

TYPO-MORPHOLOGY AS AN APPROACH FOR THE CONSERVATION OF THE EARLY MALAY TOWNS

***(TIPO-MORFOLOGI SEBAGAI SATU PENDEKATAN DALAM ASPEK
PEMELIHARAAN BANDAR MELAYU AWAL)***

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Abstract

The concept of study on typology in architecture has first been used in the 18th century based on the idea of classification through the principles such as consistency, specificity, and coherence. In the context of urban planning and design, the idea has been applied as an integrated framework in typological and morphological analysis that aimed to understand the physical and spatial structure and the processes of urban formation. However, there seems to be unexplored potential to integrate the understanding of urban form in urban design with urban morphology that leads to the current problems of piecemeal urban transformation patterns which comprises both positive and negative consequences to urban fabric. In the local context of Malay Traditional Town, lack of socio-spatial perspective in reviving the traditional cities has become an important challenge. This paper therefore aims to highlight the significance of the typological concept to bridge with morphological analysis by recognizing the basic types in its very essence. Based on a synthesis of reviewed literature, a conceptual framework of the concept and characteristic of types and its procedural typologies is presented. The discussions of major findings are divided into three parts. The first part point out to the theoretical evolution of the concept of type and typology. In the second part, the procedural of typological approach is presented which can therefore, be considered as generative elements for urban morphological analysis applied in the context of Early Malay towns. While in the final part, it is concluded that the integration of typo-morphological approach with conservation practice helps to create the coherence of the city following of three characteristics: firstly, the physical manifestation from the clarity of type; secondly the socio-cultural reference from the historical ideas and values in type; and thirdly the transformation of type to fit a particular physical and cultural context.

Keywords: Typology, traditional city, architecture, urban morphology, Malay towns

Abstrak

Konsep kajian mengenai tipologi dalam seni bina telah mula diaplikasi pada seawal abad ke-18. Aplikasi ini merangkumi prinsip-prinsip seperti konsistensi, pengkhususan, dan persamaan. Manakala dalam aspek perancangan dan reka bentuk bandar yang berkaitan dengan penyelidikan morphogenetic pula, idea ini telah digunakan sebagai pendekatan tipomorfologi yang bertujuan untuk memahami struktur fizikal dan ruang bandar. Namun begitu, terdapat potensi yang belum diterokai untuk mengintegrasikan pemahaman antara

bentuk bandar dengan morfologi bandar. Kajian terdahulu membuktikan bahawa kegagalan integrasi yang berkesan akan mengakibatkan corak transformasi bandar yang tidak sekata. Penyelidikan ini menegaskan bahawa kekurangan perspektif sosio-spatial untuk menghidupkan semula bandar-bandar tradisional ini telah menjadi satu cabaran penting terutamanya dalam konteks bandar-bandar Melayu awal. Oleh itu, kertas kerja ini bertujuan untuk menyelami kepentingan konsep tipologi untuk diintegrasikan dengan analisa morfologi bandar. Berdasarkan sintesis dokumen dalam tinjauan literatur, kerangka konseptual mengenai konsep, karakter dan prosedur tipologi dikemukakan di bahagian dapatan kajian. Perbincangan penemuan dibahagikan kepada tiga bahagian. Bahagian pertama meninjau evolusi perkembangan konsep tipologi dan aplikasinya. Manakala bahagian kedua menghuraikan pendekatan tipologi sebagai unsur generatif yang dapat diterapkan dalam konteks analisa tipo-morfologi Bandar Melayu Awal. Seterusnya bahagian akhir menyimpulkan peranan pendekatan tipo-morfologi dalam aspek konservasi bandar yang dapat membantu mewujudkan elemen kesinambungan bentuk bandar berdasarkan tiga karektor berikut: Pertama, manifestasi fizikal dari kejelasan jenis (type); kedua, rujukan sosio-budaya dari idea-idea dan nilai sejarah yang terkandung dalam jenis; dan ketiga, transformasi jenis bersesuaian dengan konteks fizikal dan budaya tertentu.

Kata kunci: *Tipologi, morfologi bandar, bandar tradisional, urban planning, bandar Melayu*

INTRODUCTION

A shift paradigm on the functional and historic values of traditional city from negative model (that was isolated from modernity, nor a component to integrate in urban planning scene) towards the vital role as part of a network of urban function (where new function compatible with traditional urban morphology can be absorbed) have shaped a revolutionary approach to recognize the historic compositeness within its urban fabrics. The reaction of this approach as enshrined in the documents of 1931 Athens Conference has helps oriented to the basis of urban conservation practiced in this present day with the constitution of the term ‘urban heritage’, firstly recognized by Gustavo Giovannoni (Bandarin & van Oers 2015). Nevertheless, challenges occurred in managing the production and maintenance of the physical urban fabrics at the heart of the traditional cities has become an unresolved subject since 1960s following the catastrophe brought about by the Modernism (Moudon 1994; Larkham 1996; Oliveria 2011; Bandarin & van Oers 2015).

Delving further into today’s urban morphological discourse on historical urban fabric, the changing attitude towards typology in morphological context of traditional cities has become the emerging concern (Dokic 2009; Kropf 2011; Nikovic et al. 2014). The contradiction occurs in defining the *type* to explain the growth and continuity of the traditional city in terms of its formal structure in the context of modern urban fabric. Changes in techniques and society have impacted the concept of type to be broken, fragmented and questionable of its practicality. Moudon (1994) accentuates that the theories framing the nature, purpose and applications of type in the field of urban planning and design remain vague and flawed with ambiguity which resulted to the weak definition and use of type to characterize urban form; in which it is mostly rely on functional or aesthetic purpose. A serious gap occurred while integrating the typological approach to analyze the changing of urban fabric that seems to be a mere mechanism of composition or reproduction of the traditional city with the limited recognition of the type-image than with structure. This inconsistency in the applied scale levels signifies a detached relationship between the city-place; that is referring to the processes that lead to a continuous reshaping of the urban areas, and city-time; that is referring to the intensity of the urban changes.

Ultimately, it is not meant that the interest and value of the concept of type is thereby denied completely. Rossi (2000) shed light on revising the concept of type and typology to analyze the modern urban fabric by the understanding the nature of the architectural object that can no longer be considered as a single and isolated type; rather it retains the juxtaposition of memory and reasons identified as urban artifact. This paper therefore investigates the underlying conceptual of typo-morphological approach to combine with Early Malay Towns that constitutes a set of

recognizable physical and spatial features that is conducive to the distinctiveness and uniqueness of the towns to be preserved. In view of this, this paper attempts to answer some of the basic questions pertaining to the concept of type and typology and its relationship with architectural typology and urban morphology to form a typological classification in the context of Early Malay Towns. The research subject implies that previous urban morphological research and concepts related to the traditional city, in which the typo-morphological analysis of Italian School (according to Muratori and Caniggia) stands out as a relevant and comprehensive in terms of its methodological operation to become the main theoretical support in the present paper.

METHODS

The literature was drawn from research articles published in journals papers accessible through online databases. The scope of the review is limited to international research articles published between 1960 and 2017 relate particularly in the field of urban morphological approach, traditional city and urban conservation with relevant to the context of Malay Early towns. In addition, sources include established literature in the field of the theory of architecture and urbanism dealing with the introduction of the concept of form, type and typology in urban planning. The primary sources were generated largely on urban morphological discourse within the online webpages of International Seminar on Urban Form (ISUF) and Urban Morphology journal issues published online. The types of exploratory in the review covered the concept, theories, approaches and procedure (framework). For the purpose of this paper, all are referred to as 'procedural typologies' that are presented in a table format (Refer to Table 1).

The aim of the analysis is to expand understanding on the plethora of research that explored the significance of the typological concept to bridge with morphological analysis by recognizing the basic types in its very essence. Such good recognition on this subject could aid in improving the clarity of city structure, ideas and values to establish a better linkage of urban form with urban design and urban conservation. The topic is trans-disciplinary in nature. To aid such understanding, the discussion is divided into three sections. The first section of the paper presents the theoretical evolution of the concept of type and typology. The second section describes the vital aspects and process in typo-morphological studies as a strategy to analyze the city. The final section investigates the possibilities of integrating the typo-morphological approach in designing, planning and therefore conserving the traditional city of Malay Early Towns.

SECTION I: THE EVOLUTION OF THE CONCEPT OF TYPE AND TYPOLOGY

Madrazo (1995) has suggested two ways to derive the fundamental meanings of the concept of Type and Typology from the body of the architectural tradition in which he pointing out to the necessarily to proceed simultaneously, along two different lines, that are: (i). Diachronic, and (ii). Synchronic. From a diachronic point of view, the aim has been to trace the evolution of the theories of Type from the different perspective of scholars along time; for example starting from abbe-Marc-Antoine Laugier (1713-1796) to Quatremere de Quincy (1755-1849) and to Saverio Muratori (1910-1973) who primarily started the morphological epoch. From a synchronic point of view, the goal has been to disclose the common ideas that lie behind theories formulated at different historical period; for instance, between the Modernist ideologies during the reconstruction of post-war era to Neo-rationalist perspectives.

Definition and Character of Types

Traditionally, it has been argued that it is necessary to divulge the etymological origin and meaning of the word 'type' to reveal its essential meaning and thus provide such a comprehensive study (Moneo 1978; Lavin 1992; Madrazo 1995; Guney 2007; Zhang 2017). In general, the root of the word can be traced back to a Greek verb *typto*, meaning "to beat, to hit, to mark". In the 6th and 7th centuries, when the word *typos* became established in Greek, it denotes a meaning such as "relief, engraving and seal". The development of printing in Europe in the 14th century has expanded its meaning to include "the characters of the alphabet engraved on a small rectangular metal or wood

block” used in printing probably due to the beating movement of the printing machine (Guney 2007). Eventually, when it first appears in architectural field during the 18th century, the word *typos* acquires a meaning close to “model, matrix, the imprint or a figure in relief; an exemplary figure-figuration” (*Ibid*, 2007). By reflection of this understanding, it might be inferred that type suggests “a pattern or a model by which something is symbolized or figured and have a symbolical signification or emblem”.

The first serious discussions and analyses of type to envisage its concept emerged during the 18th century, also known as the Age of Enlightenment. It is the first stage that the conceptualization of type which developed out of the rationalist philosophy. The depiction of the model of primitive hut by abbé Marc-Antoine Laugier (1713-1769) in his *Essai sur l'architecture* (1753) has rationalized elements and standard of shelter as the *first type* of habitation that conceived as the origin of the entire forms and thus the principle and measure of all architecture. This has shaped an understanding of typology proposed as a natural basis for architecture. Taking the Rationalist stance from Laugier's work, the late Enlightenment theorist Quatremère de Quincy (1755-1849) has re-conceptualizing the idea of type through his metaphorical theory of type that was regarded as the first typological approach well described in his influential entry “Type” in *Encyclopedie Methodique* (1825). It has credibly framed the fundamental concepts of modern architectural theory embedded in the idea that type as an elementary principle of architecture, a form of language which could guide people to understand meaning in architecture (Lavin, 1992). It leads to a practical move of putting the concept of type into the context of use, need and custom based on three key conceptual frameworks of: (i) Origin, (ii) Transformation, and (iii) Invention.

As a form of language to deliver its significant meaning, type therefore must be based on understandable distinction to distinguish its structure or character from its origin (Guney 2007) that consequently has several connotations directly related to the Enlightenment idea of *characteres* (See Germaine Boffrand, 1667-1754). Within the concept of type, the idea of transformation enabled architecture to reconstruct its link with the past, thus forming a kind of metaphorical connection with the certain ‘moment’ identified it in a building form (Moneo, 1978). In the context of urban landscape, it is much concerning to the fabric of the towns: the colour, texture, style, character, personality and uniqueness that show evidence of differing periods in its architectural styles and also in the various urban layout (Cullen, 1996). As noted by Zheng (2017), the selection of types from history can be transformed to fit the particular context and culture referring to certain period and it will be retained as the fundamental design. Meanwhile, the concept of invention is much associated with the creative process of imitation to transform the elements into visible artifacts achieved by synthesizing the constructive, formal, functional and ecological principles in nature through an original and imaginative synthesis. Hence, as observed by Lathouri (n.d), type therefore carries a sense of origin closely joined to a universal law or natural principle.

Type and Typology in Urban Design

According to Mauro (1985), the term ‘typology’ in architectural field emerged around the mid of 19th century; referring to the study of types in close relation to the comparative analysis and classification of structural or other characteristics into specified categories. Eventually, the identification and classification of typological identity has influenced J.N.L. Durand (1760-1834) (See Durand's work on *Recueil et parallele des edifices de tout genre*, 1801) to employ methods of comparative taxonomy for the study of building forms that are based on two instrument of: (i) Continuous, and (ii) Axis (Moneo, 1978). Although it has provide a basis to expand the architectural theory of types as a systematic generative system to the idea of composition in urban scale, nonetheless, Durand's work has been criticized by Vidler (1977) as unconsciously reduced the precedents of types to an eclecticism of styles. In a same note, Guney (2007) also marked such classification leads to the first move towards the emergence of the idea of prototype (See Lee Corbusier) as seen in Modernist solution.

There is also a consensus among scholars that argued the rejection of Modernism on the Enlightenment's idea of types has contributed to the mechanistic understanding of typology, thus

resulted to the fragmentation of the urban fabric (See Jacobs, 1961). Drawing on the extensive range of sources, Moneo (1978) identifies the rejection of Modernist type theory that are based on three central reasons: (i) The rejection of precedence in favor of “space” or *Neo-Platonism*, in which space takes precedence over type; (ii) The notion of “*prototype*” versus mass production, in which type had become prototype or stereotype in a confirmation with the rules of industrial capitalism and (iii) The functional determinism, believing that architecture was predetermined not by types, but by context itself as the most important factor in the form-making process. While it has widely been discussed that the changing attitude towards the Modernist notion of type has negate the appreciation to connect the past with the current situation, Reichlin (1985) however draws the attention on the innovative contribution of Le Corbusier’s plan *libre* that recognized an analytical separation of functions amongst the architectural work (but not limited to structural, material technique, distributive, geometric, spatial, plastic, and stylistic iconographic types) in order to reorganize these contradictory functions synergically in such a way that obstacles in between them are reduced or even eliminated. In his ground breaking study, Reichlin accentuates the importance of the modernist idea of type as it promotes a successful design solution that balances and satisfies the needs of different modes of architectural artifact. In the context of city - as an urban artifact, its application is vital in terms of segregation of urban quality management based on traditional values.

In another viewpoint, the functionalist approach has expand the new understanding of the idea of type; by not only recognized the value of type as an underlying structure giving the form to the any architectural elements; but also able to modify and explore the type without accepting it as an inevitable elements of the past with an obscure characterization (See the work of Alexander Klein). An implication of this functionalist influence on types has therefore bring the approach of typology to be flexible and indirectly became a working instrument, far from being an imposition of history that can be applied and testified in terms of city. This view has supported by Argan (1962) who observed the changing perspective of types from the neutral structure to an analytical and experimental structure which implied the concept of methodology by elaborating how type is worked out as a posterior operation. Typology has then recognized as an instrument for analysis and measure the extent of city planning (specifically the America’s cities) rooted in the historical tradition and in tracing the main influences that have governed the form of the cities.

Such recognition although seems to be contradict with the later approach of Neo-Rationalist’s type theory that emphasized the continuity of form and history; yet formed a basis for continued development of typological studies. Moneo (1978) in his classic critique on typology, highlighted the conflicting period in which the Neo-Rationalist approach has given an impetus to morphological analysis that was regarded as the period when typological studies find their most and complex theoretical development. From this point of view, type theory had changed completely neither was considered as the single artistic object (in Enlightenment) nor the industrially produced prototype (in Modernist), but now typology as a process, in terms of building from the single dwelling to the total city (Neo-Rationalist). Figure 1 simplified the understanding of the concept of Type and Typology in urban design throughout its evolution.

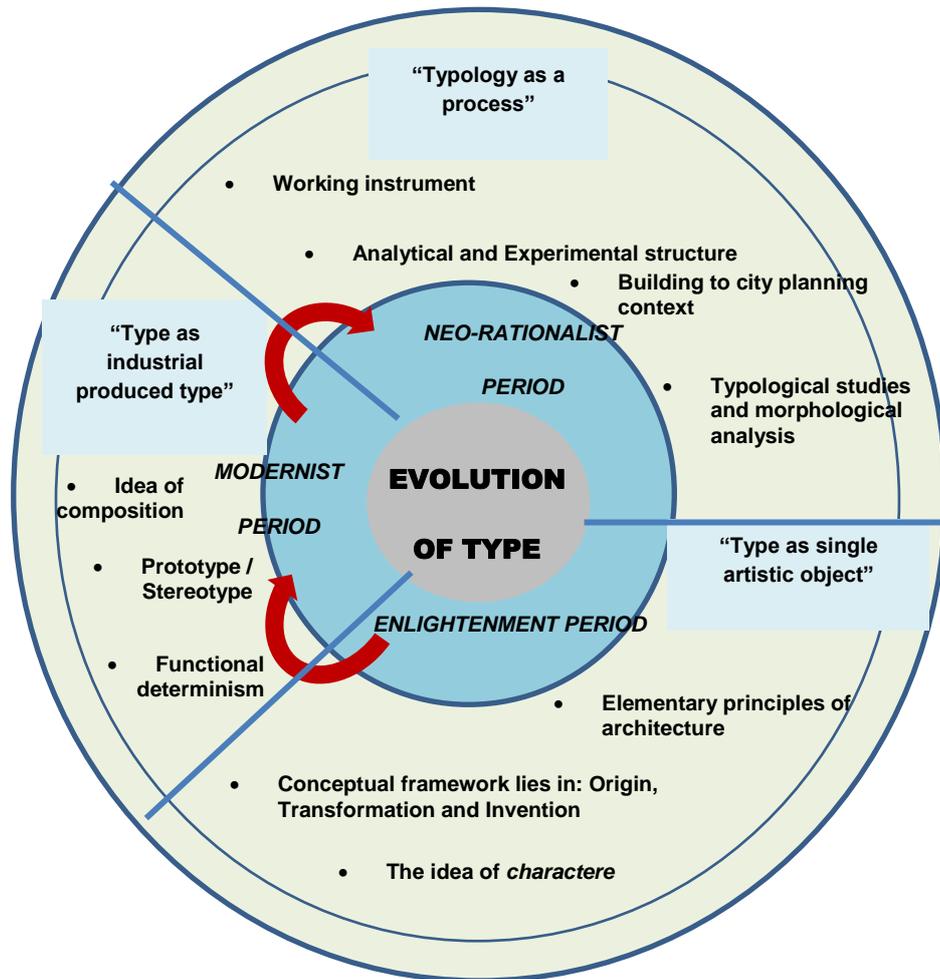


Figure 1. The Theoretical Evolution of Type

SECTION II: TYPO-MORPHOLOGY AS AN APPROACH TO ANALYZE THE CITY

The generalizability of much published research on type and typology in urban planning and designs since the late 1960's has directed to the use of typo-morphology as a mechanism in analyzing and composing the city or urban space (See Vidler (1977); Krier (1979); Rossi (1982); Moudon (1994). The premiere basis lies from the concept of types as an understandable distinction through the coherence and/or the ordering principle which provides typology as a rational method to analyze and classify these distinct visual organizations of types (Zhang 2017). In this view, the idea of type provides a way to understand the classification of architectural and urban elements using structural similarities that intrinsically represent the ideas and values of history throughout its interaction presented in the cities. In a thorough examination on the application of the concept of type in the study of urban form, Moudon (1994) interpreted this classical approach as 'typo-morphology'; a combination of typological and morphological approach to describe and explain how the built environment is produced by systematically classifying the elements of urban form based on detailed classification of buildings and open spaces by type which structure the physical form of cities over time.

Concept and Characteristic of Typo-morphological Approach

The concept of typological approach emerged by the instigation of Saverio Muratori (1910-1973) His critical thinking on the contextualized architecture reflected in his first comprehensive survey of a town's historic buildings to demonstrate the continuity of urban form among different scales (building clusters, towns and territory) by examining the urban texture of Venice (i.e *calli, campi* and *corti* as tupal elements that defined the overall form of the city). The analysis was taking primarily from the systematic understanding of cities' history, embedded in a nutshell of 'operative history' (Moneo 1978; Moudon 1997; Cataldi et al. 2002). It allows the understanding of the city's growth pattern as living organism by revealing the physical and spatial structure using the employed fundamental concept of type, fabric, organism and territory to form the typologies of urban form according to specific city (Cataldi et al., 2002). Following Muratori's typological interpretation, Gianfranco Caniggia (1933-1987) further specifying the methodology that constituted as typological process to reveal the dynamics of urban form in its historical development through its component types and evolution of these types.

Focusing on the processes by which cities are made, Rossi (1982) establishes his view on how typological process of building affected the form of urban fabric. His vision indirectly advocates the autonomy of architecture in shaping the city as epitomized in the reversed relationship between building and city. This contrast interpretation led to a parallel, yet irreconcilable, variation in the way the analysis of urban form related to the theoretical development in urban design (Moudon 1994; Caliskan and Marshall 2011). In a similar note to Rossi, Moudon (1994) stated that though typo-morphology is an unusual approach to urban form; it principally aimed to understand the intensity of changes in the city form that was mainly transformed in the process of urban evolution via analytical aspects of its form. Accordingly, such approach inquires about two important aspects that are: (i) How the physical form of a city changes over time, and (ii) How different cities compare to each other. The process has a direct influence to the variation of forms which transformed over time in response to the cultural and economic context.

Procedural Typologies of Built Landscape

In typo-morphological accounts, urban form is manifested as buildings and its surrounding spaces (such as gardens and streets) that loosely translated as the 'built landscape' (Moudon, 1994). The procedural typologies can be defined at all four recognized **scales** which comprised of: (i) Buildings and their ancillary spaces; (ii) Urban fabric; (iii) City; and (iv) Territory (Caniggia, G. & Maffei, G.L. 2001). These scales were classified according to the hierarchical level of subdivision in the urban system. According to each hierarchical level, four components of the urban structure were delineated that are: (i) Elements; (ii) Structures of elements; (iii) System of structure; and (iv) Organism of system. This arrangement usually adopted the morphological subdivision taken mainly from architectural perspectives (following the Italian school of urban morphology). In defining the type and its typological process, several scholars have shaping the theoretical understanding depending on the preference for urban analysis. Table 1 summarized the contribution among prominent scholars according to their procedural perspectives that are considered in the context of this paper.

Table 1. Procedural of Typological Approach

Scholars	Type and Procedural Typologies	Area of Concern / Approaches
Quatremère de Quincy (1825)	Distinguished <i>type</i> as an epistemological in which the conceptualization based on three concept: (i). Origin, (ii). Transformation and (iii). Invention. The <i>model</i> serving the methodological approach to design, in which the principles of reasoning was bestowed on the rules of typological model.	Epistemological of Type and rules of typological model for building design.

- Muratori et al. (1963) The structure of the city could be understood historically with **building typology** as the basis of urban analysis. The typological approach consists of: (i) Buildings, and (ii) Surrounding spaces to form the built landscape (*edilizia*). It is classified according to its type, thus becomes a typology of building and related open space (*tipologia edilizia*) which defines the essence of their character in building fabric.
- Caniggia, G. & Maffei, G.L. (2001) Typological process conducted at four different **scales** of built objects: (i) Building (*edificio*), (ii) Group of buildings (*tessuto* or building fabric), (iii) City (*citta*), and (iv) Region (*territorio*). Each object described as complex entity made of four components: (i) Elements, (ii) Structure, (iii) Systems, and (iv) Organism.
- Argan, G.C. (1962) Contextualize of a more generic concept of type according to two **moments**, that are:
 (i). The moment of the typology: The necessary connection of building design with the past and with the society, in a natural way and not invented by the form-defining moment, called *posteriori*; and
 (ii). The moment of formal definition: The form defining artist where there was inexistence of typology in which the historical and cultural questions were answered through a critical approach, called *priori-types*.
- Rossi, A. (1982) Six principles of type in **urban artifact**:
 (i). Differentiating factor based on five characteristics: (a) Form than material, (b) Complex entity developed over space and time, (c) Historical richness, (d) Original values and function that persist (spiritual value), and (e) Total of experiences and memories (ominous or auspicious).
 (ii). Similarities based on understandable distinction to understand momentary differences
 (iii). Contrast between universal and particular building types.
 (iv). Unnecessary to divide history in periods will lead to the loss of universal and permanent character.
 (v). Rejection on functionalism as a primary determinant of forms; the generator of the typologies whose referents and elements are to be abstracted from the vernacular.
 (vi). Elements of a city and of architecture cannot be further reduced.
- Krier, R. (1988) **Matrixes** for morphological classification of urban spaces and matrixes for alterations:
 (i). Matrixes for the morphological classification of urban space in three basic shapes: (a). Square, (b). Circle, and (c). Triangle.
 (ii). Matrixes for alterations of a given spatial type according to six modulating factors: (a). Angling, (b). Segmentation, (c). Addition, (d). Merging, (e). Overlapping or amalgamation of elements, and
- Typological approach embedded in a nutshell of 'Operational History' of the city.
- Typological process to identify the elements and transformation rules of urban fabric from the dynamic of urban form.
- Structured the urban analysis with design process according to morphological memory through the formal analogy of building's functions.
- Logical structuring of architectural form and its development throughout the typological process used to analyze the city.
- Integrative typology of urban spaces (basic form of street and squares) to be reintroduces in the modern city context based on polarity of internal and external space according to form and function.

- (f). Distortion.
- Moudon, A.V. (1994) **Method** of typomorphological analysis is based on three fundamental components: (i) Form, (ii) Resolution; and (iii) Time, summarised as:
- (a). Combine the volumetric characteristics of built structures with their related open spaces to define a built landscape type.
- (b). Opposition to the monumental and siteless typology. The element that links built spaces to open spaces is the lot or parcel, the basic cell of the urban fabric.
- (c) The inclusion of land and its subdivisions as a constituent element of type makes the land link between the building scale and the city scale.
- (d) Built landscape type is a morphogenetic, not a morphological unit because it is defined by time.
- Process of defining the Typomorphological approach to built landscape focusing on the variation of forms which transformed over time.

SECTION III: INTEGRATING THE THEORETICAL CONCEPTS OF TYPO-MORPHOLOGICAL APPROACH INTO THE CONTEMPORARY PRACTICES OF URBAN CONSERVATION IN EARLY MALAY TOWNS

In the contemporary context to integrate the expansion of modern urban fabric into typological process, two vital questions arises: (i) How typological approach consistently provided a comprehensive way to explain the continuity of the traditional city in terms of its formal structure with the changing urban fabric; and (ii) How the retrieval of types in its most characteristic sense still representing the traditional city in existence of modern sense (Moneo 1978; Levy 1999; Nikovic 2014; Lovra 2016). This profoundly revealed the significant needs of enhancing the understanding of history as contingent and development as contextual in urban morphological analysis in which consequently implied the importance of the classification in order to establish comparable and shared criteria (Jacoby 2015). As accentuates by Dokic (2009), delineating such relationship between architectural typology and urban morphology is the most complex form of typological classification. This is even far challenging in the context of Early Malay Town which have lost the sight of traditional understanding of urban space and its urban fabric. Such urgency points out by McCormack (2013), who advocates the idea of morphological process to be linked with techniques of urban conservation, urban expansion as well as urban renewal. This aspect is becoming especially important for peripheral zones such in Early Malay Towns which the lack of clarity and coherence of urban form is pronounced (Syed Zainal Abidin Idid 2005; Shuhana Shamsuddin 2011).

The integration of the theoretical concept of typo-morphology with urban conservation focused on the typological approach according to Muratorian tradition. The focus on the relationship between building types and its surrounding spaces formed as built landscape provides an integrated framework for understanding urban and physical structure and the processes of their formation which is significant for the urban conservation process and practices. The methodology for typological process firstly classifies the typological formation according to four scales (i.e building, district, city and territory) to examine the historical process of each scale formation. However, considering the limitation of data corresponding to the documented morphological development in Early Malay Towns, the possible scale included only in two-dimension; focusing mainly on the city level-hierarchy. Secondly, the spatial correlations of built objects (co-presence) determines according to four components: (i) Elements, (ii) Structures of elements; (iii) System of structures; and (iv) Organisms of systems that applied generally to city or town within the scope of this research. These components arranged following the *principle of aggregation* as the very basic phenomena for the hierarchy of elements (Muratori et al. (1963); Caniggia & Maffei (2001). The typological hierarchy according to four components identified that can be applied in the context of Early Malay Towns include: (i) Elements: Buildings; (ii). Structure of elements: Organization/group of buildings (urban tissue as termed by Kropf 2011); (iii) System of structures: Combination of

tissues or districts; and (iv) Organism/nucleus of the towns and cities (See Lovra 2016). Through this, the typological process can be formed by the modifications of the built forms responding to the changing economic and socio-cultural needs manifested in the Malay Early towns.

In case for morphological analysis, a clear identification on the relationships between building type and open space is significant to envisage a non-causal relationship which helps to comprehend the historical urban fabric as well as the analysis of modern urban fabric (Levy 1999). The identified elements of urban space conceded to its common characteristics were singled out and grouped for the purpose of their classification into the defined type. The characteristics is not only limited to the physical character, however extended to include several other determinants such as: (i) Site; (ii) Function; (iii) Social; and (iv) Economic context (Moudon 1997). In addition to the definition of types as further elaborated by Lovra (2016), the identification of relationships between elements through typological classification of open spaces is also important. Through this way, the spatial and physical structures can be simultaneously considered by combining methods of architectural typology in building types and morphological analysis in dialectic relationship between elements. Indirectly, the structural changes occurred in the Early Malay towns can be traced objectively as a result of its morphological development which can tangibly informed the authority to outline the effective urban conservation measures.

As highlighted by Rossi (1982), the possibility for 'reading' the continuity in the traditional city resides basically in its formal and spatial characteristics. The relations between urban structure and architectural elements must be visually coherent to understand how the city has shaped and transformed in the modern context. From this, it is implied that the concept of architectural type play a crucial part in creating the coherence and continuity of the city based on three characteristic: Clarity of type as a clear form; (ii) Reference to historical ideas and values in type; and (iii) Transformation of type to fit a particular physical and cultural context. From this, the very search for origins in the idea of type as a conceptual and typology as a formal means of comparison in architecture (Jacoby 2015; Zhang 2017) applied to the field of urban analysis provides a significant contribution towards urban conservation practices. As observed by Modoun (1994), the theoretical tenets of typo-morphological approach performed by designers primarily as a predesign exercise for sensing the logic and tradition of site. However, its greater contribution notably involves its application in urban analysis to inform the actual impact on the designs for the preservation projects.

CONCLUSION

The finding of the study suggested that the approach of typo-morphological analysis is anticipated through the continuing elements of traditional urban fabrics and distinct features pertaining to the respective locality. Such unique elements offer a working definition of building form and space to be applied in typological classification in all scales and components following the principles of aggregation. The typological process also indirectly serves as a rich launching ground for studying the nature of building typology in each city specifically the Early Malay towns, its relationship to the urban fabric, and to the sociality in which it takes place. The presented methodological process for typo-morphological approach that are relevant and applicable in the context of Early Malay towns although principally based on Muratorian tradition, it is suggested in further research to be combined with Conzenian cognitive approach (British school of urban morphology) as well in order to provide a deeper understanding on the characterization of the actual physical appearance of the Early Malay towns. Above all, the research emphasized that a critical attitude towards history is an important element in designing the city as well as rejuvenating the city to ensure the survival of historical elements reflected in the physical urban fabric of the city.

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