The conservation of Javanese-cultured city through visual expression study on the architecture of Keraton Yogyakarta

Ibrahim Tohar1,*, Gagoek Hardiman2, Suzanna Ratih Sari2
1Student of Doctoral Program of Architecture and Urbanism Diponegoro University, Indonesia.
2Department of Architecture Diponegoro University, Indonesia.

*Corresponding e-mail: ibtohar@gmail.com

Abstract
Keraton Yogyakarta as a summit of Javanese culture has been renowned as a heritage building. As object of study, Keraton Yogyakarta is ornamented with a collection of architectural artifacts. The acculturation and merging of these different styles create a unique impression within the palace complex. This study aims to identify the pattern of acculturation of these two styles and to interpret their meaning and expression. A descriptive-qualitative method is employed in this research, which contains visual observation, documentation collection, interviews with informants, and relevant literature review. As results of study, the expression of Tratag Pagelaran, Tratag Sitihinggil, Bangsal Ponconiti, and Gedong Jene tends to widen, while the expression of Gedong Purwaretna tends to uprise. Every building has its own point of interest and ornamentation which its place and content are different. In visual observations, there are two categories of buildings in Keraton Yogyakarta, which accommodate two styles, namely Javanese Traditional style and Dutch Colonial style. Buildings of Javanese traditional style, which hold a special concept of shading, were built without buttresses and embody a 'light' expression, while buildings of Dutch Colonial style, which hold a concept of protection, were built with massive enclosure and produce a “heavy” expression. Although visually split into two distinct styles, the acculturation process in Keraton Yogyakarta produced a unity in its overall expression. The expression pattern of Keraton Yogyakarta can be used as conservation guidance of Javanese-cultured city.

Keywords: visual expression, architecture, Keraton Yogyakarta.

1. Introduction
Architecture is such a very comprehensive science that there are many other sciences directly or indirectly intertwined with it. The other sciences can be in the form of related aspects in architecture, such as aesthetic, logic, ethics, social, cultural and so forth. Every aspect involved in the architectural design will certainly affect the design result. These many considered aspects have also been applied by designers in their design process. The more aspects are accommodated, the greater the potential for the emergence of complexity. Complexity in architecture might be in the form of physical complexity and meaning complexity. Physical complexity signifies that there is complexity in architectural form, such as the facade, space organization, mass configuration or ornamentation. The complexity will 'work' on the physical level, which also would have caused the meaning complexity. A discussion about the relation between form and meaning has also been questioned by Psarra [1] and Ujang [2], how is the actual construction of meaning in a physical form, and how forms communicate their meaning to viewers. According to him, architecture is not merely an expression of meaning, but also a construction of meaning by means of space composing associated with the social and cultural context.
The complexity of meaning can also occur in a simple architectural form. In this regard, according to Broadbent [3], meaning in architectural objects can be traced through the architectural form. Bonta [4] states that the meaning of an object is affected by significant feature which is an abstraction of the physical form. Meanwhile, according to Venturi [5], complexity arises because there is a simultaneous combination of various elements in an architectural design. More specifically, Venturi [5] argues, the complexity of meaning in an architectural object can be traced through visual observation of the object. An object can be said to contain complexity if in the visual observation of the object emerged a variety of visual perception simultaneously. Visually, on each composition of shape and space, there will be an expression of emotion from the designer. The term “expression” is also often used in fine art, thus there is a certain style called expressionist. Expression, a revelation of one's feelings, can be observed in a musical composition. A music composer, will pour his feelings in the music he made. Thus the result of his music composition can be said to be closely related to the atmosphere and the feeling when the music is composed. According to Scruton [8]: “Expression is like a display of atmosphere, an abstract presentation of character. The distinction is not sharp, but I think it is real, and can be understood by comparing architecture with music”. Critically, Scruton [8] revealed a slight difference between the expression occurring in an artwork and the character of work designer. From this slight difference, it can be concluded that an expression of an artwork is an abstract of a designer character.

According to Scruton [8], the expression expressed in an art work is a representation of the artist or creator of the work. In this case, the expression of the artist is directly represented in the works so the expression arising from an art work is an expression of the artist or the abstract of the artist’s character that is personal. Expression is part of the manifestation of one's inner life, associated with feelings as the basis, which later are being disclosed. The expression of feelings is an expression that could lead to different interpretations from one person to another. Expression contained in an object possesses a subjective nature. In one same object, an expression that is occurred and captured by someone might be different with the other. It is due to the different feeling of each person. An object also allows the occurrence of an uncertain expression that is called by Scruton [8] as ambiguous expression. “A building might have an ambiguous character. At one moment it seems threatening and claustrophobic, at the next moment quiet and solemn”.

The ambiguity of expression contained in an object can be caused by the dimension of time. Definition of time can be associated with atmosphere, such as atmosphere during the day would be different from atmosphere in the afternoon. Thus the expression of an object during the day would also be different from the expression in the afternoon. Time dimension can also be related to time period. Therefore, in a single object, the expression in the past would also be different from the expression in the present. To reduce the ambiguity caused by the expression of time dimension, it is necessary to set a determination or limitation of time when observing study objects. On top of that, the time limit should be specific enough, for example, observation is performed during the day when the air is clear. For architectural works, an expression that occurs in an architectural work is a representation of the object or the work itself. The expression is an abstract of the object’s character that is impersonal. Related to expression, Weber [9] in his book entitled On The Aesthetics of Architecture mentions two theories that discuss expression, they are Theory of Empathy and Gestalt Theory of Expression.

Theory of Empathy views expression from the side of the expressing subject. This theory is strongly influenced by feelings and past experiences of a person. One can tell that someone in front of him is sad because he also ever felt sadness and once ever saw others in sad state. In this case, there is an empathy from a subject to an object. While empathy of each person is very different so that according to the theory, the expression of an object will be very subjective.

While Gestalt Theory of Expression reveals that each object always contains various properties. All of the existing properties will form a particular expression. So according to this theory, the expression of an object is determined by properties contained by the object. The examples are hue which is the property of color and size which is the property of shape, therefore an expression that emerges from an object, among others, is determined by the hue and size of the object.

In the following study, Theory of Empathy will be related to the subject or author. Thus there is still a subjectivity that is influenced by the feelings and experience of the observer on the expression of the object of study. It is also in line with what is expressed by Scruton [8] that expression occured in a
form owns its subjective nature so that it is necessary to utilize an instrument to assess. This study utilizes architectural instruments proposed by Rasmussen [10].

When observed visually, the architecture of Keraton Yogyakarta possesses a fusion of various design elements that can be observed through the building facades, building elements, outer layouts, ornamentation, and furnishing accessories. Each building in the palace owns a different form and atmosphere. Associated with the space order system, according to Rapoport [6], there are three important elements. The first is fixed features and the features included in this element are floors, walls, and ceilings. The second is semi-fixed features, such as furniture and space furnishings that can be moved. The third is non-fixed features, namely the space users performing activities in it. In each building of Keraton Yogyakarta, each of these elements will represent a partial meaning. Yet, when the three elements are present in a setting, it will convey new meaning which is a fusion of all the partial meanings.

There is a possibility that the fusion of the two styles is indeed a result of some of the concepts that had been deliberately combined, so that any element or part of the palace building has its own concept which was purposefully presented at the time and the place. Another possibility is that the fusion of each element and building is an expression of openness to cultural influences developing at that time, such as the culture of Hinduism, Buddhism, Islam, China and Europe. One of visually emerged influences is the fusion of Traditional Javanese style and Dutch Colonial style. According to Hadinoto, the Dutch Colonial style was mentioned as Indiche Empire Style [7]. The architecture of Keraton Yogyakarta certainly possesses its own aesthetic quality from the result of the fusion of some styles. The fusion of Traditional Javanese architectural style with Dutch Colonial architectural style will embody complex expressions. That expression complexity will convey the uniqueness of Keraton Yogyakarta architecture. To understand the complexity of expression in the architecture of the palace, it is substantial to carry out an in-depth study. There are two research questions arising in relation with the issue above; Keraton Yogyakarta is a collection of artifacts representing a fusion of Traditional Javanese style and Dutch Colonial style. How is the fusion pattern between the two styles in the architectural design of Keraton Yogyakarta?; How is the expression as a whole when both styles are applied in the architectural design of Keraton Yogyakarta?

2. Methods
This research utilizes qualitative descriptive method. This is in accordance with the purpose of descriptive research which is to make a systematic, factual, and accurate depiction about the facts of a particular population [11], in this case, a systematic and factual depiction about the architectural expression of the Keraton Yogyakarta. Meanwhile, according to Groat, qualitative method has an accuracy to interpret the meaning of artifacts [12].

The depiction of expression is performed through visual observation that will be described. This research begins with visual observation as a whole of Keraton Yogyakarta complex. This observation focuses on the main buildings composed from North to South at Keraton Yogyakarta and the buildings that contain a fusion of various architectural styles. The identified main buildings from north to south of Keraton Yogyakarta are Tratag Pagelaran, Tratag Sitihinggil, Bangsal Ponconiti, Bangsal Srimanganti, Bangsal Trajumas, Bangsal Kencono, Bangsal Kemagangan, Bangsal Kemandungan, and Sasono Hinggil Dwi Abad. While the buildings with fusion of various architectural styles are Gedong Jene, Gedong Puwaretna, Bangsal Manis, Bangsal Mandalasana and Regol Danapratapa. However, the object of study will be limited only to the main buildings containing the dominant architectural fusion, namely Tratag Pagelaran, Tratag Sitihinggil, Bangsal Ponconiti, Gedong Jene, and Gedong Puwaretna.

Architectural instruments [10], namely: proportion, rhythm in architecture, surface character, and colour in architecture are applied to assess the five buildings. This study also conducts interviews with informants to understand the history and philosophy of Keraton Yogyakarta.

Some limitations occurred in the observation of the object are: observation is only performed visually, observation only focuses on object façade, observation is performed during the day, and the observer does not change the object settings.

3. Discussion
3.1. Exploration of Object
The term Karaton, Keraton or Kraton was originated from the word ka-ratu-an that means Sultan Place [13]. Keraton Yogyakarta was established by Prince Mangkubumi or Sri Sultan Hamengku Buwono I (1755-1792) on Thursday Pahing, 7 October 1756 or 13 Suro Jimakir 1682 [14]. It was celebrated with condrosengkolo memet on Regol Kemagangan and Regol Gadungmlati. At Regol Kemagangan there are ornaments of 2 (two) red dragons with the expression of readiness to defend themselves against enemy’s attacks. While on Regol Gadungmlati there are also ornaments of two tangled-tail dragons with symmetrical formations in hibiscus green-leaf colour [10].

Keraton Yogyakarta owns an area of 14,000 square meters. Inside the palace, there are many buildings and courtyards. These buildings are bangsal, tratag, gedong, and regol. The regol connects one courtyard to another (see Fig.1). Some of buildings in Keraton Yogyakarta were significantly renovated by Sri Sultan Hamengku Buwono VIII (1921-1939), namely tratag pagelaran, tratag sitihinggil and Regol Danapratapa [15] [16].

When observed visually, Keraton Yogyakarta’s architecture owns a fusion of various design elements. It can be identified from the building facades, building elements, outer layouts, ornamentations and furnishing accessories. Each of the buildings in the palace also owns a different shape and atmosphere.

Figure.1. The Buildings as object of study at Keraton Yogyakarta

3.2. Tratag Pagelaran
The building located in the most northern area of Keraton Yogyakarta complex is Tratag Pagelaran. Tratag Pagelaran was renovated in 1934, during the reign of Sultan Hamengku Buwana VIII [17]. The roof is of pyramid-shaped with roofing made of brown iron sheeting. There is a listplank around the roof made of white-painted bricks as high as 50 cm. The listplank is filled with alternately flower-shaped ornaments with 'column pieces' and vertical European-styled sidelines (see Fig.2.b,c,d). On the whole, the proportion tends to widen (see Fig.2.a).
Tratag Pagelaran owns a flat ceiling, made of green-painted iron sheeting with lined patterns, with the absence of ornament and intercropping. The ceiling’s height from the floor is approximately 5 meters.

In details, the large column is divided into three parts; the legs, the body and the head. On the leg part, the lower body and upper body are ornated with tlacapan-shaped in dark green. Tlacapan is a decoration of a row of isosceles triangle in which filled with lung-lungan ornaments, leaves or flowers which are distyled [18]. The Tlacapan upper part of column is facing the tlacapan lower part, which is connected with vertical sidelines as wide as 2 cm, while the head of the column owns a flower-shaped ornament in dark green, light green, red, and white. The form of ornaments on the column head is similar to Corinthian Capital in Greece. Doric, Ionic and Corinthian were originated from Greece Architecture style [19]. The small columns are made of iron with diameter of 30 cm painted in dark green. This column also owns vertical sidelines. The upper part and lower part of the column own flower-shaped ornaments in red and white.

At the front part of Pagelaran lies a white-painted gate ornated with flower-shaped ornaments, leaves, kebenan, kemamang, dragon, symbol of the palace, and Javanese writing letters of Pagelaran. Pagelaran gate consists of pediments supported by two pairs of large columns. The front pediment shape is isosceles triangle with leaf-shaped ornament on its peak. Both of isosceles triangles are notched by lizards’ gaping mouth (see Fig.2.b). The pediment provides a visual emphasis on the object.

3.3. Tratag Sitihinggil
Tratag Sitihinggil was renovated in 1926 and functioned to receive Sultan’s guests at grand ceremony. The roof is of pyramid-shaped with elevation on its ridge (see Fig.3). The roof cover is arranged with shingle-roof composition so as to produce a pattern of diagonal squares.

As in Pagelaran roof, the Sitihinggil roof is also surrounded by listplank of white-painted bricks with lotus flower-shaped ornament. At the front there are two pairs of columns with rectangle cutting. These columns possess white-painted European-styled vertical sidelines. Both pairs of columns are connected by beams with curved lower part. The beam is ornated with dragon-shaped ornaments in golden yellow and leaves in green, and tend to be polichromatic, while at the interior, the form of column head is similar to Corinthian Capital in Greece with Javanese ornament (see Fig.4.a,b,c)
This building owns a flat ceiling with a checkered pattern. The supporting columns are made of iron with vertical sidelines yielding a light impression. Because it is a ‘continuation’ of Pagelaran, the shape and color of the ornaments are equal to that of Pagelaran. The entire surface of the floor is flat. There is neither elevation on the floor nor “stand out” part in this section. The striking point lies in the middle with the presence of dominant pediment.

3.4. Bangsal Ponconiti
Bangsal Ponconiti is located in the North Kemandungan courtyard. It was formerly functioned as the Palace’s ancestral court and the place for Gamelan relics of Kanjeng Kyai Gunturmadu and Nagawilaga in Sekaten celebration before being taken to mosque Kagungan Dalem in Kauman. The roof shape is similar to Bangsal Witono, that is Tajug Lambang Gantung, while the roof cover is shingle. This Bangsal consists of sixteen columns, four of them are as the pillars. The pillars are made of rectangular timber with Praba ornament in golden yellow color, while the twelve responding pillars are made of steel, with basic color of green and ornated with lotus flowers and red white-colored cabbage, yielding the soft impression (see Fig.5.a,b,c,d). The ceiling depicts a beam to ‘illuminate’ the Sultan when hearing a case.

3.5. Gedong Purwaretna
One of two-story buildings in Keraton Yogyakarta complex is Gedong Purwaretna. Gedong Purwaretna owns a pyramid-shaped roof and facing toward the South. The body part is two-story, both the first and the second floor are covered with wall with several windows and entrances. The floor of the building is rectangular with a size of 10 x 22.5 meters. The two-story building height with a pointed pyramid roof causes the building to have an uprise proportion.

At the facade on the ground floor are four cylindrical columns with European-styled ornaments, while the top including the roof shape owns a traditional Javanese style (see Fig.6.a,b). The number of columns on the top also consists of four pieces with the distance among columns is always the same, yet the size and style are different. It displays the acculturation of the Dutch Colonial style and
the traditional Javanese style. Overall, there are not many colour used in Gedong Purwaretna. Thus, the impression arised from the building is elegant.

3.6. Gedong Jene
In addition to Gedong Purwaretna, another Dutch Colonial style building is Gedong Jene. It was built at the reign of Sultan Hamengku Buwono II (1792-1810) and functioned as residence until the reign of Sultan Hamengku Buwono IX [20]. Nowadays, Gedong Jene functions as an office. Jene is Javanese language that means yellow. Therefore, related with its name, the doors and windows at Gedong Jene are coloured in yellow. Yet all its walls are painted in white and it brings the impression of monochromatic and elegant. The walls of the building were made from concrete bricks. The building owns a pyramid-shaped roof with a porch on the front (see Fig.7.a,b). In this porch, we can notice a kind of canopy with European pediment adorned by traditional Javanese ornament.

The building stretches from West to East and facing East. The body of the building is covered with white wall with several windows and entrances at the front and south side. The overall proportion tends to widen.

The floor of the building is rectangular with a size of 32.5 x 20 meters [21]. The front part of porch is open and there are six columns as the support of porch roof. The distance among the columns is always the same. These columns own various forms of traditional Javanese-styled ornaments like tlacapan, Praba, calligraphy, putri mirong, and wajikan [18], while the column attached to the wall and its listplank is Dutch Colonial style. On the whole, the mixture of ornaments yields the impression of soft decoration (see Fig.7c).

Table 1. The Visual Expression of Keraton Yogyakarta

| object          | TRATAG PAGELARAN | TRATAG SITHINGGIL | BANGSAL PONCONITI | GEDONG PURWARETNA | GEDONG JENE |
|-----------------|------------------|-------------------|-------------------|------------------|-------------|
| assessment      | PROPORTION       | widen             | widen             | widen            | uprise      |
|                 | PROPORTION       | widen             | widen             | widen            | widen       |
4. Conclusion

As result of this study we would like to present that the proportion of Tratag Pagelaran, Tratag Sitihinggil, Bangsal Ponconiti, and Gedong Jene tends to widen, while Gedong Purwaretna tends to uprise. Every building has its own point of interest and ornamentation which its place and content are different. The ornaments at Tratag Pagelaran, Tratag Sitihinggil, Bangsal Ponconiti tend to be polychromatic, while the ornaments of Gedong Purwaretna and Gedong Jene tend to be monochromatic.

Visually, the existing styles of Keraton Yogyakarta architecture are identified in elements of fixed and semi-fixed features. From visual observations, in general, there are two categories of buildings in the Palace, which accommodate two styles, namely Traditional Javanese style and Dutch Colonial style.

At Tratag Pagelaran, Tratag Sitihinggil, and Bangsal Ponconiti, elements of European style are present to adorn the Javanese-styled architectural buildings that own a concept as shade, without buttresses, and ‘light’.

On the other hand, at Gedong Purwaretna and Gedong Jene, buildings with Dutch Colonial style are very dominant, owning a protection function, massive enclosure, and ‘heavy’ expression adorned with Javanese ornamentation. Although visually the two styles possess different expressions, both styles convey the expression of unity in Keraton Yogyakarta. Various visual expressions and fusion patterns of architectural style at Keraton Yogyakarta can be utilized to exhibit local character in the conservation of Javanese-cultured city.

5. Acknowledgments
The authors would like to thank to BPPDN 2014 as the funder of the research, Dr. Sindung Haryanto, Dr. Ir. R.A Retno Hastijanti, MT., KRT Pujodiningrat, and KRT Kusumo Negoro as the interviewees.

6. References
[1] S. Psarra, Architecture and Narrative The Formation of Space and Cultural Meaning, New York: Routledge, 2009.
[2] N Ujang, Place Meaning and Significance of the Traditional Shopping District in the City Centre of Kuala Lumpur Malaysia, International Journal of Architectural Research, Archnet-IJAR, 2014. Volume 8 – Issue 1 – March 2014 – (66-77),
[3] G. Broadbent, R. Bunt and C. Jencks, Signs, Symbols, and Architecture, New York: John Wiley, 1980.
[4] J. Bonta, Notes for Theory of Meaning in Design. Signs, Symbols and Architecture, G. Broadbent, R. Bunt and C. Jencks, Eds., New York: John Wiley & Sons Ltd., 1980.
[5] R. Venturi, Complexity and Contradiction in Architecture, New York: The Museum of Modern
Art, 1966.

[6] A. Rapoport, System of Activities and System of Setting. In Domestic Architecture and The Use of Space : An Interdisciplinary Cross-Cultural Study, S. Kent, Ed., Cambridge: Cambridge University Press, 1990.

[7] Hadinoto, Perkembangan Kota dan Arsitektur Kolonial Belanda di Surabaya (1870-1940), Yogyakarta: Penerbit Andi, 1996.

[8] R. Scruton, The Aesthetics of Architecture, Princeton University Press: New Jersey, 1979.

[9] R. Weber, On The Aesthetics of Architecture, A Psychological Approach to The Structures and The Order of perceive Architectural Space, England: Avebury Ashgate Publishing Ltd, 1995.

[10] S. E. Rasmussen, Experiencing Architecture, Cambridge: The MIT Press, 1959.

[11] S. Suryabrata, Metodologi Penelitian, Jakarta: CV Rajawali, 1997.

[12] L. Groat, D. Wang, Architectural Research Methods, New Jersey: John Wiley and Sons Ltd., 2013.

[13] F. Heryanto, Mengenal Karaton Ngayogyakarta Hadiningrat, Yogyakarta: Warna Grafika, 2007.

[14] K. P. H. Brontodziingrat, Arti Kraton Yogyakarta, Yogyakarta: Museum Kraton Yogyakarta, 1978.

[15] J. Prijotomo, Kraton Yogyakarta: Playing The ‘Architectural Game’ of the colonizer dalam Dari Lamin dan Bilik Pengakuan Dosa, Surabaya: Wastu Lanas Grafika, 2004.

[16] K. J. Bangunjiwa, Keris Gagrak Kasultanan Yogyakarta, Yogyakarta: Percetakan Pohon Cahaya, 2015.

[17] R. Rintoisworo, Karaton Ngayogyakarta Hadiningrat Sebagai Pusat Budaya, Yogyakarta, 1995.

[18] S. Dakung, Arsitektur Tradisional Daerah Istimewa Yogyakarta Proyek Inventarisasi dan Dokumentasi Kebudayaan Daerah, Jakarta: Departemen Pendidikan dan Kebudayaan, 1981.

[19] C.M. Harris, Dictionary of Architecture and Construction, United States of America: McGraw-Hill, 1975.

[20] K. Sabdacarakatama, Sejarah Keraton Yogyakarta, Yogyakarta: Narasi, 2008.

[21] E. P. Hendro, Kraton Yogyakarta dalam Balutan Hindu, Semarang: Penerbit Bendera, 2001.

[22] Winarno, Suwandi, Pemugaran Bangunan Keraton Yogyakarta, Departemen Pekerjaan Umum, Daerah Istimewa Yogyakarta, 1996.