Local wisdom as the embodiment of the latest architecture thought

Andi Surya Kurnia*

Architecture & Planning Department, Faculty of Engineering
Universitas Tarumanagara

*andik@ft.untar.ac.id

Abstract. The development of the world today has been so rapid that it has an impact on various fields, including the architecture field. Behind architectural works, there are creative thoughts that are not infrequently beyond the expectations of most people. Revolving thought for both direct and indirect contact with the world of architecture, from the invention of computers and CAD programs that facilitate the process of architecture to the return of fundamental thinking to be able to sustainable when conducting architectural interventions. The architectural trend in several phenomenal periods also influenced the writing about the world journey of global architecture. The author conducts data collection methods with the help of search engines through several portals on the internet that can be accounted for, then summarized into writing in order to give an overview of the latest architectural thinking. In some parts of the writing, illustrations are included to clarify the information conveyed. The discussion is divided into several topics, and at the end of the writing is presented the individual's thoughts that the latest architectural thinking is nothing but a form of incarnation of thought about nature and humans.

1. Introduction

Architecture as a science is probably one of the oldest sciences in the world, which etymologically comes from Latin "architectura", Greek "architects" which is a combination of two words in English "chief" and "builder". It is not easy to explain the full definition of architecture, but it can be understood simply as a series of activities and work processes that include planning, designing, and building construction and other related physical structures.

The definition of architecture in this paper is derived from one of the online references that is the current trend to find out a variety of information that can be largely accounted to the public in general, Wikipedia.org. With the development of information technology at this time, it is quite easy to find the meaning of a term, including in the field of architecture. Wikipedia is one of the information delivery media that changes the way most people think today, which most people try to find an understanding through print-out reference sources like books and the rapid development in the world of information technology offers practicality in cyberspace.

Both of these topics become the foundation for further steps to review the latest developments in the field of architectural science that are closely related to the advancement of information technology. The author places more emphasis on the connection between two aspects of the architectural process - the method in architecture - which is now strongly supported by the sophistication of computational...
programs that are the result of information technology advances. In Indonesia, computing programs that are popular in the architectural design process and are still used by most architects are AutoCAD.

2. Architectural Computing Program - Autodesk

AutoCAD is a software output from Autodesk program developers which is a computer program for drawing on computer-aided design (CAD) monitor screens so that an image product can be produced to be a reference in project development, which was previously done using manual tools such as drawing tables, pencils, rulers, and other supporting instruments. The program was launched in December 1982, has contributed greatly to the world of architecture, because it has an impact on the effectiveness of the production of architectural works that can save space, media, work time and ease of documentation / archives. Michael Riddle is a person who develops and popularizes this AutoCAD, which until now has been done a lot of renewal as an improvised step in order to provide a variety of design advantages in cyberspace.

The latest development of architectural computing programs that are more widely used by architect associations in several countries has shifted to Revit program, a software that was also developed by Autodesk based on Building Information Modeling (BIM) and was popularized in April 2000. With this BIM basis, the Revit program has been used by authorized agencies to supervise development in several countries as a standard for filing permits. One country that has implemented the BIM standard by using the Revit program in managing licenses is Singapore. The advantage of this BIM-based program is the synergy of two-dimensional and three-dimensional design for its users, most of them have backgrounds as architects, so that the work process is sufficiently carried out in an integrated sequence of steps.

The advancement of information technology that is supported by computational architecture programs both AutoCAD and Revit shows the latest developments in the world of architecture, in terms of the design process aspects. It can be concluded as an innovation tool that breaks the way architects have been working, which if viewed from the product of their work, the world architecture has gone through several time-consuming processes such as classical, medieval, renaissance, modern and postmodern. In Indonesia there was a development of architecture which was also impacted by world architectural interventions in general, including such popular as Gothic architecture, Art Deco, and modern architecture. All offer uniqueness in each round.

3. Development of Architecture in Indonesia and Thought Behind Architecture Works

Gothic architecture in Indonesia can be found in church buildings that were established during colonial rule, such as the Cathedral church in Jakarta [1]. The figure of a church building with Gothic architecture is beautifully displayed rich in ornamentation from the entrance to the roof ridge. Artistic ornament details show the role of the display more lively and more praised by the audience. One of the principles of three-dimensional display that stands out in the Gothic architecture is the use of arc elements (vault) which dominates the proportion of buildings as a whole, starting from the facade that shows the entrance to the combination of columns with the ceiling space in the building. Whereas if viewed from the processing of space still found attachment to the principle of rigid-hierarchical spatial preparation, the application of the cross symbol.

![Figure 1. Architectural Building (Neo) Gotik at Jakarta’s Cathedral Church](image1)

![Figure 2. Villa Isola Bandung reflects Art Deco Architecture](image2)
Art Deco architecture shifted, one example found in Indonesia is Villa Isola in Bandung by architect C.P.W. Schoemaker [2]. The appearance of Art Deco architecture is simpler than Gothic architecture, many are a form of adjustment to the local context such as local climate and culture. Ornamentation is still presented but more limited in simple appearance, not as artistic as gothic architectural ornaments. It can be concluded that Art Deco architecture as a form that seeks to integrate designer creativity with its natural surroundings, is not overused but sufficiently possible and proportional as possible. But still found some interesting ornament details on some corners of the building that was presented simply. The principle of spatial planning is not as rigid as the principles of Gothic architecture, in other words it is more flexible to meet the optimization of space functions that are in line with the "local" potential.

Other Gothic, other Art Deco, others with Modern. Modern architecture comes with a very simple appearance, without ornamentation, because it relies more on simplicity as an excess of its architectural work ("Less is More") popularized by Ludwig Mies van der Rohe. In Indonesia architects who contributed a lot in introducing and popularizing modern architecture were Liem Bwan Tjie, the first Indonesian to study at the Technical College in Delft, the Netherlands and had studied at the Ecole des Beaux Arts - the most prestigious school of art and architecture of his time at Europe. One of Liem Bwan Tjie's works is the residence of The Bo Djwan in Malang, was built in 1934 and in his time had earned as the best house in Malang.

Figure 3. The Bo Djwan home by Liem Bwan Tjie

Different from previous eras, the character of modern architecture prioritizes the suitability of the form with the function shaded by the form. So that ornamentation is not a concern for modern architects in pouring their design ideas, such as Liem Bwan Tjie, most of his works appear innocent but have strong character showing the synchronization of aesthetics and function. Modern architecture has given changes in the way of thinking in architecture, as if there was a reversal aesthetic rules in architectural work. Ornaments that were so glorified in the past changed to not be an important element for modern architecture. Including the pattern of spatial planning in modern architecture is no longer rigid following classical principles but is adjusted to the effectiveness and efficiency of relations between these spaces in architectural work.

4. Response to Thought of Modern Architecture
In subsequent developments, architects in various parts of the world began to respond to this modern architectural thought which was mostly in the form of criticism of the vision and mission brought by modern architecture. The aesthetic rules and synchronization of the existing functions are considered not to accommodate the latest architectural thinking, from which the idea of postmodern architecture was born. Sharp criticism of the continuity of classical to modern architecture underlies the thinking of post-modern architects in providing architectural views, including the influence of the effects of information technology advancements that have been reviewed in the early part of this paper. Critical thinking was outlined by Robert Venturi in his book "Complexity and Contradiction in Architecture" which showed thoughts that contradicted the ideas popularized by modern architects such as Mies van der Rohe and Le Corbusier.

Post-modern thinking is answering anxiety from society in general associated with the phenomenon of uniformity that occurs in almost all corners of the world, known as "International Style". So that
postmodern offers a thought that revisits the importance of genius-loci, local wisdom, which provides more space to optimize local potential in various aspects such as socio-cultural, ecological, spiritual, and other local potential. If viewed from the aspect of time, then postmodern seeks to remind modern architectural activists to be timeless. In other words, the principles of architecture in the period before modern can still be a consideration for architects in the work so that the architecture is able to have the sharpness or depth of meaning in processes and products.

5. Architecture by Zaha Hadid
It is very interesting to explore further post-modern thinking in particular related to the deconstruction of the figure of a female architect whose full name Zaha Mohammad Hadid born in 1950 in Baghdad, Iraq. Zaha Hadid's works received high appreciation from various architectural associations around the world, and have received the highest award in the world of architecture, the Pritzker Architecture Prize in 2004 as the first female architect to be awarded the award. In addition, Zaha Hadid was also awarded as the first and only female architect to be awarded the Royal Gold Medal from the Royal Institute of British Architects.

![Figure 4. Dongdaemun Design Plaza by Zaha Hadid](image)

The uniqueness that is consistently presented in her works makes Zaha Hadid dubbed the "Queen of the Curve", can be concluded as a new paradigm in today's architecture. She is an inspiration to many architects, especially young architects who are familiar with the advancement of information technology through a variety of architectural-specific programs (software) specifically for analyzing and processing computationally unique formations. One of Zaha Hadid's spectacular works, which was built in 2007 and completed in 2013, is in Seoul, the capital of South Korea, Dongdaemun Design Plaza. Her skill in processing forms makes her admirable and also makes her very worthy of the title "Queen of the Curve", although on the other hand there is also criticism of some architects and observers of architecture about expressions that look excessive and inefficient space just to pursue display expressions.

Zaha Hadid (1950-2016), her ideas in architecture have left a blueprint for architectural sophistication. The architectural bureau is still running in order to continue to contribute to the birth of architectural works that are in line with her thoughts. This shows the other side of individual thinking which influences a wide audience, the face of the city is stimulated by the existence of an architectural work born from the idea of an architect. In line with this backward science development, that micro context is a concern for reading, analyzing, and predicting macro contexts.

6. Challenges of Global Warming & Sustainable Architecture Trend
In the micro context, the world of architecture still has other aspects that are of concern in the level of thought and methods / processes of contemporary architecture and even the tendency to answer the challenges of the future. Architectural observers look at the excessive exploitation of nature in presenting good works in the form of a single building as well as collective / mass buildings, both low-rise and high-rise. Concern about this in the world of architecture cannot be separated from the multi-disciplinary anxiety about the sustainability of world life, related to the facts that show the trend of increasing global warming due to the greenhouse effect which is popularly known as "Global Warming". Although the increase in temperature varies according to location, on average almost all corners of the world experience increased warming, characterized by extreme climate change phenomena.
The role of architecture clearly contributes to this Global Warming problem, so that the rationale or idea of architecture is no longer merely aesthetics and function but needs to be based on aspects of habitat and ecological sustainability. One of the basic elements of this rationale is carbon footprint, in which the field of architectural science is not alone in playing its role in physical intervention. Thus multi-disciplinary thinking becomes a new demand for architects in their work, this demand is in line with critical thinking in the post-modern era.

In the XXI century new ideas emerged that sought to facilitate ways / methods to answer world anxiety on a macro scale through micro-scale architectural research, involving micro aspects of other fields of science so as to produce synergies between technological developments and local wisdom. This is found in the architectural approach around 2010-2011, namely Biomimicry in Architecture (Biomimicry in Architecture) as outlined by Michael Pawlyn in a book with the same title.

The book "Biomimicry in Architecture" is the interesting book for author because Pawlyn conveyed deep thoughts and the results of his research so far which shows the linkages between the fields of architectural science and other fields of science in order to answer the concerns of the world community on the sustainability of life [3]. Pawlyn's thoughts are presented in a simple description that is supplemented with concrete examples to provide a logical explanation, which brings the reader to sharpen the sensitivity that has so far existed - both consciously and subconsciously - about the existence of the universe. The most essential thing according to Pawlyn is the ability to continue learning from this nature, because so many important lessons are given by nature if you can be observed carefully. As the opening of his book, Pawlyn quoted Richard Buckminster Fuller's statement as follows:

You never change things by fighting the existing reality.

To change something, build a new model that makes the existing model obsolete.

An American natural science writer named Janine M. Benyus who consistently popularized the term Biomimicry through her book "Biomimicry: Innovation Inspired by Nature" (2002). In simple language biomimicry is a contemporary architectural philosophy that seeks solutions for sustainability in nature, not by replicating natural forms, but by understanding the rules governing these forms. Nature has provided an opportunity to be explored in greater depth and specificity in order to obtain innovative results that are the solution for sustainable life, a philosophy of architecture today that changes the way of architectural thinking - multi-context breakthrough.
Pawlyn offers a solution to his book by presenting seven chapters which include discussion on: a more efficient building structure, the creation of a zero-waste system, water management, control of the thermal environment, production of energy for buildings. Descriptions and examples of cases raised in the book provide other perspectives for readers (especially those with an architectural background), who have only made nature as a source of inspiration for the surface only - to pursue display more effort serious to explore these natural substances to produce architectural innovations.

Through this book, we are invited to look back on the natural law as a principle law in life, so that humans are able to control their ego with modesty when learning in nature itself.

7. Conclusion
In conclusion, the author views the current sophistication in the field of architectural science as not a completely new thing. Rather it is a thought that seems to experience an "incarnation" of the basic principles of life, which is to return to the existence of the universe concretely. Re-understanding of nature does not necessarily make the progress of civilization forgotten, but instead is synergized with the sophistication of computing from innovative-creative exploration of information technology in this century. The existence of each field of science can no longer stand alone but rather the interdependence of one another, like architectural thinking with other scientific thinking such as information technology, physics, biology, medicine, psychology, and so on.

This shows that the future trend leads to more micro-thinking in order to answer macro challenges in the context of architecture - in line with the development of other fields of science today. Macro-micro contextual aims to maintain sustainable survival, amid the phenomenon of change in the world, specifically climate change which is predicted to disrupt the existence of living things in it - including humans.

This is in line with one part of Prof. Bambang Sugiharto found in the book "Humanism and Humanities" where there is a similar thread about the latest tendencies of the human sciences:

In such an increasingly relativistic world, the human world is facing freedom that carries high risks and the reality of the future is increasingly unpredictable. Meanwhile the technology that will be very decisive is information technology. ... Thus there was a shift from broadcasting to narrowcasting and narrow-catching. [4]

It is not an easy matter to explore in this complex jungle of thought, but with the consistency and unyielding spirit, it is hoped that the threat before the eyes can turn into the potential to bring superior life.

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