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Relationship between Architectural Form, Function, and Meaning in Cathedral Churches

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Abstract: The emergence of irregularities within the Catholic Church began to surface primarily after the Second Vatican Council, coinciding with the rapid development of churches that deviated from the liturgical provisions set forth by the Catholic Church. This trend has led to a diminishing sense of sacredness within these places of worship. It is crucial to recognize the interplay between form, function, and meaning in the evolution of the Catholic Church architecture. This study delves into the architectural form, function, and meaning of cathedral churches, with a specific focus on the Ijen Cathedral Church in Malang, Indonesia. The church underwent renovations in 2002 for maintenance, resulting in several alterations. The methodology employed in this research includes research preparation, implementation, data analysis, and the documentation of research findings. The findings indicate that within the Ijen Cathedral Church, the interplay between form, function, and meaning illustrates that these elements complement each other to form a harmonious unity. The sacredness of this church can be felt through the attention to the three aspects. Therefore, it can be concluded the Ijen Cathedral Church exemplifies the interconnected relationship between form, function, and meaning in Catholic architecture. It plays a crucial role in creating sacred and meaningful spaces for its congregation.

Keywords: architecture, form, function, meaning, Ijen Cathedral Church.

大教堂的建筑形式、功能和意义之间的关系

摘要：天主教会内部的不规范现象主要出现在第二次梵蒂冈大公会议之后，与偏离天主教会所定礼仪规定的教堂迅速发展相吻合。这种趋势导致这些礼拜场所的神圣感逐渐减弱。在天主教教堂建筑的演变过程中，认识到形式、功能和意义之间的相互作用至关重要。本研究深入探讨大教堂教堂的建筑形式、功能和意义，特别关注印度尼西亚马朗的伊真火山大教堂。该教堂于 2002 年进行了维修翻修，导致了几处改建。本研究采用的方法包括研究准备、实施、数据分析和研究结果记录。研究表明，在伊真火山大教堂中，形式、功能和意义之间的相互作用表明这些元素相辅相成，形成一个和谐的整体。通过对这三个方面的关注，可以感受到这座教堂的神圣性。因此，可以得出结论，伊真大教堂体现了天主教建筑中形式、功能和意义之间的相互关系。它在为信众创造神圣而有意义的空间方面发挥着至关重要的作用。

关键词：建筑、形式、功能、意义、伊真大教堂。

1. Introduction

Nowadays, Catholicism boasts the largest following of any religion worldwide. This issue is closely tied to the necessity of a large place of worship. The demand for a spacious worship space drives growth and development in both existing and new churches. The design of a place of worship should always embody the principles and values of the religion it represents, while also accommodating ritual practices and creating a sacred atmosphere that resonates with the faithful. This is especially true for Catholic Church buildings [1]. The Catholic Church is currently undergoing significant updates to its liturgical terms and conditions, particularly in relation to the development of churches, following the Second Vatican Council (1962-1965). Before the Council, the form of the Catholic Church was diverse. However, the Council sparked numerous significant updates in the architecture of Catholic churches.

These updates not only bring about positive changes, but also result in irregularities or deviations in the growth of Catholic churches worldwide. Adherents of modernism tend to prioritize form following function as they believe that the architecture of the Catholic Church does not align with contemporary architectural styles [2]. This has led to the categorization of Catholic Church architecture into two styles based on their expression: those that embrace the sacred nature of Catholicism and those that deviate from it, often referred to as "Catholic Church architecture" that diminishes the sacred essence of the religion [3, 4].

The leader of the Congregation for Divine Worship and the Discipline of the Sacraments, Cardinal Antonio Canizares Llovera [5], highlighted the issue of a decline in the sacred expression in the design of modern Catholic Church buildings. This decline is attributed to a deviation from the initial purpose of these buildings as sacred spaces, with a shift toward non-sacred aims. As a result, there has been a trend toward multipurpose building shapes that do not reflect the sacred nature of a church.

In response to this concern, Pope Benedict XVI established a new commission within the leadership hierarchy of the Catholic Church. This commission was tasked with studying design deviation in Catholic Church architecture worldwide. The deviations observed were found to be a result of churches not being designed with the proper liturgical foundation of the Catholic Church in mind. Consequently, the architectural design of the church often fails to embody the traditional characteristics associated with a place of worship. The structures typically feature cube shapes

with cement or glass finishes and other unconventional shapes that do not convey the distinctiveness of a church. Additionally, the Tabernacle is often obscured from view, diminishing the sacred symbolism typically associated with a church building.

Cardinal Antonio Canizares Llovera [5] emphasized that the formation of this commission aimed to halt the development of churches that strayed from traditional design principles. The focus was on ensuring that architects understood and incorporated Catholic liturgy as the basis for their designs. This was seen as crucial in preserving the essence and holiness of Catholic Church architecture.

The Cardinal [5] stressed the importance of maintaining the relationship between form, function, and meaning in the architecture of Catholic churches. The structure of the Catholic Church must align with the liturgical functions it serves, ensuring that the sacredness within the Church remains vibrant and enduring.

The Catholic Church follows a hierarchical structure, with the Pope at the apex and residing in Vatican City, Rome, followed by Cardinals, Bishops, Priests, and the laity. Malang Diocese, one of Indonesia's oldest, is home to the Ijen Cathedral Church, a Dutch heritage site inaugurated in 1934. Featuring Neo-Gothic and colonial styles, the cathedral's distinct architecture includes upward-tapering towers, three front doors, stained glass windows, and well-maintained Dutch decorations. Despite renovations in 2022, no research has been conducted on the relationship between form, function, and meaning within the church. Hence, this study aimed to explore this relationship in depth, focusing not only on the physical aspects but also on the significance of spaces and elements within the Ijen Cathedral Church in Malang City.

2. Materials and Methods

2.1. Research Location

The research was conducted at the Ijen Cathedral Church in Malang, Indonesia, which underwent renovations in 2002 to preserve the building and implement some improvements.

2.2. Relationship between Form, Function, and Meaning in Architecture

According to Capon [7], the foundation of architecture lies in the arrangement of function, meaning, and form. In architectural thinking, an activity requires a receptacle to house it. This receptacle serves as a vessel for a message that carries

its own inherent meaning [7, 8]. When a building is developed but fails to show the function and aim, that is a failure in architecture. In his theory, Capon [8] outlined six categories in architecture, which can be classified into two groups: the primary category, consisting of form, function, and meaning, and the secondary category, consisting of context, construction, and spirit (Fig. 1).

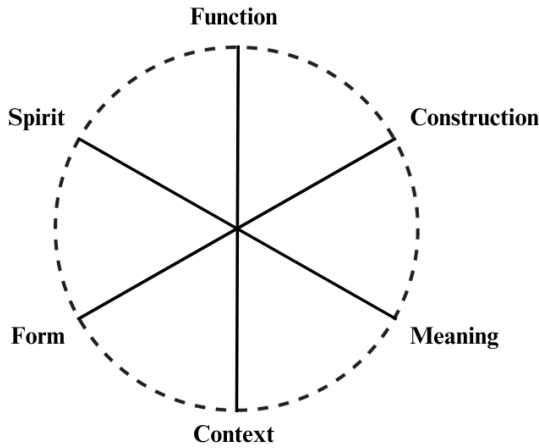


Fig. 1 Diagram of the six aspects of architecture according to Capon [8]

Salura and Fauzy [9, 10] refined and expanded upon this theory by introducing a triangular concept of form-function-meaning that is in constant motion (Fig. 2). It is imperative for every architectural creation to place emphasis on the three concepts of form, function, and meaning. These concepts are intricately interconnected and complement one another. The perpetual rotation of the triangular concept signifies that architecture is a dynamic field, constantly evolving as new ideas are incorporated into architectural designs.

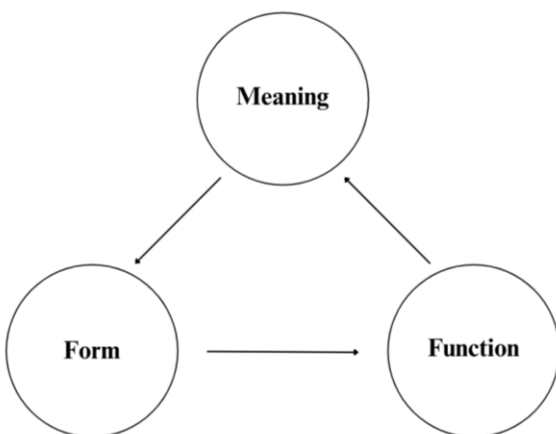


Fig. 2 Diagram of the three aspects of architecture according to Salura and Fauzy [8]

2.3. Architecture of the Catholic Church

The architecture of the Catholic Church is characterized by various rules, symbols, and ornaments [11]. The liturgical base of the Catholic Church in the development and design of church buildings has been regulated and always the same in every area. Therefore, many Catholic Church buildings have relatively the

same form and space. The architecture of the Catholic Church is characterized by specific features, including ornate decorations and a roof that tapers upwards, reflecting the Neo-Gothic style. The liturgical requirements of Catholic Church development underwent significant updates following the Second Vatican Council (1962-1965).

Before the Council, the Catholic Church exhibited a diverse range of architectural styles. The emergence of new architectural trends further contributed to this diversity, particularly with the rise of modernism. However, this diversity has also led to challenges in meeting the needs of congregations.

Many architects involved in designing churches prioritize aesthetics over the practical requirements of Catholic liturgy [12, 13]. As a result, some churches are more focused on being visually impressive rather than functional for worship [14].

The different church designs accurately calculate the required space, resulting in a more efficient use of the church building [15].

Fig. 1 presents a diagram of the six aspects of architecture according to Capon, Fig. 2 presents a diagram of the three aspects of architecture according to Salura and Fauzy, and Fig. 3 presents a flowchart of the research.

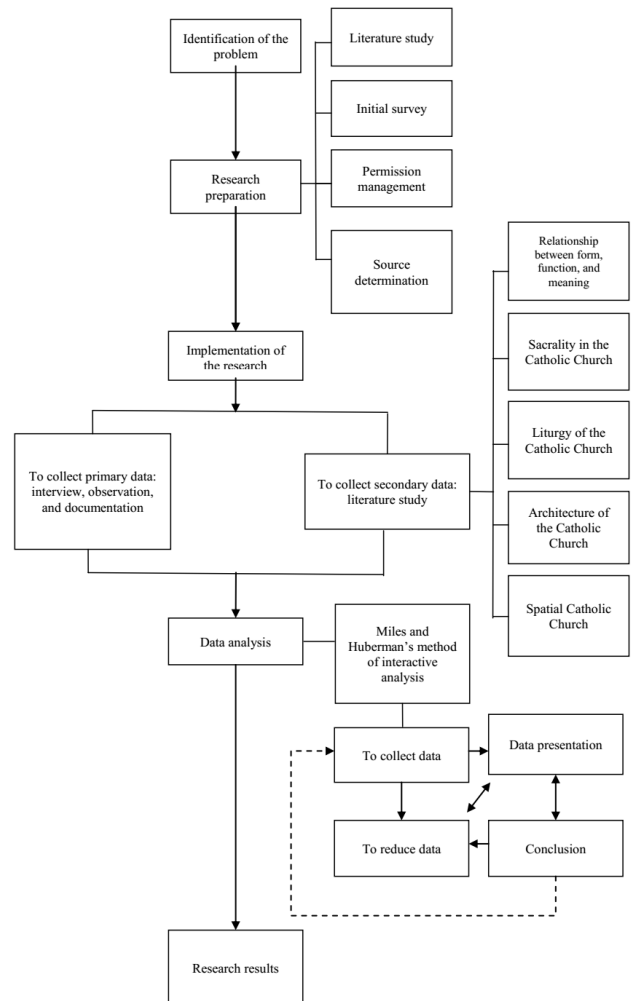


Fig. 3 Research flowchart (Own study)

3. Results and Discussion

3.1. Analysis Results

The foundational floor plan of the building is designed in a cross shape, with a hierarchy divided into three areas: the narthex (a less sacred space), the nave (the sacred area), and the sanctuary (the most sacred space) (Fig. 4). The architectural design of the building includes arches that resemble fins, adding a unique and distinctive feature to the structure. The layout of the rooms within the building is planned to accommodate the ongoing liturgical activities. The cross-shaped floor plan holds significant meaning, symbolizing safety and serving as a representation of the church as a sacred space for the holy sacrifice of the mass.

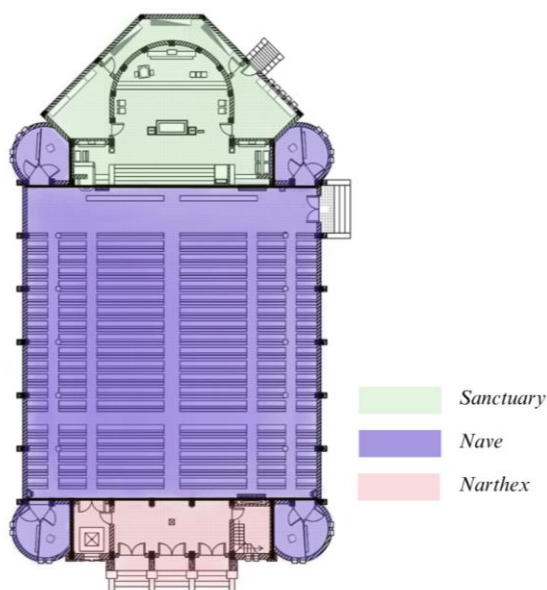


Fig. 4 Hierarchy of the Ijen Cathedral Church (Own study)

This church features two towers, each with a bell located at the top left. The left tower serves as a transitional space between the first floor, where congregants gather, and the second floor, designated for the choir. Additionally, this tower houses the church bell. The right tower is utilized as the baptismal font room on the first floor and a space for reflection on the second floor. The ringing of the church bell serves as a reminder for prayer time. The design of these towers resembles two hands raised in prayer toward the Lord. They represent the church's closeness to God. The resonant and powerful sound of the bell symbolizes the voice of the Lord, calling people to come together and praise and glorify His name.

The stained glass windows at Ijen Church are a beautiful combination of rectangular, half-circle, and circular shapes. The wooden doors throughout the building also feature a mix of rectangular and half-circle designs, particularly at the entrance. These architectural elements serve as physical (noise, ventilation, and lighting) controls.

The placement of the windows high up in the building allows maximum natural light and ventilation.

The doors, on the other hand, help to separate and define different areas within the church.

Each window has its own unique symbolism, with the circular window at the top of the building featuring six small circles surrounding a larger central circle (Fig. 5). The largest circle in the center of the six circles is divided into 13 parts. The 12 smaller parts represent the 12 saints, while the largest part at the center symbolizes Jesus Christ.



Fig. 5 Windows at the Ijen Cathedral Church (Own study)

The choir room is located on the second floor of the church, specifically in the exonarthex area, with its orientation facing the altar. The room is rectangular in shape and serves as a dedicated space for the choir staff to carry out their duties during liturgical services. These choir staff members play a crucial role in unifying the congregation through the power of music and song during the celebration of the liturgy.

The church features a baptismal font designed in the shape of a small well, complete with an iron cover. Positioned facing the altar, this baptismal font is utilized during the sacrament of baptism, although it has not been used recently. Surrounding the font is an engraving that reads "In Nomine Patris et Filii et Spiritus Sancti," which translates as "In the name of the Father, Son, and Holy Spirit." This inscription is recited as water is dispersed onto the forehead of the baptismal candidate during the baptismal process.

Within this church, there are four confession rooms located in the nave area. Each room is designed in a unique half-circle shape integrated with a triangle, all facing toward the altar. The confession area is divided into two sections, one for the congregation and one for the Priest, separated by a wooden bulkhead. The confessional serves as a sacred space for individuals to engage in dialogue with a Priest during the sacrament of penance, seeking forgiveness for their sins. The enclosed area, separated by a wooden bulkhead, is designed to foster a reverent atmosphere, allowing individuals to experience the presence of Jesus (through the Priest) more deeply as they seek absolution for their transgressions.

In this church, the seats are designed with a 15-degree gradient and include a kneeling area in front. Crafted from wood, the seats are ergonomically designed to ensure comfort during long periods of sitting. The orientation of the seats faces the altar, symbolizing unity and regularity within the congregation. Attendees gather in this sacred space to partake in the celebration of liturgy, fostering a sense of unity with the priest and fellow worshippers as they

come together as one body in Christ.

Another physical elements within this church are paintings and statues of Jesus Christ, Mother Mary, and Saint Joseph. These sacred artworks are placed at the front and back of the nave area, with a designated candle stand positioned in front of each statue for worshippers to offer their prayers. Beyond serving as mere decorations, these paintings and statues play a crucial role in cultivating a reverent and spiritual ambiance within the church. They serve as powerful symbols of faith and devotion, providing a focal point for prayer. The depictions of Jesus Christ, Mother Mary, and Saint Joseph serve as tangible reminders of the presence of these holy figures in the lives of the faithful.

The most sacred area within this church is the chancel (Fig. 6). The chancel is where one will find the altar, sacristy, Bishop's throne, Priest's seat, pulpit, and three tabernacles. It is considered the holiest part of a church building, distinguished by its elevated position above the nave area. The chancel is positioned to face the nave, with the Priest overseeing liturgical activities from behind the altar. The altar is designed with simple forms to ensure that worshippers can maintain their focus during the liturgy. The three tabernacles serve as repositories for the consecrated host, symbolizing the presence of Christ. The pulpit is designated for special prayers and the reading of church information. The bishop's throne serves as the designated seat for the bishop during religious ceremonies; the priest's seat is reserved for priests who assist in conducting the mass, in addition to the bishop. The highest location within Pantim Imam serves as a symbolic representation of the church's leadership, acting as the "head" of the church and the focal point of liturgical activities. The Altar, situated at the center of Pantim Imam, serves as the place where the sacrifice of the cross is commemorated through sacramental symbols. The Tabernacle, designed in the shape of a small house, serves as a dwelling place for Jesus Christ, who is present in the form of the consecrated host. The elevated pulpit signifies the importance and majesty of God's word. The bishop's throne and the Imam's seats within Pantim Imam, adorned with luxurious designs, convey a sense of religious leadership while still maintaining a sense of unity with the congregation.

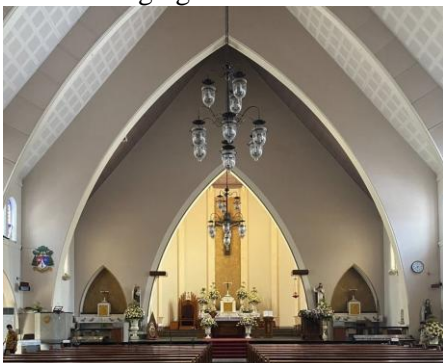


Fig. 6 Chancel at the Ijen Cathedral Church (Own study)

3.2. Relationships Determined

The description of the form, function, and meaning of the Ijen Cathedral Church reveals the significant role that architectural design plays in symbolizing Catholicism, facilitating liturgical practices, and harmonizing with its surroundings. The symbolism of Catholicism in a church building can vary, depending on the cultural context, the functionality of the elements, and the significance of the building [6]. Through an analysis of the Ijen Cathedral Church, it becomes clear that the symbolism of Catholicism is intricately woven into the architectural form and meaning of the building, influencing the function of liturgical practices and vice versa.

This analysis reveals the interconnected relationships between form, function, and meaning within the Ijen Cathedral Church:

1. The form of a building element impacts its functionality and meaning.
2. The symbolic representation of Catholicism influences the form and functionality of the church.
3. Functionality influences form.

The relationships that are formed demonstrate the interconnectedness of form, function, and meaning, particularly within the context of Catholic Church architecture. The sacredness of a church is heightened when these three aspects are carefully considered and integrated.

4. Conclusions

The analysis conducted at the Ijen Cathedral Church reveals the interconnectedness of form, function, and meaning in the design of a church building, emphasizing the importance of careful consideration in each aspect. This analysis also highlights the pivotal role of architectural form in not only enhancing aesthetics but also in conveying the symbolism of Catholicism, facilitating liturgical functions, and reflecting the cultural context of its surroundings. The design of the church embodies the sacredness and grandeur associated with Catholicism, creating an atmosphere conducive to the conduct of liturgical activities.

The architectural form of the Ijen Cathedral Church serves as more than just a visual element; it also plays a crucial role in shaping the functionality and meaning of every building component. In addition, the symbolism of Catholicism impacts the form and function of the church. Functionality, particularly within the context of liturgical practices, is an essential consideration in architectural design to facilitate the proper execution of religious activities.

The Ijen Cathedral Church exemplifies the harmonious unity achieved when form, function, and meaning come together in architectural design. The sacredness of this church is palpable as the attention to

the relationship between these three aspects is evident. It can be inferred that the Ijen Cathedral Church serves as a tangible demonstration of the interconnectedness of form, function, and meaning in Catholic Church architecture, playing a crucial role in creating a sacred and meaningful space for its worshippers.

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