

Cultural Expression of Local Architecture for Developing Educational Campus Design

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Abstract—Architecture is an environmental product from the expression of values adopted by society. These values are passed down over time to become a culture eventually. The culture of a region is a result of interaction and acculturation that occur in a society. Through the design process, architecture analyzes the behaviors of the local community and its environmental conditions. In the globalization era, architectural representation becomes homogeneous. Therefore, to prevent local architecture from deteriorating, it becomes necessary to consider local architecture for developing campus design. This research aims to transform local architecture identity through design development in the context of campus design. Architectural expressions were analyzed to illustrate local culture as a descriptive effort. The observation was performed using an interview and observation guide sheet. A three-dimensional matrix was constructed to be an example of the design transformation process. The final result of this research is a transformation guideline for practitioners in achieving a cultural identity-based design.

Keywords—local architecture, education building, design transformation

I. INTRODUCTION

Architecture clarifies and elucidates community cultures where it relates to the state of its surrounding. Through the design process, the implementation of cultural values can be perceived by way of patterns, style, and distinctive trait of its local architectural culture [1]. Buildings are physical evidence of cultural memory and transfer knowledge from older generations as a symbol of creative work from local people that represent a specific time [2]. Therefore, local buildings are a testimonial display material that conveys the construction style, which through the evolution of its inhabitants, represents the cultural-psychological impact that drives the character and identity of is the local community [3].

The impact of globalization has opened up a vast knowledge of information [4]. The fast flow of information leads to a diversity of architectural representations that exist in all places, especially in Indonesia. However, this diversity causes the expression of local architecture characteristic that distinguish one region to another becomes blurry. This raises a concern that the homogeneity of architectural representation

will erode the uniqueness of local architecture as proof of this case can be seen from several works by Arsitek Muda Indonesia (AMI), an Indonesian young architects association, and other architects who have a tendency to only "translocate" an architecture style without any more in-depth understanding about the context and further adjustment to its local surroundings [5].

Referring to a section of Law No. 05 of 2017 concerning Culture Advancement, Indonesia is trying to put forth about regional culture in order to protect, develop, utilize, and foster Indonesian culture [6]. For that reason, the design and development of buildings must reflect upon local architectural expression. Aside from being a form of appreciation, the application of local architectural expression also contributes to the conservation of local culture. Therefore, the use of local architecture in determining the form and function of building development is a step that must be taken.

The main idea of this research is to explore, describe, and conceive local architectural expression, which is considered to have distinctive architectural characteristics that signify the uniqueness of a region and its culture. This research takes place in Banten, Indonesia, and study about Banten's local architecture during the Islamic influence of the Banten Sultanate and colonial period. The period of Hindu-Buddhist and Japanese rule is not included because there are not many relics that can be used as figures that influence the local architecture in Banten. The data that has been obtained is adopted for developing educational campus design in Banten.

II. LITERATURE

A. Expression of Local Architecture

Local culture is born from spiritual beliefs and local rites that have connections with the environment, natural, and geographical conditions around. In local communities, local culture manifested in the beliefs and habits of its own people. Expressions of local culture have their own functions and purposes in responding to its people's life and their environment [7].

Indonesia is blessed with various natural and geographical conditions, which makes Indonesia plenty of local cultures. People who live in the same natural and geographical conditions forged a social bond that forms beliefs and habits that coordinate action between its local communities [8].

Moreover, the local culture is also formed by an interaction between communities. The interactions can be brought by colonialization or trading process, where it leads to inevitable acculturation between cultures. Communications and relations between communities caused replenishment on the diversity of culture in Indonesia [8].

Modernization brought by globalization can simultaneously develop through the system of values, norms, and customs. As an attempt to avoid disorientation in facing globalization, people in communities should be embedded by a sense of belongings to local culture and moral awareness of noble values. Acculturation can lead to community development with the perception of reinterpreting local culture, which also a place for the actualization of ancestral heritage [9].

According to Kluckhohn, the cultural system is divided into seven points, namely: language system, knowledge system, social organization system, tools and technology system, economy and livelihood system, religion system and art system. These seven systems are interrelated with one and another [8]. This research focused on discussing tools and technology systems in which there is a culture to occupy a space and make it as a shelter [10]. As time goes by, apart from functioning as a place to live, this shelter also has a cultural and social function [11].

To summarize, architectural cultural expression is a manifestation of the meaning and function of space. These expressions have an image of community identity as a result of the culture in harmony with their environment. Acculturation takes place where elements of external culture are absorbed selectively so it can be accepted by the community and adapted to the existing culture [8]. The fusion of architectural culture escalates local architectural culture that is more impeccable and corresponds to existing needs and technology.

B. Islamic Influence in Banten

Banten is located on the north coast of the Java Sea, Banten is on the main trade route of Sumatra-Java, and directly adjacent to the Java Sea, the Sunda Strait, and the Indian Ocean [12]. This strategic location is resulting in Banten as an international trading port in Java. The defeat of the Portuguese from Malacca caused the rapid commercial activity that took place in the Banten port. The Islamic traders who had initially been trading in Malacca switched routes to enter the Banten region [13].

In 1525 the Banten region was under the rule of Islamic leadership. Banten Sultanate modifies local communities' living order, from government structures to building layout arrangements that were influenced by Islam values. In particular, this can be seen from the relocation of the Banten

government center to a coastal area with a centralized urban development direction. One of the heritage buildings of the Banten Sultanate, which is now nominated as a cultural heritage building, is the Great Mosque of Banten [14].

At the present time, Banten is known as a city with the image of Santri, a term of saying students in Islamic religious schools whereas refers to Muslims as nominal [15]. Islamic religious values can be accepted and practiced by the local community and blends into the local culture. The building is a result of culture has an intricate role in local community development, which acts as a social, political, and religious role itself [14].

C. Transformation and Adoption of Local Architectural Expression

1) Transforming tradition theory: As a form of attempting to protect traditions and local culture from extinction, the theory of transforming tradition departs from the philosophy that the most appropriate way for traditions and culture to survive is to develop these traditions continuously according to the needs and conditions of the present [16]. Developed by Adhi Nugraha, this theory uses the ATUMICS method by combining tradition and modernity and applying it to new objects or on this case educational campus design. The ATUMICS method is used to determine the elements that must be considered in transforming tradition and culture, in which there are artifacts, technique, utility, materials, icon, concept, and shape [17].

a) Artefact (A): Refers to a product or object at the center of the revitalization of the tradition. In the context of developing architectural design, artifacts can be in the form of heritage buildings, buildings to be built, or precedent buildings that have been determined.

b) The technique (T): All forms of knowledge/technique of making, producing, processing an object. It also includes tools that are used to support the object creation process.

c) Utility (U): The function and usability of the object is closely related to the needs of the user. The design principle emphasizes that form follows function so that aesthetic values will follow if the aspects of the function are fulfilled correctly.

d) Material (M): The raw materials used are things that need to be considered because the uniqueness of geographical conditions is seen from the natural resources that are found around it. The availability of material is also a consideration because some materials cannot be found in other areas.

e) Icon (I): Icons are identities that describe a particular culture or in the form of images that show as typical of a particular culture want to achieve. Icons can be found in nature, ornamentation, colors, myths, and artifacts of the local community.

f) Concept (C): The concept is a hidden element that can be found in the form of customs, norms, habits, beliefs,

ideology, and culture in general. A cultural transformation will be acceptable to the community only if the new elements are compatible with local cultural norms.

g) Shape (S): Refers to the performance, appearance, or physical attributes of an object. The shape can be seen in the form of dimensions, forms, and proportions that can be used as inspiration in making new elements.

The ATUMICS method is used to select the cultural expression values from the physical and non-physical data that has been collected. The results of this selection can later be taken into consideration in the development of educational campus building designs in Banten. The integration between modernity and tradition can be observed by the illustration below (Figure 1).

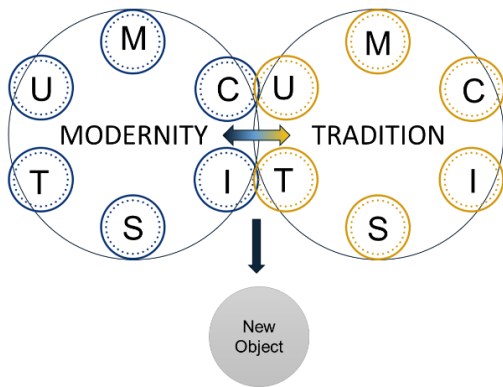


Fig. 1. Element integration.

The merging process between the modernity molecule and the traditional molecule will achieve new objects or molecules with different atom structure. This new object reflects a new atom structure which has potential factors that worth developing.

III. METHODS

This research emphasis on the current trend in the context of design transformation custom to translocate a design without further adjustment to a local condition and its culture. The use of a local architectural expression in the designing process is an act of appreciation and conservation of cultural identity. Therefore, in the transformation process for design development of the educational campus in Banten, it is necessary to examine Banten architectural expressions beforehand.

Qualitative content analysis was used to explain Banten local architecture expression in heritage buildings and remaining. An Interview was held to understand local values and meanings that exist in the form of a building. Moreover, site observation then conducted to selected building that has an essential role in local architectural representation, especially about Islamic influence in Banten such as Masjid Agung Banten, Masjid At-Tsauroh Serang, and Masjid Kuno Kaujon. From that site visit to Serang city, related data about materials used, building decoration, and building formation data were

collected. The data then processed and compared with literature, historical archives, and other relevant research using documentation study and text analysis. Based on the result of that analysis, the design guideline was formulated as an example of the transformation process of cultural-identity based design in a campus building.

IV. RESULTS AND DISCUSSION

After conducting a documentation study and text analysis using the ATUMICS method, the design development mixes modern elements and elements of cultural tradition as shown in the image below. The design transformation was applied to the campus building column—this design proposing a neotenic concept by applying a voluminous curve, rounded edges, and tubular form (figure 2). The use of wood in the column structure was removed and replaced with the use of compressed concrete or steel frames for more durability and lower maintenance.

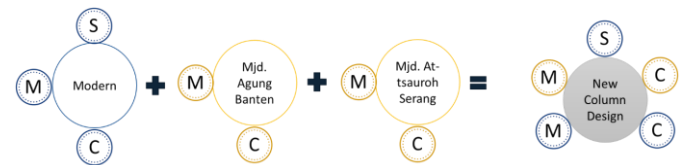


Fig. 2. New object elements.

The mosque building is a form of architectural heritage that departs from the imagination of the local community because it is influenced by the traditions and culture of its community in general so that the design of the mosque building is carried out independently and has thoughts that reflect the values held by the community [18].



Fig. 3. Masjid Agung Banten column design.

The column design takes inspiration from Masjid Agung Banten (figure 3), which has a pumpkin-shaped umpak as a symbol of prosperity and abundant crops in Banten. Umpak is a support base for the column to stand. The umpak is made from engraved natural stone left unpolished. The body of the column has a dark brown color with gold accents. In addition,

there are 24 columns in the Masjid Agung Banten, with four main columns and 20 supporting columns. There are also five wooden pillars at the top of the mosque. This column indicates the time of day (24 hours) and the order to carry out the obligatory prayers five times a day.



Fig. 4. Masjid At'tsauroh Serang column design.

The transformation process also takes elements from Masjid At-tsauroh in Serang. In Masjid At-tsauroh there's also a pumpkin-shaped umpak, but the umpak is more rounder and painted yellow (figure 4). There's also a philosophy of four soko guru columns in this mosque. Soko guru means the main pillar where there is calligraphy that reads Islamic values. Structurally, this pole is bigger because it holds the weight of the roof and the chandelier.

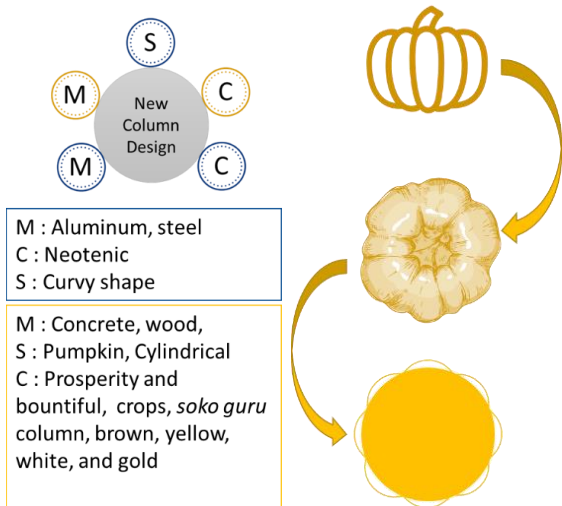


Fig. 5. Transformation process.

From the explanation in figure 5, the new column design uses in the main structure of concrete material, and steel with a tubular shape painted white. The base and capital structure used a gold aluminum as a decorative element as a form of prosperity. By using soko guru concept, only the main column has woods as accent in the half-length of the column. The use of wood in the main column is a transformation form of the

pumpkin-shaped umpak that both mosques have. The new column design can be seen as by the illustration figure 6.



Fig. 6. New column design.

V. CONCLUSION

Transforming cultural-based educational buildings serves as cultural preservation of local heritage buildings that represent the values held by local communities. By setting local buildings as a precedent, general public can understand the meaning of the building's formation and devoted to their local culture even more.

In Banten, the column is an architectural element with substantial cultural value. Column morphology in the building of mosques has a meaning and concept that is upheld and represents Banten. Therefore, transforming the design of building columns takes inspiration from these mosques using the theory of traditional transformation.

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