature of the material, storytelling embraces it as an understanding of how the building evolves, weathers, decays, and adapts [8]. Material as a living thing allows the production of the story involving material growth and evolution over time to be explored. Exploring material stories allows creative interventions to manipulate responses as a way to communicate the process. Thus, this paper employs material stories as a vehicle to capture the hidden dialogue between material and nature, which will be further discussed in the following sections.

1.1 Material story as a way to explore dynamics between material and nature

The material story is about the journey of what happened to materials, highlighting the relation, connection, and interaction between material and nature that can affect the narrative. As part of understanding architecture materiality, the material story delves into how matters that construct a material can create and transmit stories through their interchanges with other forces [9]. However, material story is not always restricted to the physical presence of materials in a variety of forms and types [10]. The material story is also embedded through its metaphorical, analogical, or literal production, generating its own story [2]. Thus, the dialogue within a material story explains parts-to-whole relationships, organizational configuration, and phenomenological effects that arguably enhance the story itself [11].

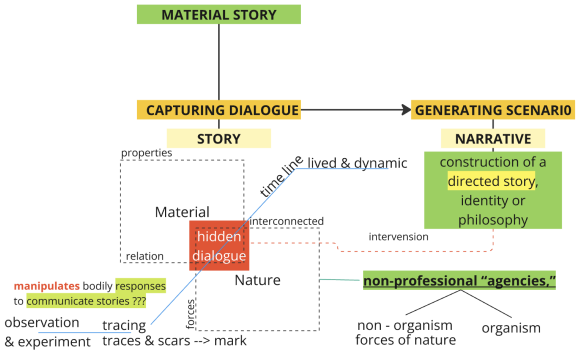
Diverse stories may exist in the world through the properties and agencies of materials [9]. In the material story, the changes within materials can be unforeseen and also unavoidable due to the role of non-professional "agencies" [12]. These agencies often enrich works in ways that go beyond what the design intended, including nature [12]. Thus, in this paper, nature becomes a non-professional agency.

In the material stories, the material becomes the actor and plays an active role in the dialogue with nature. The development of the storyline can be crafted by the dialogue between material and nature concealed through the dynamics and exchanges between both. Such dynamic and interactive events unfold the narrative in which the story takes place along with its characters [13], which can be exercised within the story through the deeper engagement of its actor [14]. In this case, the surface of the material becomes crucial as it is a witness that carries the narrative of such dialogue [15].

Nature as a non-professional agency includes living organisms or non-living objects. For example, weather is believed to be the most obvious agent in the transformation of the material fabric of the building [6]. Winter (2004) explains that plentiful rain and humidity can provide a rich condition for bacteria, plants, and other agents to interact with the material [6]. In response to such external forces, the hidden behaviors of material as a living actor could be revealed through their macro and micro growth processes [16]. As the growth process of other living actors is assisted by the existence of local resources, there can be further dialogue exists between material and nature [17]. The non-human agency brings through the pattern creations across the material surface through the biofilms—a single or multiple-species population of micro-organisms that adhere to each other on the lithic surfaces [6].

Material stories insinuate an intriguing way to investigate architecture's materiality (see Figure 1). Through the dialogue between materials and their surroundings, the interaction of organisms or non-organisms,

including their growth and the possible organic pattern of their surface, can be highlighted, showing the significance of the material story. Those stories might detail the relationship between materials and their places of origin, which can contribute to the narrative of diversity and collectivity [10].



Source: (Author, 2025)
Figure 1: Capturing Hidden Dialogue Between Material and Nature

1.2 Material story as a dialogue between material and nature

The dynamics within a material story can provide a basis for the design process. The material story can serve as a framework of ideas that support the multidimensional exploration of the employment of material and its relation in space and surrounding context [11]. Involving design as a systematic dialogue with material at various scales, times, spaces, and energies within an environment can establish interrelated relationships between form and performance [18].

This study positions architecture as a network rather than a discrete thing [10]. According to Shanks and Tilley (2007), materiality serves as the interface between individuals, the environment, and their interactions as a component of a social system [1]. Riskiyanto et al. (2021) extend the dialogue with living material while seeing the process as a whole and beyond their properties [16].

The relationship between material and nature can be disseminated into architectural components, where the dialogue with nature can be articulated as stories, creating design as an experience [19]. Thus, material stories involve meanings, properties, and processes in which human and non-human players are interlocked to produce a network as an undeniable signifying force [9].

The dialogue between material and nature employs dynamics to generate scenarios as part of the design process. It provides a basis for developing design principles that embody the potential of architecture's materiality.

Based on the exploration above, it can be seen that material is an active unit and interconnected with its agencies. Various texts can be employed to present creatively to present the dialogue between material and nature. Such an approach can be used as a basis for generating scenarios in narrative architecture, compelling an alternative for architectural design.

1.3 Material story as a basis to generate scenario of the narrative architecture

Material stories play an important role in the making process of architectural design. Departing from the idea that architecture is a form of spatial storytelling, the material story becomes a way to mediate human knowledge and architecture. The stories can be constructed through the construction of meaningful materials, configurations, and time [20].

Furthermore, material stories can be used to reveal the hidden nature of a material and to see the transformations or changes that can occur in the material [21]. Thus, it is important that the making of the scenario reveals not only the visible dialogues but also hidden ones. Revealing the unseen and hidden in the story becomes valuable as it opens the possibility of solving the mystery of the

material [22], creating an intriguing speculation of space and thus enriching the architectural design.

Such elaboration suggests how material stories, through their narrative, offer the possibility of producing architecture with more meaning [23]. According to Pssara (2009), the story's operation includes structure, the form of the sequence of events, and a field with various meanings during the architectural process [14]. Thus, the scenario in the material stories is developed based on the dialogue between material and nature, leading to alternative modes of spatial operations and constructing a particular design method [14].

1.4 Research objectives

This study aims to explore material stories and to reveal the dynamics of material by capturing the dialogue between material and nature. The material stories are proposed for revealing the hidden dialogue used as a basis to generate a speculative scenario. Such a method arguably enriches the narrative architecture through its diversity and collectivity [10].

2. Material and Methods

This study aims to explore material stories as a basis for making scenarios in designing narrative architecture. A story can serve as a unique method of knowledge transfer [24]. It can be used to capture the dialogue between material and nature, which is still limitedly discussed. Thus, it attempts to reveal the hidden dialogue, highlighting the dynamics and interactions between them.

This study employs a qualitative study, beginning with the theoretical exploration to gain a comprehensive understanding of investigating architectural materiality through the stories of the material. In this study, the material is positioned as an active entity that is interconnected with its agencies rather than static ones [6].

2.1. Brick material as a case study of the material story

This study employed the brick material to be specifically observed and scrutinized. Brick material is explored in this study as it holds interesting material characteristics. According to Dalkinic and Nabikoglu (2017), bricks are one of the oldest and most used technologies in architecture [25], which are particularly durable and can last for hundreds of years. Furthermore, its characteristics to release and absorb moisture efficiently [6] allow the material to interact with other actors in nature.

The observation paid attention to its character as a living material and its dynamic interactions with the surrounding nature. The study took place on the campus of Universitas Indonesia in Depok, Indonesia, where brick material renders the architecture of the campus and is applied to various architectural elements, including walls, stairs, and signages (see Figure 2).

Source: (Author, 2025)
Figure 2: Brick material as a case study, taking place at UI Campus Depok, Indonesia

2.2. Visual observations and analysis to reveal the hidden dialogue

Visual observation is carried out to capture the dialogue between material and nature. Ingold (2013) explains that any material is a riddle whose answer can be described only through observation and engagement, as the riddle will give the material a voice and allow it to tell its own story [26]. In this case, visual observations were conducted on particular brick surfaces that are exposed to natural forces, such as sunlight and rain, as it was captured through walk-through observations (Figure 2), collecting 20 spots that showcase traces of the dialogue. The changes in brick characteristics and involvement of other living actors and agencies were captured through visual documentation to be further analyzed.

The observation was conducted to determine the dialogue that has transpired between material and nature, the interactions that have been generated, and how they have been transformed. To understand the dynamics that had been produced, the process continues by examining brick material compositions as a case to explore the unseen and hidden dialogue and events by tracing the process.

According to Cramer and Breitling (2007), traces and scars on a history that have left their mark on the building fabric, which can be seen on its layer, can be used as an assessment of the significance of the building, its characteristics, and its quality [8]. Traces are witnesses to movement and time, used to describe patterns of use, and marks are also used as indications to predict future events [12]. Littlefield & Lewis (2007) mention that, although traces of the activities of various agencies may fade over time or be washed out by cleaning, over the long term, the warmth and grease of the dialogue between material and nature will remain visible [8].

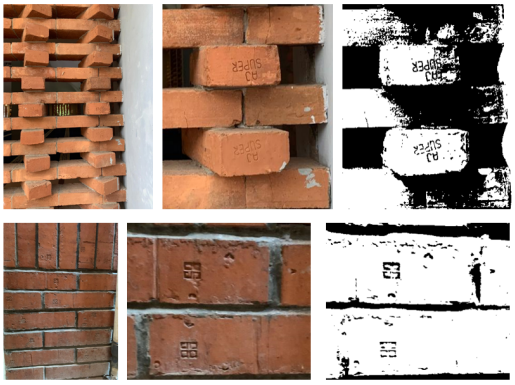
The tracing method is employed to examine the story of the material and to determine the dynamics that emerge from this dialogue. The tracing process was also conducted to capture how the material changes in relation to its location and surroundings. Based on the tracing result, a visual grouping is carried out, such as patterning, reflecting, growing, and nesting. To elaborate on the idea, texts will be used to represent the speculative dialogue between material and its surroundings, employed to generate scenarios, developing speculative storytelling in the narrative design.

3. Results and Discussions

3.1 Dynamics within the hidden dialogue

The story begins by identifying material surfaces that comes into dialogue with the nature around them. Variations of marks and scars on the material surfaces indicate a variety of relations between the brick material and nature. Thus, to unfolds such variety, marks and scars on the material surfaces were traced.

In this study, the marks on the brick surface indicate scars of history that signify the original production place of the brick material. There is a layer of information that can be revealed using the marks that were stamped on the surface. The identity of the maker is imprinted on (see Figure 3) the bricks by the mark on the brick material, regardless of whether it is a personal mark or other indications of their presence, which was asserted by Sennett (2008) [25]. The information from the marks allows the understanding of brick characteristics, such as the color, size, porosity, and integrity of the brick, as the basis of possible dynamics and interactions with nature.



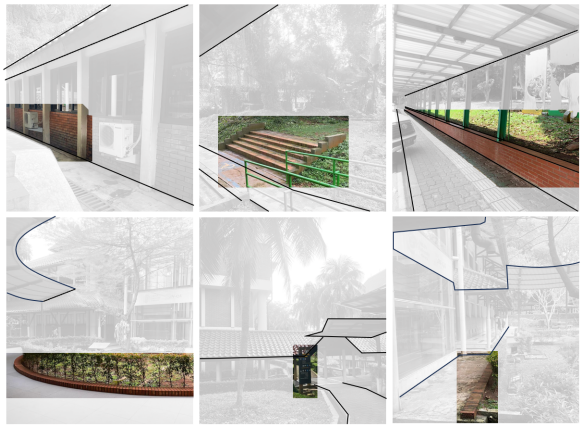
Source: (Author, 2025)
Figure 3: Marks and scars of brick material

The dialogue between material and nature within a certain period of time produces marks. The marks create particular patterns on the brick material surfaces. As material comes into dialogue with the surroundings, changes appear and continue to evolve as long as the dialogue with the nature that surrounds it takes place.

According to the marks that emerge from the dialogue between material and nature, various forms of grouping are implemented. Four groups can be identified, namely patterning, reflecting, growing, and nesting. Furthermore, each mark cast on the brick surfaces will be used to reveal material-nature mechanisms.

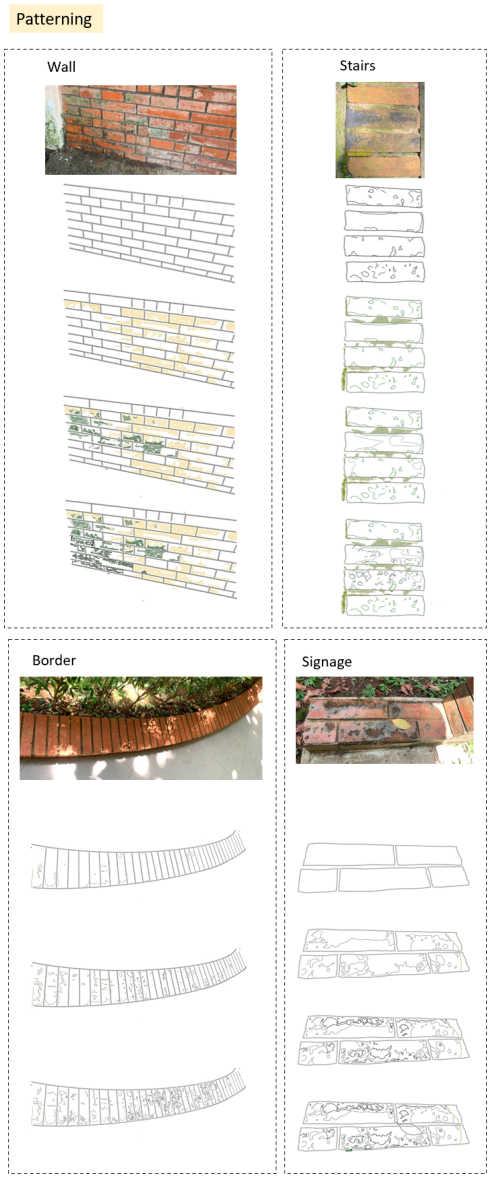
3.1.1 Patterning

Patterning results from the traces of nature that are cast on the brick surface. Different patterns are shown on the brick walls and stairs (see Figure 4). The traces show organic patterns formed by lights and shadows cast through the tree leaves above the surface, the presence of moss on the brick surfaces and the gaps between the brick layers, and also different brick coloring and dampness.



Source: (Author, 2025)
Figure 4: Various brick material arrangements

The various patterns on brick material suggest that numerous dialogues between the material and the surrounding nature—light, shadow, air, dust, water, and vegetation—have taken place. Based on the positions of the brick material and the interactions that occur, it can be seen that the organic pattern is contingent upon the temporal aspect. The longer the brick material has been in existence and comes into dialogue with nature, the more unique the organic pattern will be.



Source: (Author, 2025)
Figure 5: Patterning from the dialogue between brick material and nature

From the tracing above (see Figure 5), the initial stage of patterning from the marks on the brick surface. The initial stage can be seen within the dialogue, with nature leaving marks on the brick surface, starting with small darker spots. The spot patterning process may commence with expansion, deepening, and becoming wider over time. This process may result in darker areas on the surface, which later develop into bigger coverage and are combined with another organism, namely the moss.

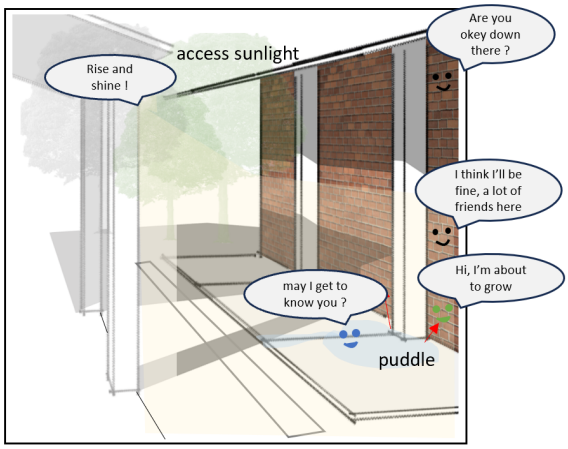
Dialogues that occur continuously over a certain period of time make it possible to create a growing pattern. In this case, the presence of nature plays a significant role in material stories, in which weather is considered the most obvious agent in the transformation of material [6]. As a force of nature, the presence of water and sunlight plays a big part in the story, which can affect the humidity level around brick material in generating the patterning process.

However, such patterning on surfaces is also related to the material properties. Here, surface alterations of the brick surface are also influenced by the properties of the material itself. An uncoated brick is porous and allows water to absorb and trap humidity within, while the coated brick is sealed and stays waterproof.

Additionally, brick placement can significantly impact the dialogue between the brick material and nature (see Figure 6). The closer its position to the ground and the more exposed and direct it is with nature, the more obvious the patterning. Some of the bricks are exposed and have direct access to nature, while others require the assistance of other agencies to engage with nature.

Having access to nature, the interaction that happens on the lower part of the brick wall gets a higher chance of exposure to nature compared to the upper part of the brick wall. The upper part of the brick wall is covered by the roof above it, so the upper part is protected from direct natural light and rainwater. However, that is not the case with the lower brick wall part. Being unsheltered, the lower brick wall is more exposed to sunlight and rain, creating surface alterations through changes in color. Some of the colors of the

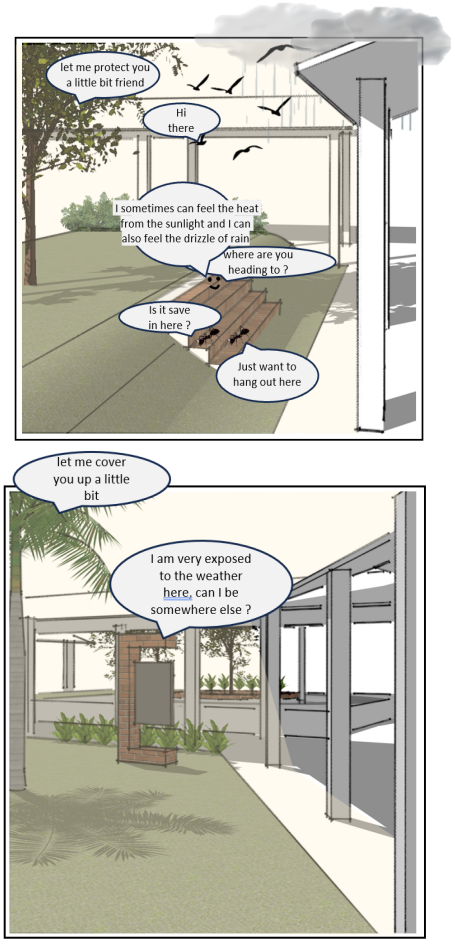
brick on the wall turn fade, causing a brighter color on the surface.



Source: (Author, 2025)
Figure 6: The dialogue among brick as a vertical arrangement with the sunlight, water, and the moss

As mentioned before, the material properties play an important role in surface alterations. The presence of water on the brick wall creates humidity in the surrounding area, attracting other organisms to come near them. The brick allows the presence of moss to join the dialogue with the brick material. The moss can grow on the brick material's surface and between the brick arrangements. The continuous dampness of the area makes the moss grow easily and inhabit the brick surface. It grows and becomes bigger, creating a surface patterning as it interacts with water and damp air, showing its longer existence on the surface materials.

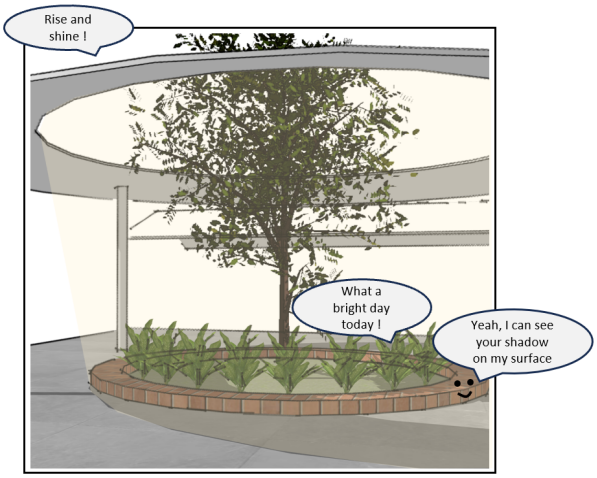
On the other hand, the presence of the trees, as another actor in the dialogue, covers some part of the brick material and affects the access of sunlight and raindrops while casting an organic pattern. Some parts of the surface become darker due to the condition of weather. A stain can leave its mark through the involvement of the sun, rain, and dust [27]. Spots on the surface of the material appear not only due to the interaction with the rain but rather can also be the role of an unknown agent, which can affect the result of the patterning process (see figure 7).



Source: (Author, 2025)
Figure 7: Dialogue between the unsheltered brick arrangement and the surrounding nature

The interaction between trees and sunlight in the morning can provide beautiful shadows in their projection. Applying brick material as a border on the floor can generate a pattern on its surface (see figure 8). The role of the sunlight plays an important part in this patterning production process. The canopy located above the border serves as a directional control for sunlight, which can influence the appearance of shadows on brick material. The pattern that emanates from the dialogue between sunlight and the surrounding nature, which is in dialogue with the brick material, is also influenced by the shift from morning to evening sun.

The shadows cast by the trees shade and protect other organisms. The shadow dynamics on the brick surface allow further interaction with other living organisms, such as insects and small animals like cats, influencing the results of the patterning process.



Source: (Author, 2025)
Figure 8: The dialogue among the brick as a border, the tree, and the sunlight

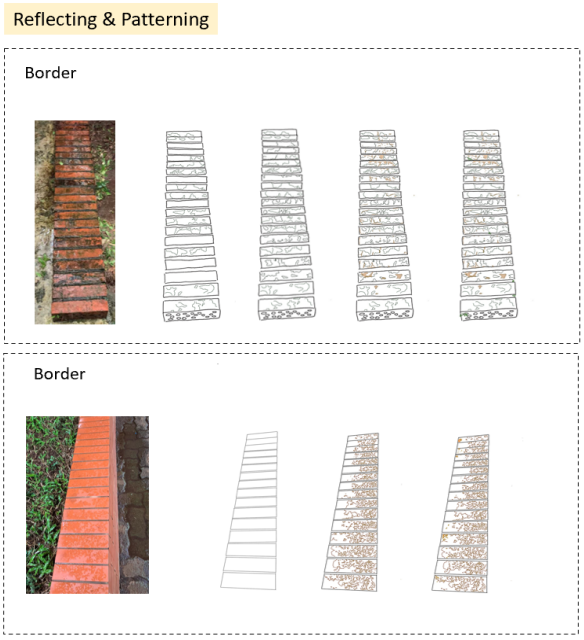
The organic patterning shows how the dialogue of brick material dynamically constituted changes induced by natural forces and interactions with other agencies of nature. With the assistance of other living organisms, a patterning mechanism occurs, indicated by a longer dialogue with nature directly. The pattern keeps growing and evolving, attracting further material and nature dialogues. The intensity of such dialogue will eventually result in material transformations, such as cracking, growing patterns into new directions, and further patterning processes.

The production of various patterns insinuates how organisms and non-organisms work as important agencies in the patterning process of brick surfaces. The patterning process also shows that there are layers of dialogue between material and nature to be seen, which involves not only nature and other agents but also the time that allows the growth and development of the other agents.

3.1.2 Reflecting

Reflecting is the dialogue between the brick materials and water that creates a reflection as a result. The rain that drops on a horizontal surface and stays as a puddle creates the brick material as a reflective surface. The presence of water on the brick's surface gives a reflective impression of the adjacent living organisms and nonliving objects. In this case, the brick material interacts directly with water, creating a reflection on its surface as a border (see Figure 9).

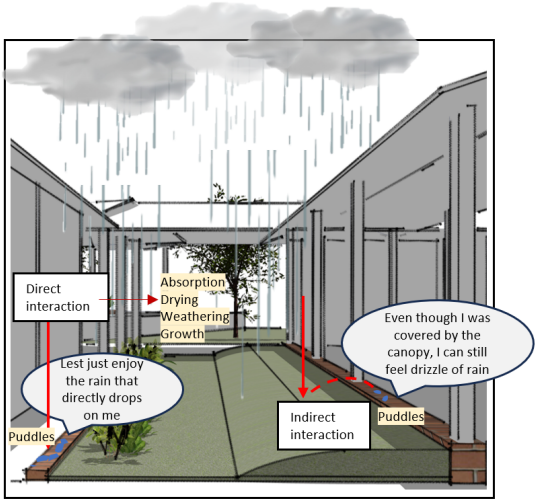
A direct heavy rain resulted in the formation of numerous puddles of water. In turn, the large amount of rainwater generates more clarity in the reflections. The more water collects on the brick surface, the more reflective the impression will be. By having direct access to rainwater and the surrounding environment, the dialogue between brick materials is quite intricate.



Source: (Author, 2025)
Figure 9: Tracing of brick material, which produces reflective and pattern

Aside from the direct result of having water puddles on its surface, which creates reflection, there is also an indirect interaction between the brick and the rainwater. From the tracing process, it can be seen that different access to the water creates different patterns on the brick surface. Upon reflection, the dialogue between the brick and the rainwater invites further mechanisms, namely, patterning. In this case, the puddle presents an intricate pattern on a brick surface. On the reflective surface, unique patterns of the water puddle that stays on the brick surface can be observed.

Meanwhile, the indirect interaction with the rain created a puddle that reflects a more minor water splash (see Figure 10). The water does not stay on a surface to create a reflection, but instead generates droplet patterns on the brick and its surroundings. If the rainwater drops on a grassy surface first, the water bounces and splashes further to the brick surface in the adjacent site, leaving small patterns on it.



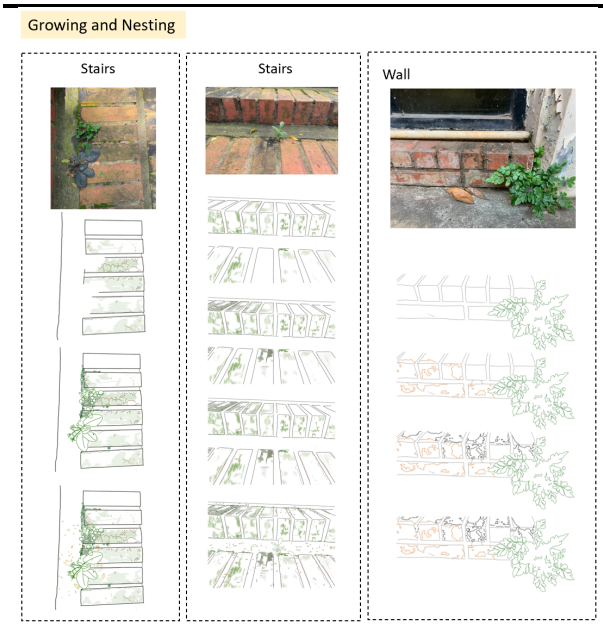
Source: (Author, 2025)
Figure 10: Direct and indirect dialogue between the brick and rainwater

Furthermore, it appears that the interactions with rain create further stories. The dialogue between brick material and water generates reflecting and patterning mechanisms that allow the possibility of further dialogues. An interaction with plentiful rain and humidity can provide rich conditions for bacteria, plants, and other agents to be in dialogue with the material [6]. The porosity of the brick that captures the dampness from the water allows inhabitations of other agents, allowing them to grow and create further patterns on the brick surface.

3.1.3 Growing and Nesting

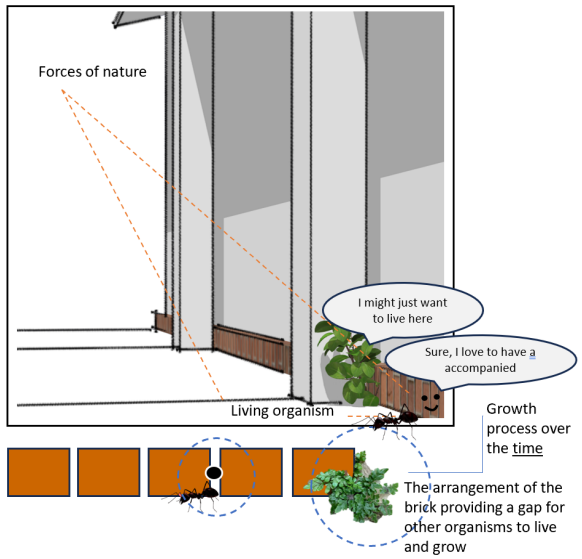
The dialogue between material and nature welcomes other agents to live and grow. According to Gibson (1986), time plays a role in the material growth process [16]. Through the observation, shows that the growth process not only happens within the brick material itself but also allows other creatures to join.

As mentioned above, the growth process of a plant is where the plant is functional from the moment the seed is laid, and during the growth process, the plant fulfills its tasks, which are assisted by the existence of local resources [17]. As a result, the local resources are crucial to the growth process. In addition, collective materiality is also derived from local resources, which can influence the story of the material [10].



Source: (Author, 2025)
Figure 11: Brick surfaces that allow growing and nesting mechanisms

In the course of a plant's growth, a variety of non-human agents can initiate numerous dialogues between material and nature. Presumably, the brick material in this context is surrounded by a variety of agents that operate in the growth process of plants.



Source: (Author, 2025)
Figure 12: Brick material that induces growing and further nesting mechanism

Being outdoors, the brick material attracts attention from various organisms, coming to have dialogue. Brick's porous capacity to contain water and moisture supports plant growth. The existence of brick materials enables a distinctive sense of harmony with its surrounding environment. Such dynamics and interactions with nature invite the creation of multiple dialogues, from growing to nesting.

Once a dialogue with nature is established, a plant continues to grow and adapt within its environment, settling its inhabitation through its roots and other organs. As the plant makes its way to secure its position, the brick material is being negotiated. The brick begins to deform and crack, creating a space for plants and establishing bio-colonization. Sunlight and rain collaborate and provide the plants with the necessary nutrients for photosynthesis [27].

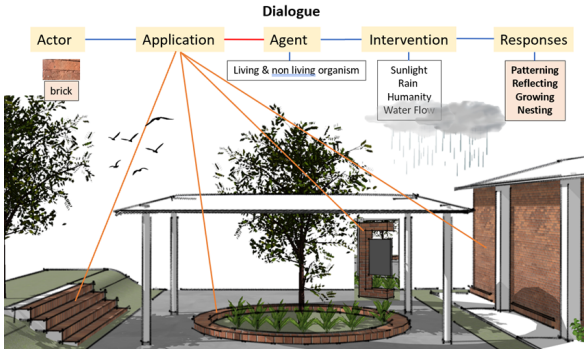
Through the gap between brick arrangements, organisms can create space for plants to grow. Some plants adapt to their environment and continue to expand in the surrounding area. It is apparent that the brick material allows such a process, the growing and further nesting mechanism, making a bigger bio-colonization of plants on the brick surface.

The growing process does not stop there, it continues with the nesting mechanism. The gaps also enable living organisms. There are other living organisms, such as insects and small animals, that play a part in the bio-colonization process. The animals carry the seed and stimulate further growth. Once a seed is set within a gap on the brick surface with adequate moisture, the seeds can commence to germinate. Not only can they live there, but they can also breed. It shows how brick materials can provide an opportunity for an organism to live between its arrangements.

As a local condition, wind loads and vibration affect the growth of the plant, and the chemical environment stimulates metabolic activity while structural and form adaptations are considered [17]. Not only does this promote growth, but it also allows the process to change over time in response to the influence of the surrounding context, including patterning and nesting. The growing and nesting mechanisms as a dialogue between the brick material and nature depict the temporal aspect, making the material story expand unexpectedly.

3.2 Revealing multiple stories within the dialogue between material and nature

The elaboration above suggests that such dialogue between material and nature, along with various agencies, can create multiple stories (see Figure 13). The dynamics and interactions between material and nature allows not only patterning, reflecting, growing and nesting, as well as involvement of other agencies to become a part of the story. The living organism and non-living objects involve in the dialogue play a part in injecting the story with layers of story. The whole dialogue enriches the brick story as time goes by.



Source: (Author, 2025)
Figure 13: mechanism of dialogue of material and nature

The dialogues that happen can create more than one story. Rain which can create patterning and also reflect impressions, meanwhile growing can also cause nesting by the high interaction with a living organism or non-living objects from the surroundings. Such dialogue sets off the material to further evolve dynamically within time.

The findings also suggest that dialogue between material and nature produces surface alteration, transformation, and movement. It can be shown by the indirect interaction between brick surface and water as well as the growing and nesting process by moss and other organism. Location and position of the brick material, the exposure to nature, and the possibility of other actor's involement plays role as interventions and responses to be captured in the story.

4. Conclusion

Based on the study above, the findings of this study demonstrate clearly that the story of material is constructed based on the dialogue between the material itself and the nature that surrounds it. The dynamics and interactions between the material and nature produce different kinds of dialogues. Through the inquiry into the material story, it can be concluded that four types of dialogue can be identified, namely patterning, reflecting, growing and nesting. Based on the exploration, it can be seen that a story can be constructed from one or several dialogues which happen sequentially or simultaneously. The position and arrangement of material as the main actor play a role in creating different dialogues and even allow other actors to join the dialogue, such as living organisms and non-living objects.

This study expands the discussion of materiality in architecture and its possibility of generating scenarios for narrative architecture. Material is positioned as an active agent that can produce its own story, which is to be interpreted narratively in the design process. It also shows how the story can be layered

through dialogues that occur within the temporal arrangement, creating multiple stories that enrich the architectural design process.

Through material story, welcoming other agencies to be part of the story enriches the story and creates a multiple material story. From the story, we can see various responses resulting from the dialogue between material and nature, such as patterning, reflecting, growing, and nesting, that the mechanism can be used to generate a scenario in the architectural design process.

The study raises further questions on how different materiality comes into dialogue with nature, as this study only focuses on brick materiality within a limited natural context. This becomes an important knowledge that would change our perspective in seeing material and its materiality, positioning it as a primary instigator of narrative architecture.

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