

# A Science Education for Textural Creation and Iconic Forms of Infrastructure at Medan

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**Abstract:** Medan City, as the center of the Deli Malay Sultanate and the colonial administration in the past, boasts numerous iconic forms. The distinctive characteristics of these iconic forms hold significant potential for development as references in creating contextual texture painting art. Unfortunately, this potential remains largely unexplored. Therefore, this research aims to explore the potential of iconic forms in Medan City with the goal of developing them as references for the creation of textural painting art as a tourism product for Medan City. This study employs a descriptive qualitative approach, conducted both in the field and in the studio. The methods employed include surveys and creative creation, applying Graham Wallas' theory of creativity. Research data is collected from various sources using relevant techniques, subjected to data triangulation, and analyzed following an interactive model: data reduction and presentation, verification, and drawing conclusions. The research results indicate that the potential of iconic forms as references for abstract textural painting art emerges from their representation of Medan City's character, alongside the dynamic nature they embody. The exploration of abstract textural art becomes tangible during the painting process, which, in this study, involves deformative processes, particularly simplification and stylization. Abstract textural painting art is explored based on the principles of visual art and tourist art, resulting in artworks that possess both aesthetic and technical qualities as tourism products.

**Keywords:** Iconic; Infrastructure; Science Education; Textural Creation

## Introduction

In general, the understanding of iconicity is discussed and understood in the discipline of semiotics, which deals with the relationship of signs (Ibrahim & Sulaiman, 2020). It can be understood that iconic forms are forms that image or represent the character of certain objects (Budiman, 2012). Based on this understanding, the iconic form certainly characterises the identity of the character it represents (Brilmyer, 2022; Imaduddin et al., 2020). Medan City as a historical city has many forms that can be categorised as iconic forms or objects. Some of them have long existed and become monumental identities, or landmarks of Medan City.

For example, in the architectural category, there are buildings from the Malay Deli sultanate, namely the

Maimun palace and Al Mashun grand mosque, colonial heritage buildings such as the post office, tirtanadi tower, London Sumatera building, and others (Zulkifli et al., 2021). The category of city transport means, namely the legendary motorised rickshaw (betor), as well as paddle rickshaws, and Medan's angkot called "sudako". There are also visualisations of Malay dance forms and music.

It can be said that iconic forms in the category of buildings in Medan City include Malay sultanate buildings (Ginting et al., 2020; Sitorus et al., 2023), as Medan city is a Malay Deli city. Then the colonial buildings, which are the buildings of the Dutch government in the past. Dutch or European people have long come to Medan City for tourism, because Medan City is the gateway to North Sumatra. Therefore, it is not

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surprising that Medan City is nicknamed the Parijs van Sumatra (Yasyi, 2020). The heritage buildings of the Malay Deli sultanate and Dutch colonial buildings are icons of Medan City that must be preserved (Arianto et al., 2021; Harahap et al., 2021; Tanjung et al., 2022).



**Figure 1.** Science Education for the Public: Geometric Iconic Forms in Tirtanadi Water Tower and Post Office (Source: <https://medan.tribunnews.com>)

Although these iconic forms have long existed in Medan City, some are legendary and have become a marker for people outside Medan City, not many have explored them as a reference for tourism souvenirs. The souvenir products marketed in Medan City are of a general nature, which are not specific to the visual culture of Medan City. Some of the products are imported from Yogyakarta, an area that produces many handicraft items.

Through this research, we developed a souvenir product in the form of textural abstraction painting based on the iconic forms of Medan City. These iconic shapes offer many alternatives as artistic points of view in painting. For example, in one building form, the focus can be taken on a certain point of view and on certain artistic parts. The results of identifying these iconic forms are stored in a data file as documentation. In order for the preservation and development of iconic forms to continue, development models were created.

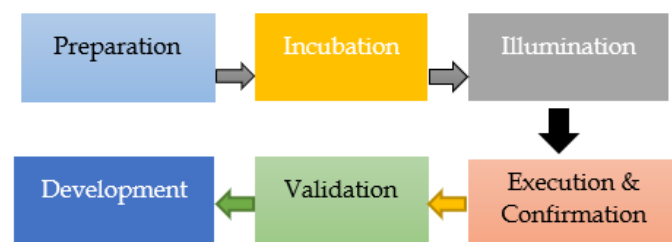
In the development of modern painting, there are many styles and styles that have developed, commonly called genres, ranging from naturalism, realism, impressionism, expressionism, to abstractism. The abstract style contrasts with the realist or naturalist style. In general, abstract painting is painting without a representative, nonfigurative form, which is revealed through the arrangement of lines, shapes, and colours. The development of abstract painting in America and Europe in the early 20th century was when artists broke free from the previous conventions of painting, which considered that painting imitated nature (M. Susanto, 2011).

In its development, it can be observed that although abstract painting does not imitate nature or does not display a particular form, it does not mean that it does not have any relationship with the form or form that we know. One's experience of form is an important factor in appreciating abstract paintings. In this case, the painting has associations with certain forms, and feelings of nature (Pertiwi & Wiguna, 2019). In this research, the painting objects to be explored are abstracted from the character of the iconic forms of Medan City. This means that even though it has been abstracted, the visualisation of the painting still depicts the shapes that are known to the public as the markers of Medan City.

In accordance with the notion of abstraction, where the emphasis is on process, in this research, the process of abstracting representative objects is carried out so that they no longer fully imitate nature or certain forms. Furthermore, the abstraction of painting is done by creating a textured painting. The creation of this textural abstraction painting is a developmental effort from the research team to create an innovative form of painting, modern in style but still portraying the local character.

## Method

The creative creation method was developed based on the creative process theory formulated by Graham Wallas. This creativity method outlines the creation process starting from preparation, incubation, illumination, execution, confirmation, validation, and development (Botega & da Silva, 2020; Damajanti, 2006). Data sources to obtain valid data were sourced from various references, photo documentation, interview results, and creation process notes, as well as appreciative responses (Martinsuo & Huemann, 2021). The informants interviewed were experts who understand the history of Medan City (Achmad et al., 2023), especially related to its iconic forms, as well as art observers and the public who attended the exhibition.



**Figure 2.** Flow Method of Study

In accordance with the determined data sources, data collection was carried out through literature or reference studies, field observations in Medan City and its surroundings, photo and video documentation, interviews and discussions with sources (informants), daily recording of the creation process, and distribution

of instruments for appreciative responses. The creation process began with data collection of iconic forms of Medan City through observation, photo and video recording, complemented by interview and discussion data, as well as literature review.

Then, after the creation process, data collection was carried out based on appreciative judgements by observers and the public who watched the exhibition and who participated in appreciative discussions. To ensure the validity of all data collected, testing was carried out based on data triangulation, through a process of comparing data from various sources. Furthermore, data on the creation process was obtained based on daily notes and careful recording (Susanto et al., 2023).

As a research product in the form of tourism souvenirs, the textural abstraction painting was tested for quality based on two forms of assessment. The first is based on an aesthetic quality assessment conducted by five competent observers (Di Dio et al., 2023). The second is based on the appreciative responses given by the public when exhibitions and discussions are held. Data related to the potential of iconic forms of Medan city in general, then the aesthetic potential of representative reference characteristics, the quality of the design and exploration results of innovative textural abstraction paintings, and the evaluation results were analyzed descriptively qualitatively (Pramezwarly et al., 2022; Siahaan et al., 2021).

In this case, all aspects of the assessment formulated as indicators were analyzed comprehensively and deeply. After that, data interpretation and research conclusions were drawn as an interactive data analysis model, including: data reduction and presentation, then drawing conclusions or verification.

## Result and Discussion

To answer and explain the solutions as the previous research problems, the results and discussion section presents several aspects of the study, including: the potential character of iconic forms of Medan City as a reference base for the creation of textural abstraction paintings; the process of exploring textural abstraction of iconic forms of Medan City in digital-based design visualisation; and the exploration of textural abstraction painting based on the principles of fine art and the principles of art tourism.

### *Iconic Forms for Textural Abstraction Painting: Shape and Physic Material*

The iconic form of Medan City is a form of representation that characterises Medan City through the existence of historical and cultural products of the community (Surip et al., 2021). The products include historical buildings, transport facilities, and cultural arts.

Historic buildings that become the icon of Medan City can be grouped into colonial buildings and Malay Deli glory buildings (Gultom, 2022). Colonial heritage buildings include the Medan Post Office, London Sumatra Building, the old City Hall, Medan Railway Station, and buildings in the Kesawan Medan area (Liyushiana et al., 2022). Historic buildings from the Malay Deli heyday include Maimun Palace and Al Mashun Grand Mosque. Outside this category are the Tirtanadi water tower and Tjong a Fie's house, which have become iconic in Medan. These iconic forms of buildings or architecture are also often referred to as landmarks of Medan City.



**Figure 3.** Geometry science education on straight and curved lines and physics of materials (Source: <https://www.google.com/>)

The iconic colonial buildings of Medan City are generally located around Merdeka Square and the Kesawan area of Medan (Khairannur et al., 2023). Merdeka Square, also known as Medan City square, applies the colonial-style arrangement of city buildings and government buildings (Saktian, 2020). Therefore, this kind of arrangement model is also relevant in other cities in Indonesia. In addition, Merdeka Square is known as the zero kilometer marker of Medan City. On the four sides of the perimeter of Merdeka Square stand government offices and public service offices, namely the old City Hall, Post Office, Railway Station, and London Sumatra Building. While the Kesawan area is in the southwest direction of Merdeka Square, which is a trading area.

Aside from representing Medan City, the potential of the iconic forms of colonial buildings as a reference for textural abstraction painting is also in the character of the dynamic forms they contain (Lindarto & Harisdani, 2023; Wildgen, 2023). Colonial buildings are tall buildings, either multi-storey or single-storey buildings with high ceilings. These buildings look solid, with strong construction and thick walls, have many doors



and windows, and in certain parts apply variations of curved patterns. In general, the character of this building is Art Deco style.

#### *A Collaboration Between Physics and Aesthetics*

This textural abstraction painting is explored based on the principles of fine art and the principles of tourism art. These two principles are applied to produce painting products that not only have aesthetic quality but also technical quality as tourism products. Based on the principles of fine art, at least the explored textural abstraction painting products fulfil the principles of unity, balance, rhythm, and emphasis. The principle of unity emphasises the unity of theme, style and technique applied. The theme is definitely related to the basis of the iconic forms of Medan City that are used as references. The style developed is abstraction with tafril processing that has layered textures. Then the technique in the visualisation of textural painting using tafril from rubber material, worked on using soldering tools, and supported by thick brushstrokes from the application of impasto technique.



**Figure 4.** Dutch bricks: The Physics of Quality Materials  
Source : <https://omahbata.com>

The balance principles applied are symmetrical and asymmetrical (Zavadskas et al., 2021). The application of this principle can follow the reality of the balance that exists in the referenced iconic form, or conditioned when determining the object's point of view before painting. The balance that requires the painter's foresight is asymmetrical balance, because in this case the objects and elements of objects that are composed are not the same between the left and right parts, but must have a visual balance (Sanders, 1998). The balance applied in this painting exploration is generally an asymmetrical balance, by processing elements of shape and colour that impress a balanced sense of weight.

Next are the principles of rhythm and emphasis. In this research, the principle of rhythm is expressed through variations in the form elements that are composed. These form elements include the pattern of shape and colour, size, distance, and direction of all the composed elements. This rhythm principle makes the painting look dynamic. Moreover, with the presence of

the principle of emphasis (centre of interest). In this explorative painting, the principle of emphasis is manifested through the elements of field, colour, and texture.



**Figure 5.** Bank Indonesia Building Medan (Source: <https://www.idntimes.com>)

To support painting products so that they are worthy of being used as tourism souvenir products is by applying the principles of art tourism. In this research, the developed painting product measures 60 cm square, so that it can fulfil the principle of simplicity as a souvenir product. In line with this, the principle of practicality to be packaged and carried by consumers is applied. The tafril of the painting is made rigid through the application of rubber sheets attached to the plywood, making it resistant to pressure. The frame of the painting is made higher than the tafril so as to protect the painting from friction with other surfaces.



**Figure 6.** Exploration of Textural Abstraction Painting Based on the Principles of Fine Art and the Principles of Art Tourism

The principle of variation in the artworks is realised through a variety of choices of iconic objects of Medan City. Moreover, the variation is also supported by the use of freer colours due to the abstraction process that does not merely follow the natural colours seen in nature. Despite being abstracted and applying the principle of variation, the distinctiveness of the iconic

form of Medan City is maintained, thus imaging the local nuance products of Medan City. Then the principle of art tourism that is relative but still must be taken into account is the price that is not expensive. This has been taken into account when determining the relevant materials and tools to realise this tourism painting.

## Conclusion

The iconic colonial buildings of Medan City are generally located around Merdeka Square and Kesawan Medan area. Merdeka Square, also known as Medan City square, applies the colonial-style arrangement of city buildings and government buildings. In addition, Merdeka Square is known as the zero kilometer marker of Medan City. The buildings of the colonial period are located differently from the buildings of the Malay Deli Sultanate, which are located in the Deli Sultanate complex, namely the Medan Maimun area. In this area stands the magnificent Maimun Palace and the magnificent and majestic Al Mashun Grand Mosque. Besides representing the city of Medan, the potential of the iconic forms of historical buildings as a reference for textural abstraction painting is also in the character of the dynamic forms they contain. Textural abstraction is clearly seen and felt during the painting process. When in the digital-based design exploration process, what stands out is the visualization of abstraction from the referenced iconic forms. The textural abstraction painting is explored based on the principles of fine art and the principles of tourism art. These two principles are applied to produce painting products that not only have aesthetic quality but also technical quality as tourism products. The style developed is abstraction with layered textures. Then the technique in the visualisation of textural painting is to use tafril from rubber material, worked on using a soldering tool, and supported by thick brushstrokes from the application of impasto technique.

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## Author Contributions

This study was conducted by me personally, so the content presented is my full responsibility. The single author provides a space for free expression so that the satisfaction of pouring thoughts can be accommodated.

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## Conflicts of Interest

There is no interest conflict in this research. this research is conducted for scientific studies that are widely disseminated through this journal. Writings that are free of conflicts of interest will be disseminated without fear of the author, so that they can be free to continue working.

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