Creative adoption of Sundanese traditional architecture for architectural and campus interior design development

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Abstract. This research aims to explore the content of values, patterns, and characteristics of traditional Sundanese architecture. The results of exploration creatively adapted and adopted to develop the architectural and interior design of the regional campuses of the Universitas Pendidikan Indonesia (UPI). The first year of research included the location of UPI Cibiru, Sumedang, and Tasikmalaya campuses. The ethno-architecture approach, analysis of content and historical-qualitative observations of the philosophical conceptual aspects and cultural artifacts of traditional Sundanese architecture are carried out. Based on these observations, creative interpretation and adoption carried out to guide the development of architecture and interior design for UPI regional campuses.

1. Introduction
The regional context must also consider in the campus physical development. The wealth of local cultural heritage, especially Sundanese architectural culture, must be conserved. In connection with that, architecturally, identity is essential as a mark of the uniqueness. Therefore, the richness of local and traditional Sundanese architecture must be an inspiration in the design of UPI's regional campus development. Each region, of course, has its local wealth and uniqueness, which must have explored, adapted, and adopted so that it can be recognized, not only locally and nationally, but also globally. Jones and Delanty [1], in the context of European architecture, stated that Architecture has become an important discourse for new expressions of post-national identity in general, and specifically in the emergence of European spatial identity. Architecture is no longer tied to the context of nationalism but has become a significant cultural expression with a post-national identity that transcends the nation-state.

Therefore, it is vital, the interior design and architecture of the UPI regional campus adopt a variety of traditional Sundanese architecture. This adoption, not only in terms of aesthetic meaning but more importantly, as a source and medium of learning and traces of civilization that live in the architecture and dimensions of regional campus space, which will be national and even post-national (global).

This observational historical-qualitative research focuses on two things. First, in terms of ethnohistorical aspects, the study covers the contents of values, patterns, and architectural characteristics in traditional Sundanese society. However, the results of this study not disclosed in this paper. Second, in terms of the ethno-architecture, the results of content analysis and qualitative observations are further explored and then creatively adopted for the development of contemporary architectural and interior design. This paper will discuss this last point.
Footsteps the development of traditional Sundanese architecture, it can still see in the existence of the Cirebon sultanate palace, and traditional villages. The traditional village is one of the results of manifestations and expressions of community culture that has existed for a long time. According to Barliana et al. [2], traditional villages, with a variety of local wisdom, have a strong enough endurance to withstand various waves of change. However, as a living entity, that reality certainly does not mean referring to the fact that there is no change at all.

Exploration at the roots of culture and local wisdom is essential to gain knowledge of the values, cultural patterns, and characteristics of traditional architecture. This exploration, not only in the context of preservation and learning of cultural inheritance, but also adopted creatively for the development of contemporary culture. Including adoption, a load of architectural values, patterns, and characteristics as well as traditional Sundanese for the development of UPI regional campus architecture and interior design.

Indonesia is a country endowed with rich culture, diversity, and uniqueness. Various types of ethnicity, with the superiority of each local culture, have formed an extraordinary Nusantara culture. The problem is, the superiority of this local culture often treated as an inanimate object in a frozen "museum". Therefore, in the pressure of cultural globalization, the Indonesia archipelago culture loses its authenticity, except for mere recklessness and uniformity.

Related to the utilization of local potential and architectural culture, according to Roesmanto [3], the development of architecture in Indonesia faces problems. First, the diminishing understanding and pride in the potential of Indonesian architecture. Second, the architectural infatuation that is favor without considering local potentials. Third, there are differences in people's views about architecture with teaching materials in architecture education. Four, lack of awareness that architectural works are architectural learning media for the surrounding community.

Relevant to that, according to Barliana and Cahyani [4], in contrast to modern architectural concepts that more centered on humans, in general, traditional architectural concepts place the natural element at the center of the design orientation. Cosmologically, in the mythic mind, traditional societies experience themselves drowning with all nature and the unseen world. Therefore, most of the basic concepts of traditional architectural buildings, in the form of regional arrangement, spatial planning, building forms, decoration, are sourced from nature, which reflected through myths, taboos, symbolism, and belief systems.

Local wisdom is often aligned or referred to by other terms as often conceptualized as local knowledge or local genius. Its essence is a value system that believed to be true and serves as a guide in the daily life behavior of the local community. Local wisdom is part of a culture that is rooted in the life experiences and traditions of the local community for centuries and is a source for the development of social, economic, cultural, legal, and other aspects of life.

2. Research methods

This research uses two approaches. First, the approach of historical and qualitative content analysis for architectural objects, by exploring the characteristics of Sundanese architecture in the four regions of Center Priangan, East Priangan, West Priangan, Banten. The architectural characteristics of Center Priangan for adoption at the Cibiru (Bandung) regional campus, East Priangan for the UPI Purwakarta campus, West Priangan for the UPI Sumedang and Tasikmalaya campuses, Banten for the UPI Serang campus.

Second, preparation of adaptation and adoption guidelines for traditional Sundanese architecture for UPI campus building designs in the regions.

For the first year of research, the location of the study, purposively selected cities where the Regional campus location. Cibiru, Bandung (Center Priangan) and Sumedang, and Tasikmalaya (East Priangan).

This observational content analysis and qualitative research emphasize aspects of the value and material constraints of its architecture and artifacts. The primary technique for collecting data in qualitative architectural research is the study of documentation and text analysis. The primary data collection tool, thus using observation and documentation guidelines.
Furthermore, data processing is carried out. For qualitative data on observations, the analysis is done by comparing, confronting, and confirming the results of observations with theoretical and empirical parameters of charge values, patterns, and traditional architectural forms. Based on the results of this analysis, the design guidelines for the development of architecture and interior of UPI campuses in the regions formulated.

3. Research result and discussion

The results of the research to answer the first and second questions, namely the content of values, patterns, and the traditional Sundanes architectural characteristics, are not disclosed in this limited paper. On the other hand, there are many references and sources of documentation that discuss traditional Sundanese architecture, so that it has become common knowledge. Therefore, this discussion does not explicitly refer to specific sources to explore each part of the traditional Sundanese architecture. Analysis, in general, based on the following sources: Adimihardja [5], Barliana [6], Danasasmita [7], Ekadjati [8], Garna [9], Nuryanto [10], Salura [11].

This section will reveal the results of research to answer the second research problems, the creatively adoption of traditional Sundanes architecture into the development of the Cibiru, Sumedang, Tasikmalaya regional campus designs.

3.1. Implementation of Sundanese roof form design adoption

The shape of the roof used in the regional campus buildings adopts the shape of the roof of Julang Ngapak. The shape of the Julang Ngapak is the shape of the roof that widens on both sides of the roof plane. Viewed from the house front, the roof shape resembles the wings of a Julang bird (the name of a bird) is stretching.

This shape used with the consideration that it has a form that looks manly/majestic and height rises when compared to other forms of Sundanese roofs. The shape of a bird that spreads its wings shows high expectancy. It is consistent with the image the campus building wants to show. Campus buildings need to get out of the formal and rigid image. The shape of the roof of the Julang Ngapak neutralizes the "stiffness" shape of the education building as a result of the creation of modular classrooms.

![Figure 1. Roof form of Julang Ngapak and design transformation.](image)

3.2. Implementation of regional campus design adoption

The condition of the land on regional campus areas is relatively flat, so it does not need to modify when a 4-5 floors educational building built. The layout of buildings in each regional campus adjusted to the shape and condition of the existing land. The centralized pattern more widely used because the shape of the campus land area is relatively balanced between the long and short sides (broad and flat).

The pattern of centralized space has a centralized and stable composition consisting of secondary spaces, grouped around a large and dominant central space. In the application of regional campus design, the intended central space is open space used by all academicians for various activities (starting point of movement, gathering, activity centers, and student creativity). The secondary rooms on the regional
campuses are managerial spaces, dormitories, integrated laboratories, and other supporting rooms. Primary spaces create an overall configuration that is geometric, ordered, and symmetrical.

In the concept of a compact campus, the existence of open space is fundamental as a unifier of all activities. Open space that is located between buildings and serves as a connection to the surrounding environment provides direction by integrating and managing various places and elements; Open space can also provide a sense of aesthetics by engaging an attractive environment and creating visual surprises. Many creative and innovative ideas emerge in the outside environment, away from class and formal discussion. The natural scenery and relaxed atmosphere in open spaces encourage impromptu meetings and discussions and provide freshness for campus residents.

3.3. Implementation of space organization design adoption
In the campus environment, the Sundanese Architecture space organization adapted to an administrative area, which is a place for campus leaders and managers. The academic area is the center of campus activity (in the form of classrooms, laboratories). The service area is a supporting area for the continuity of academic activities (in the form of mosques, student center buildings, dormitories, and others.). The position of space is not regulated based on top-middle-bottom, but front-center-back. The administrative area located in the front, academic area in the middle and service area in the back.

3.4. Implementation of building structure adoption design
Existing buildings generally have depok structures — the permanent building above the ground. Therefore, the new building that will design can use the same structure. However, if possible, using a stage structure can be modified as a structure (camouflage) stage on a particular building and for example, combined with a pond on the landscape.

Figure 2. Example of centralized pattern.

Figure 3. Example of Cibiru campus zonation.
Figure 4. Pilotis structural and foundation structure can be modified as a structure (camouflage) Cibiru and Tasikmalaya.

4. Conclusion and recommendation

The shape of the roof used in the regional campus buildings adopts the shape of the roof of Julang Ngapak. The Julang Ngapak is the shape of the roof that widens on both sides of the roof plane. From the house front, the roof shape resembles the wings of a Julang bird (the name of a bird) is stretching.

The condition of the land in regional campuses is relatively flat, so it does not require much engineering when an educational building with a building height of 4-5 floors erected. The layout of buildings in each regional campus adjusted to the shape and condition of the existing land. The centering pattern more widely used because the shape of the campus area is relatively balanced between the long and short sides (broad and flat).

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Sundanese people are very closely related to the element of water as a source of life and recreation. Rivers, springs, ponds are elements that always taken into consideration when choosing settlement locations. Other element of typical Sunda village landscape is in forage management. Aside from being a raw material for building houses, plants also function as protective, guides, shrubs.

Based on the results of this study, the principles of design and development of regional campuses have been produced by adopting a wealth of architecture and traditional decoration. This study recommends: The policy of developing the UPI campus masterplan and design, including UPI campuses in the region, should consider the richness and wisdom of architecture; This research is comprehensive enough to explain the principles of adoption and transformation of architectural designs into UPI campus designs in the regions. The results of the study should be used as a reference in the design and development policy of the master plan as well as the architectural and ornamental design of UPI campuses in the regions (Cibiru, Sumedang and Tasikmalaya).

References
[1] Gerard D and Paul R J 2002 European Identity and Architecture European Journal of Social Theory 5(4) 453–466 Sage Publications: London, Thousand Oaks, CA and New Delhi
[2] Barliana M S and Permanasari D C 2014 Learning Pattern of Inheritance Tradition of Sustainable Architecture: From Ethno-Architecture to Ethno-Pedagogy TAWARIKH 5(2)
[3] Totok R 2007 Pemanfaatan Potensi Lokal dalam Arsitektur Indonesia Pidato Pengukuhan Guru
Besar Ilmu Perkembangan Arsitektur pada Fakultas Teknik Universitas Diponegoro. Semarang: Badan Penerbit Universitas Diponegoro.

[4] Barliana M S and Diah C 2012 Inheritance Tradition Learning of Sustainable Architecture: From Etnoarchitecture to Etnopaedagogy Paper on 1st Asia Future Conference, Sekiguchi Global Research Association Bangkok, 8-10 Maret 2013.

[5] Adimiharja K 1992 Kasepuhan yang Tumbuh di atas yang Luruh Bandung: Tarsito

[6] Barliana M S 2016 Dari Etnoarsitektur, ke Etnopedagogi, Terus ke Etnoideologi Bandung: UPI Press

[7] Danasasmita S 2006 Mencari Gerbang Pakuan dan Kajian lainnya mengenai Budaya Sunda Bandung: Yayasan Pusat Studi Sunda

[8] Ekadjati E S 1980 Masyarakat dan Kebudayaan Sunda Bandung: Pusat Ilmiah dan Pembangunan Regional Jawa Barat

[9] Garna J K 1984 Pola Kampung dan Desa, Bentuk serta Organisasi Rumah Masyarakat Sunda, dalam Edi S. Ekadjati (ed), Masyarakat Sunda dan Kebudayaannya Jakarta: Girimuki Pasaka

[10] Nuryanto 2009 Arsitektur Tradisional Sunda Pengantar Arsitektur Kampung dan Rumah Panggung Depok: Raja Grafindo Persada

[11] Salura P 2008 Menelusuri Arsitektur Masyarakat Sunda Bandung: Cipta Sastra Salura