

PENGARUH BUDAYA SETEMPAT KE ATAS RUPA BENTUK GEREJA BERSEJARAH DI PULAU PINANG

MOHD JAKI BIN MAMAT*

CHUA SHI YING **

ELIZABETH KWOH XIN WEI ***

MD BAHARUDDIN BIN ABDUL RAHMAN ****

mohdjaki@usm.my*, chuashiyang@student.usm.my**, kwohxinwei@student.usm.my***,
mdbahar@usm.my****

Abstrak

Malaysia dikenali sebagai sebuah negara berbilang budaya yang terdiri daripada Melayu, Cina, India dan kaum minoriti lain seperti timur tengah serta sebilangan kecil bangsa Eropah dan Timur Tengah. Kepelbagaian etnik ini akhirnya telah mewujudkan perbezaan dan keunikan budaya di Malaysia sehingga hari ini. Kepelbagaian budaya ini seterusnya menjangkau ke sudut lain seperti seni bina bangunan gereja. Merujuk kepada aspek seni bina, satu kajian telah dilakukan di Pulau Pinang untuk mengenalpasti pengaruh budaya setempat ke atas bangunan gereja bersejarah berdasarkan rupa bentuk bangunan. Lima gereja bersejarah telah dipilih sebagai sampel kajian ini selain merujuk kepada penulisan dan juga penerbitan berkaitan. Kajian ini menggunakan kajian lapangan dan pemerhatian sebagai kaedah pengumpulan data untuk menilai pengaruh budaya setempat ke atas seni bina gereja bersejarah di Pulau Pinang. Kajian mencadangkan bahawa seni bina gereja bersejarah ini banyak dipengaruhi oleh budaya setempat iaitu budaya Melayu dan juga Cina.

Kata Kunci: rupa bentuk bangunan, bangunan gereja bersejarah, budaya dan seni bina

Dihantar: 20 Januari 2023

Disemak: 25 Januari 2023

Diterbit: 30 September 2023

* Pelajar di Pusat Pengajian Perumahan, Bangunan dan Perancangan, Universiti Sains Malaysia, Malaysia

** Pelajar di Pusat Pengajian Perumahan, Bangunan dan Perancangan, Universiti Sains Malaysia, Malaysia

*** Pensyarah di Pusat Pengajian Perumahan, Bangunan dan Perancangan, Universiti Sains Malaysia, Malaysia

**** Pensyarah Kanan di Pusat Pengajian Ilmu Pendidikan, Universiti Sains Malaysia, Malaysia



THE INFLUENCES OF LOCAL CULTURE(S) ON THE BUILDING FORM OF HISTORICAL CHURCHES IN PENANG

MOHD JAKI BIN MAMAT*

CHUA SHI YING **

ELIZABETH KWOH XIN WEI ***

MD BAHARUDDIN BIN ABDUL RAHMAN ****

mohdjaki@usm.my*, chuashiyong@student.usm.my**, kwohxinwei@student.usm.my***,
mdbahar@usm.my****

Abstract

Malaysia is well-known for being multicultural, consisting of three significant ethnicities, the Malays, Chinese and Indians, and the minorities such as the Middle Eastern and small European groups. This group of ethnicities mentioned eventually made their mark in Malaysia and can be easily distinguishable from their unique and distinctive cultural identities. Being a multicultural country, it will not elude from having some cultural crossover. From an architectural perspective, the different cultures in Malaysia can be distinguished from their architectural building form, including the church buildings. So, this research has been carried out in Penang by observing and studying the historical church buildings. This study will attempt to identify local cultural influences on these historical church buildings through their building form. Five historical churches were handpicked from the rest of Penang to conduct this research. This paper will also present results from self-observations and the study of existing data from published books and research papers. After acquiring adequate knowledge of the various architectural building forms of churches, the findings will indicate that cultural factors play significant roles in the differences in designs of the historical church building form found in Penang. This study suggests that the Malay and Chinese cultures influence Malaysian architectural forms of historical churches in Penang, Malaysia

Key Words: *building form, historic church buildings, culture, and architecture*

Submitted: 20 January 2023

Revised: 25 January 2023

Published: 30 September 2023

* Student at School of Housing, Building & Planning, Universiti Sains Malaysia, Malaysia

** Student at School of Housing, Building & Planning, Universiti Sains Malaysia, Malaysia

*** Lecturer at School of Housing, Building & Planning, Universiti Sains Malaysia, Malaysia

**** Senior Lecturer at School of Educational Studies, Universiti Sains Malaysia, Malaysia



1.0 Introduction

In this article, the concept of culture will be defined in accordance with the research topic set in this paper. Through understanding the basis of culture in one aspect, this article will then explain and prove how local culture has influenced the architectural characteristics of a building's form. Hence, historical church buildings found in Penang will be the main entities to be observed in this research. The method of conducting this research is through the qualitative method, including self-observations on site and gatherings of existing data. The objective of this research is to identify local cultures that have influenced the historical church in Penang through building form.

1.2 Culture and Architecture

In the Cambridge Dictionary (2015), culture was defined as “the way of life, especially the general customs and beliefs, of a particular group of people at a particular time”. Commonly, in Cultural Anthropology, anthropologists have pointed out that culture is a human behavior on how people can adapt to their environment non-genetically, which explains why people in different environments have different cultures.

When associating culture with architecture, architecture can express an entire continent's culture. In philosophical terminology, the philosophy of architecture relates to the philosophy of art, the aesthetic value of architecture, and its relationship with the development of a culture. In short, architecture is an identity of a specific group of individuals (Leach, 2010; Whiteley, 1993). So, architectural identity all depends on certain factors, mainly depending on geographical and climatic factors, cultural factors, beliefs, traditions, historical factors, and the knowledge acquired by that specific community. It has been found that the architectural form and spatial relationships of buildings in different countries indicate the internal relations of architectural spaces in each region are derived from its cultures (Askarizad, 2019).

2.0 Literature Review

2.1 Architectural Influences in Malaysia

In anthropology, Smith (2007) argued that cultural innovations occurred in one group of individuals only when they spread geographically. Only then the practices of a culture could be traced back to its origins. Similarly, associating this school of thought with architecture, it was possible that when the expansion of culture occurred, so would the architecture practiced by that culture, making different architectural styles practiced and developed in the country while following their own particular twist of unique characteristics (Tan, 2018).

Ho (2005) gave a great example to support this idea which was the grand villas we could see in Malaysia. Built in the 19th century by a wealthy businessman after returning from Europe to Malaysia. The businessman then requested and employed craftsmen from Europe to design a mansion to imitate the ones that he saw in Europe. The motifs from the Neo-Classical era that was once popular in



Europe were also imitated. Since the Chinese culture believed in the concept of “feng shui”, it was then integrated into the mansion’s design. The architectural style was now known as Eurasian eclecticism. The mansion was also deliberately decorated with symbolic ornaments that had their own special meanings.

According to Heritage of Malaysia Trust (1990), Palladian Villas were common in England from the 17th century, established by a famous architect during the Italian Renaissance, Andrea Palladio. It was used as mansions in the countryside and was modified for churches and for administrative buildings. This style was not only used in English colonies, but mansions of this style were also mainly found in Penang, Kuala Lumpur, and Singapore.

2.2 Church Architecture in Malaysia

The earliest introduction of Christianity in Malaya (Malaysia) was the Roman Catholic Church when the Portuguese arrived in Malacca in 1511. The religion did not spread to other parts of Malaya until the 19th century when new immigrants brought Catholic, Anglican and Methodist missionaries (Ryan, 1971).

Although the first Catholic church was built in Malacca in 1849, the St. Francis Xavier Church of Malacca, Francis Xavier eventually spread Catholicism in the Malay region - Penang, in the 16th century. The church’s design was in Gothic style with a twin tower at the front of the building with clerestory windows. Francis Saviour was believed to be responsible for spreading Catholicism in the Malay region in the 16th century (Khairul, 2014). Eventually, the spread of Roman Catholics in the 16th century brought in the Cathedral of the Assumption to Penang, founded by Captain Francis Light in 1786, which also had the twin towers at the façade of the building, although this church was in a British Regency style (Esmawee, 1993; Hunt, 1992), this meant that it was built during the colonial era, which colonial architecture. This suggested that even if the denomination was similar, the architecture could be different depending on the geographical influences.

Esmawee (1993) mentioned that as Kuala Lumpur developed into a colonial administrative centre during the late 19th century, many churches were built around the city to accommodate the religious needs of the immigrant communities. Esmawee (1993) then presented The Church of Holy Rosary that catered mainly the Christian Chinese who were working in the tin mines. It is important to note that it was built mainly for the Chinese communities, which played a part in influencing the architectural style of the building; Gothic style architecture, as the Chinese characters were noticeable on the façade of the building.

2.3 The Hybrid Nature of Malaysian Architecture

Architectural forms were not immutable. There had never been a remotely ‘pure’ architecture in its origins, and all buildings owed their features and qualities to multiple sources of forms (Abel, 2017). Based on Abel’s interpretation, the hybrid nature of Malaysian architecture could be described as the product of the



encounter between local cultures and the international exchange system. Among the foreign architectural styles, Chinese and colonial architecture were the major influences on the Malay vernacular architecture that shaped Malaysian architecture.

Upon the arrival of European colonists, the Portuguese, Dutch and British architecture were brought with them. However, due to insufficient time, basic building techniques and architectural styles were taken directly from the European vocabulary out of practical necessity (Widodo, 2007). European colonialism stressed power through scale, complexity in design, use of imported materials and imposition of a foreign culture and lifestyle on local people (Sim, 2010). Despite superimposing their colonial order, the colonists accepted the existing local cultures while also incorporating a synthesis of selective principles of local architecture into colonial buildings, adapting colonial architecture to the new cultural and geographic environment (Mohd Jaki, 2020). For instance, the Bok House from 1929, demonstrated a good example of cross-cultural architecture between the East and the West. Through adopting the traditional Malay house's principle, the Bok House demonstrated the planning design of the Palladian style of Renaissance revivalism with a hint of Baroque influence while also accommodating the demands of the tropical climate through its arrangements of balconies and verandas (Sim, 2010).

The Malay vernacular architectural style existed from the pre-15th century until present day (Heritage of Malaysia Trust, 1990). Traditional Malay houses emphasized self-conscious design which was built by the owners themselves according to their own needs and with a good understanding of the natural environment, incorporating and reflecting their lifestyle and culture (Ismail, 2015). The design of Malay houses responded to the local climate to achieve climate comfort, incorporating building elements like raised stilts, gable roof with large overhangs, full length windows, grills, and panels (Mohd Jaki, 2019). Hence, the colonial buildings constructed by the Europeans were gradually modified and integrated with the vernacular climate response design (Hideo, 2018).

From the 18th century, the Chinese permanently settled in Melaka and became the major immigrant group in Malaya. Chinese architecture represented in one sense, an essential harmony with nature and its concept emphasized the roof, courtyard, exposure of structural elements, and use of colour (Ismail, 2005). The Chinese maintained many homeland traditions which are reflected in their domestic architecture such as traditional shophouses and townhouses throughout Malaysia (Sim, 2010; Kean, 2017). Based on observation for this study, the window opening covered with louvered shutters, air vents above the shutters, clay brick and granite and decorative plasterwork with flora motifs were the typical Chinese architecture that was often found in colonial buildings. As a result of embracing the local architecture, the colonists produced an architecture of hybrid fusion between the local and the European culture (Mohd Jaki, 2020).



3.0 Analysis and Results

From the literature review and fieldwork, it indicated that cross cultures in Penang caused changes in the building characteristic of colonial-style churches. These transformations took place within the existing building, in the extension and restoration of the buildings over time. This section presents the findings on the influences of Malay, Chinese and Indian cultures on the building form of the historical churches in Penang in terms of roof and façade design.

3.1 Malay Vernacular Influence

Malay architecture was greatly affected by climate and weather which emphasized climate responsive design to provide climatic comfort in Malaysia's tropical climate and environment. Therefore, the architects whom majority originated from the West adopted the climate responsive design of Malay architecture when erecting or renovating the churches to suit local tropical climate requirements using various ventilation and sun shading devices as well as low thermal capacity building materials. Based on the findings, the influence of Malay vernacular architecture is discernible in the form of roofs in the colonial-style churches selected.

3.1.1 Roof

In the design approach for ventilation in Malay vernacular architecture, roof is one of the major architectural elements. Among the Malay house forms, the long roof (*bumbung panjang*) is the basic roof form, which is also widely used in the local buildings, followed by the gabled hip roof (*bumbung potong Perak*), hip roof (*bumbung limas*) and 2-tiered pyramidal roof (*bumbung piramid 2-tingkat*).

Figure 1: Gable roofs of the historical churches in Penang



(a) St. George's Anglican Church



(b) Church of the Holy Name of Jesus



(c) Shrine of St. Anne



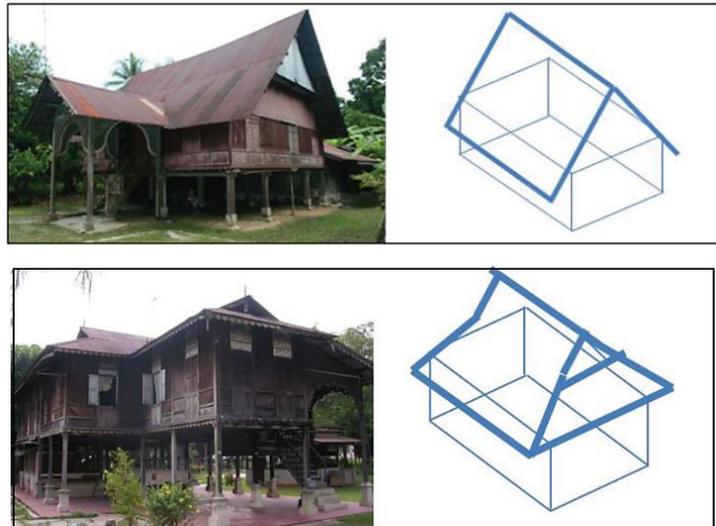
(d) Church of Our Lady of Sorrows



(e) St. Paul's Church



The colonial churches theoretically have undergone the influence of Malay vernacular architecture, indicated in the form of its roof in which the churches selected including the St. George's Anglican Church, the Church of the Holy Name of Jesus, the Shrine of St. Anne's Church, Church of Our Lady of Sorrows, and the St. Paul's Church as listed in Figure 1 are constructed with gable roofs. As explained in the above statement, gabled roofs are commonly used in Malaysia's vernacular architecture. For example, the Rumah Pak Ali in Kuala Lumpur.



Long roof and gable hip roof part of roof design of Malay traditional house (Sabrizaa, 2021)

In 1864, the original Indian or Madras-style terrace flat roof was converted to a gable shape to withstand the local climate. The gable roof's funnel shape, the use of ventilation grillers at its gable end and the use of ventilation joints allowed good ventilation of roof space to cool the church. Compared to the flat roof, a gable roof was more weather resistant as the steep pitch of it prevented the ingress of rainwater.

In the 1870s, an additional sanctuary and two wings were added and connected to the original building of the Church of the Holy Name of Jesus. Hence, it produced a cross-gable roof that combined two gable sections and was placed such that they intersected each other at an angle, most commonly with the two ridges placed perpendicular to one another. Besides, the gable roof of the Shrine of St. Anne's Church was elongated to create a roof overhang shown in Figure 1(c), protecting the church against heavy rain, strong wind, and direct sunlight. The overhanging edge of the roof provided shade to windows, and prevent glare and heatwave from entering the church. The Church of Our Lady of Sorrows, St. George's Anglican Church, and St. Paul's Church was constructed with a front gable roof placed on the front side of the building structure. The buildings' entrance doors were located on the front side, beneath the gable.



3.2 Traditional Chinese Influence

Referring to Esmawee (1993) on traditional Chinese buildings in Malaya, they were specifically designed to accommodate the commercial activities, social requirements and philosophical beliefs of the Chinese immigrants who settled in the Straits Settlement. When the Chinese culture started expanding in the West Coast of the Malay peninsula, their architecture also quickly became a characteristic for one of every Malayan town building. Wan Hashimah (2005) explained the design concept of Chinese architecture, where it represented an essential harmony with nature. The author also stated that the fundamental concepts of Chinese architecture were the courtyard, emphasis on the roof, exposure of structural elements and the use of colour.

3.2.1 Building Openings, Air vents, and Windows

The traditional Chinese architecture in Malaysia has a distinctive form to its building form, as the design of the openings, air vents, and windows play a part in the overall form of a building. Usually, buildings of the traditional Chinese influence have a double door opening at the doorway with carvings and motifs - each with its own meaning - usually can be found at the front opening of the buildings. Windows in traditional Chinese architecture, however, are in curvilinear symmetrical forms. A traditional Chinese house has air vents usually located at the upper part of a building façade; some are designed with decorative holes. Similarly, with the design of its windows, some are seen to use the most conventional type, the vents with louvered shutters.



(a) Church of Our Lady of Sorrows showing the design of the building's openings & windows



(b) Church of the Holy Name of Jesus showing the design of the building's openings & windows



(c) Shrine of St. Anne showing the design of the building's openings & windows



(d) St. George's Anglican Church showing the buildings air vents design



(e) St. Paul's Church showing the building's air vents design

Figure 2: Building openings, air vents and windows of historical churches in Penang.



3.2.2 Openings

The Church of Our Lady of Sorrows was meant for Chinese settlers who converted to Catholicism. The Figure 2 (f) is a restored and redesigned version of the church. The front entrance of the church design is what seems like folding wooden door panel with patterned glass panes, depicting that of traditional Chinese shophouses' folding metal doors. The Church of the Holy Name of Jesus, St Paul's Church, the St. George's Anglican Church, and the Shrine of St. Anne have a similarity in the way that the openings of the doorway are in a curvilinear form, which has been mentioned to be expected in traditional Chinese designs. Originally from the design of colonial architecture where some of the building openings are large Roman arches alternated with a series of rectangular Doric pilasters to support the entablature. Together with a touch of traditional Chinese design, the front openings or doorways were framed in curvilinear symmetrical shapes. Some openings are arch designs with sculptured relief on the exterior form of the building, like what was observed in the Church of the Holy Name of Jesus, indicating the integration of the traditional Chinese style with the European style into a unique style of building form.

Figure below shows an example from the Church of Lady of Sorrows' (left) & a typical shophouse found in Penang (right), with folding doors at its main entrance.



3.2.3 Air vents

Another observation made on St. Paul's Church's building; Figure 2 (j) shows the interior of the open ventilation at the upper part of the wall, a distinctive design from the traditional Chinese style designs in Malaysia. Due to Malaysia's geographical climate, air vents are needed to provide cool interiors. The design of air vents used in St. Paul's Church is what they would call decorated holes which are for ventilation purposes as well as for aesthetics. Traditional Chinese designs used a lot of carvings and motifs, and usually can be found on the exterior of the building. Other churches in this study such as the Church of the Holy Name of Jesus,



the St. George's Anglican Church, and the Shrine of St. Anne use the more conventional design of vents with louvered shutters hinged in their vent frames.

Figure below shows St. Paul's Church (j) interior of the open ventilation.



3.2.4 Windows

The arched windows on the upper position of the façade of the Church of Our Lady of Sorrows are decorated with plant motifs. This is also a direct representation of the traditional Chinese influence on the appearance of the building design, where facade ornamentations, also known as Chinese Baroque were commonly applied in Chinese shophouses in Malaysia. Not all windows from the Chinese design form are for ventilation purposes, and some are like picture windows the purpose is just for letting in daylight into the interior (they are also known as fanlight windows) which are presented by the Church of Our Lady of Sorrows. Similarly, like air vents with louvered shutters, traditional Chinese architecture also uses louvered shutters hinged into the frames of the windows.

Figure below shows the Church of Lady of Sorrow(left) & shophouses found in Penang (right), both with highlighted area that resembles that of traditional Chinese design (Chinese Baroque).



4.0 Conclusion

This study suggests that the most notable cultures that played vital roles in influencing Malaysian colonial architecture of historical church buildings were the Malays and Chinese. Although Indian culture impacted on the architecture of historical church buildings, the Malay and Chinese cultures were more distinguishable. The equatorial climate of Malaysia was also considered one of the factors that drove the transformation of historical church architecture. Even foreign architectural designs such as the colonial style architecture were futile if modifications and alterations were not made to the buildings for the colonial buildings to adapt and function in Malaysia's tropical climate. These changes have made Malaysian architecture unique in its own right, as well as allowing local cultures to have their own identity through architectural form, as it helps relate to their history and local cultural identity.

To conclude based on the results presented, the uniqueness of historical building formations that are still active and being preserved in Malaysia are possibly due to the various cultures in Malaysia, but not necessarily towards the architecture of historical churches in Penang. Instead, the study has highlighted the importance of understanding the history of Malaysian architecture so that it can be used as a reference for future development of more innovative architecture. Developing newer innovative buildings in Malaysia does not necessarily need to be copied entirely from traditional architecture, as long as the building design helps in tackling climatic factors faced in tropical locations. In fact, the architecture from the past must be understood for what it came to be and offer design innovations to help in developing a more modern Malaysian architecture in the future with the help of traditional architecture.

This study was conducted to identify local cultures that influenced historical churches in Penang through the building form. Whilst conducting this research, the authors did not anticipate not having more information on some of the selection of historic church buildings in Penang that might have a direct or indirect relationship to achieving this research objective. Thus, further research can be conducted on other variables of these historic church buildings in Penang such as the building's construction details, materials used, the history of urbanization, and the evolution of local culture in the church's vicinity.

5.0 Acknowledgement

This study expresses its deepest gratitude to the guidance of lecturers under the course RDG334 Theory and History of Design conducted in the Year 3 Interior Architecture programme, School of Housing, Building & Planning, Universiti Sains Malaysia, as well as to other parties that have significantly contributed to its research.

First author

Elizabeth Kwoh Xin Wei: She is a student at the Interior Architecture Programme, School of Housing, Building & Planning, Universiti Sains Malaysia

Second author

Chua Shi Ying: She is a student at the Interior Architecture Programme, School of Housing, Building & Planning, Universiti Sains Malaysia



Third author

Mohd Jaki Bin Mamat: He is a lecturer at the School of Housing, Building & Planning, Universiti Sains Malaysia. He specialises in heritage architecture and building conservation.

Fourth author

Md Baharuddin bin Abdul Rahman: He is a senior lecturer in Curriculum Studies at the School of Educational Studies, Universiti Sains Malaysia, Malaysia.

References

- Andrew Leach (2010), *What is Architectural History*, Polity Press, Cambridge.
- Aronin, Larissa; Hornsby, Michael; Kiliańska-Przybyło, Grażyna (2018). *The Material Culture of Multilingualism*. Cham, Switzerland: Springer. p. 25. ISBN 9783319911038.
- Chee Siang Tan & Kaori Fujita (2018), *Building Construction of Pre-war Shophouses in George Town Observed Through a Renovation*, *Journal of Asian Architecture and Building Engineering*, 13:1, 195-202.
- Chun, Hasan & (2005). *An influence of colonial architecture to building styles and motifs in colonial cities in Malaysia*. In 8th International Conference of the Asian Planning Schools Association.
- Esmawee Haji Endut (1993). *Traditional Malaysian Built Forms: A study of the origins, main building types, development of building forms, design principles and the application of traditional concepts in modern building*. White Rose eTheses Online. https://etheses.whiterose.ac.uk/14839/2/389486_vol2.pdf
- Grafton Elliot Smith Sir (2007), *The Migrations of Early Culture: A Study of The Significance of The Geographical Distribution of Mummification*, Kessinger Pub Co, India.
- Heath (2009). *Vernacular Architecture and Regional Design: Cultural Process and Environmental Response*. Routledge.
- Heritage of Malaysia Trust (1990). *A Handbook Malaysian Architectural Heritage Survey, Kuala Lumpur*. Badan Warisan Malaysia.
- Hideo Izumida (2018) *A Study on British Architects in East and Southeast, Journal of Asian Architecture and Building Engineering* – Architectural Institute of Japan, vol.2. Asia: 1830 – 1940
- Ho, Hasan, Noordin (2005). *An Influence of Colonial Architecture to Building Styles and Motifs in Colonial Cities in Malaysia*. Malaysia Design Archive. <https://www.malaysiadesignarchive.org/an-influence-of-colonial-architecture-to-building-styles-and-motifs-in-colonial-cities-in-malaysia/>
- Ismail (2005). *House In Malaysia Fusion of The East and the West. First Edition*. Universiti Teknologi Malaysia Skudai.



- Kean Siang Chng and Suresh Narayanan (2017), *Culture and social identity in preserving cultural heritage: an experimental study*, International Journal of Social Economics, Vol. 44 No. 8, pp. 1078-1091.
- Khairul Amin Mirsa Hussain and Norsidah Ujang, (2014), *Visitors' Identification of Landmarks in the Historic District of Banda Hilir*, Melaka, Malaysia, Procedia - Social and Behavioral Sciences 153 689 – 699
- Lawrence J. Vale (2008), *Architecture, Power, and National Identity*, 2nd edition, Routledge, New York.
- Mariam Rawan Abdulla (2018). *Culture, Religion, and Freedom of Religion or Belief, The Review of Faith & International Affairs*, 16:4, 102-115,
- "Material Culture Section". Department of Anthropology, Gender and African Studies, University of Nairobi. <https://african-studies.uonbi.ac.ke/thematic-areas/material-culture-section>
- "Meaning of "culture". Cambridge English Dictionary. Archived from the original on August 15, 2015. Retrieved July 26, 2015.
- Mohd Jaki Mamat & Muhammad Firzan Abdul Aziz (2020), *The Entity – Identity Relationships of Old Shop Houses in Perak Through Facade Design*, *Journal of the Malaysian Institute of Planners*, Volume 18, Issue 3, Page 51 – 70.
- Mohd Jaki Mamat, Puteri Shireen Jahn Kassim & Noor Hanita Abdul Majid (2019), *Pattani's Architectural Epitome of The Yaring Palace: Journeying the Historical Phases of a Regional Design Language, Cultural Syndrome*, Vol.1, No.1, 2019, pp. 14-22.
- Nigel Whiteley (1993), *Design for Society*, Reaktion Books Ltd. London
- Parvizi (2009). *Ganjuran: Gereja Berkat dan Perutusan, 1924-2009*. Gerber, Linda (2011). *Sociology*. Toronto: Pearson. p. 54. ISBN 978-0-13-700161-3.
- Pavol Bargar (2014). *Niebuhr's Typology Reconsidered: Reading Christ and Culture through the Lenses of the Praxis Matrix*. *Communio Viatorum* LVI (3):294-316.
- Poudel (2022). *Gable Roof | 5 Types of Gables Roof | History & Life Span of Gable Roof | Advantages & Disadvantages*. Dream Civil. https://dreamcivil.com/gable-roof/#_2_Introduction
- Reza Askarizad (2019). *Influence of Socio-Cultural Factors on the Formation of Architectural Spaces (Case Study: Historical Residential Houses in Iran)*, Vol.1/No3/Autumn 2017, pp. 44-52.
- Robert Hunt, Lee Kam Hing and John Roxborough (1992), *Christianity in [West] Malaysia, a denominational history*, Pelanduk, Petaling Jaya, 1-33.
- Sabrizaa Rashid, Nurfaizal Baharuddin & Kartina Alauddin, (2021), *The history and transformation of Perak malay traditional house*, *Malaysian Journal of Sustainable Environment*, Special Issue 71-86



Sheumaker, Helen; Wajda, Shirley (2008). *Material Culture in America: Understanding Everyday Life*. Santa Barbara, CA: ABC-CLIO. pp. xi–xii. ISBN 9781576076477.

Sim (2010). *Redefining the Vernacular in the Hybrid Architecture of Malaysia*. Victoria University of Wellington Te Herenga Waka. <http://hdl.handle.net/10063/1511>

Widodo (2007). *Modern Indonesian Architecture: Transplantation, Adaptation, Accommodation, Hybridization*. KITLV Press.
https://www.academia.edu/2064286/Modern_Indonesian_Architecture_Transplantation_Adaptation_Accommodation_Hybridization

