Study of The Implementation of the Regional Art Lovers Community Program at SMP Negeri 1 PupuanTabanan

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Abstract: The background of this research stems from the importance of arts education as a foundation for developing children's emotional and social intelligence amid the challenges of globalization. Arts education not only serves as a vehicle for artistic expression but also as an effective medium for instilling values such as character, cooperation, empathy, and love for local and national culture. In the context of formal education, art is an important instrument for building children's adaptive, creative, and cultured personalities.This study aims to examine in depth the implementation of the Regional Art Lovers Community Program (Kopi Sianida) at SMP Negeri 1 Pupuan Tabanan and analyze its impact on students emotional and social development. The study employs a descriptive qualitative approach using observation, in-depth interviews, and documentation techniques. Analysis is conducted comprehensively to identify patterns of the program's impact on students, including emotional, social, and cultural preservation aspects.The research findings indicate that the Kopi Sianida program significantly enhances students artistic skills, communication, cooperation, discipline, and emotional management. Art activities based on local wisdom, such as dance, music, and dharma gita, not only strengthen cultural identity but also shape the character of the younger generation to be virtuous and resilient in facing the dynamics of the times. This program serves as a relevant and applicable model for art education that can be implemented in other schools.

Keywords: art education, emotional development, social development, local culture, SMP Negeri 1 Pupuan.

Introduction

Art education not only serves as a means of developing artistic skills but also as a medium for building children's emotional and social intelligence. Arts education plays an important role in instilling character values such as cooperation, discipline, and empathy, which are essential in children's social lives (Herlina, 2019).In the context of formal education, art can be a tool for instilling the values of cooperation,empathy, and self-control (Prazna & Isy, 2024; Escala *et al.*, 2024; Yanti *et al.*, 2025). Through art education, children are given space to express themselves, understand their feelings, and learn to appreciate the differences and diversity around them (Muthmainah & Yahya, 2025: Saefurrohman, 2024). Additionally, art education can alsoserve as a means to instill a love for local and national culture.

In today's era of globalization, challenges in the world of education arebecoming increasingly complex (Bakhtiari, 2011; Nurrahma et al., 2024; Peace *et al.*, 2025; Sharma, 2024: Suranto *et al.*, 2023). Childrenare not only required to excel academically, but they must also have good emotional and social intelligence in order to adapt to a constantly changing society.Preserving traditional arts through formal education is key to maintaining the sustainability of local culture amid the tide of globalization (Widiastuti& Astawa, 2020). Art education, especially that based on local wisdom, is an effective solution for building children's character and personality (Bakti & Pranata, 2016; Badeni &Saparahayuningsih, 2023; Miranda*et al.*, 2025; Umah, 2021; Aura et al., 2023). Through artistic activities, students can learn about noble values, discipline, and ethics that are crucial in community life.

This study focuses on the implementation of the Regional Art Lovers Community Program (Kopi Sianida) at SMP Negeri 1 Pupuan Tabanan as a model of arts education that integrates these values. This program is expected to serve as an example for other schools in developing arts education that is not only focused on aesthetic aspects but also on the holistic development of students' character.

Methodology

This study used a descriptive qualitative approach with data collection techniques through observation, interviews, and documentation. Observations were conducted on the implementation of the Kopi Sianida Program at SMP Negeri 1 Pupuan Tabanan, specifically on extracurricular activities such as dance, music, and dharma gita. Interviews were conducted with teachers, program participants, and parents to obtain a more comprehensive picture of the program's impact on children's emotional and social development.

The data obtained was then analyzed descriptively to identify emerging patterns and the impacts felt by program participants. The analysis was conducted by comparing field findings with relevant theories in the literature on art education and child development psychology.

Results and discussion

The Regional Art Lovers Community Program (Kopi Sianida) is one of theprograms running in the field of art. The Regional Art Lovers Community Programor abbreviated as Kopi Sianida is an idea taken as the root of the purpose of creating this program. Cyanide is a compound containing carbon and nitrogen that is toxic. The use of the abbreviation Sianida is an analogy for eliminating laziness and inactivity among students in artistic creativity.

[Source: Rahayu, 2023]
Figure 1. Logo of the Regional Art Lovers Community (Kopi Sianida)
of SMP Negeri 1 Pupuan

This program began actively in February 2023. All students of SMP Negeri 1 Pupuan participate in the program on a rotating schedule as determined. The official launch of the program took place on May 27, 2023, with the signing of the minutes by the School Principal and a representative from the Tabanan District Education Office. The background for establishing the Local Art Lovers Community Program stems from thecultural diversity among the students of SMP Negeri 1 Pupuan. This diversity influences the art and culture surrounding SMP Negeri 1 Pupuan. However, since the onset of the COVID-19 pandemic, the art and culture that were previously performed have become almost unrecognizable to the next generation. Additionally, 4 a significant impact is the decline in students' creativity and activity in the field of art. Seeing this situation, the Principal of SMP Negeri 1 Pupuan decided to create this program. With this program, it is hoped that it will provide facilities in the learning process.

The purpose of this program is to preserve existing culture, carry out the vision and mission of SMP Negeri 1 Pupuan, which is to be intelligent, skilled, faithful, and environmentally conscious, as well as to embody the school's branding, Taman Belajar Astinapura, and the Pancasila Student Profile. Through this program, it is hoped that students of SMP Negeri 1 Pupuan can channel their interests and talents, especially in the field of art, and explore their potential in the field of art. This program was established as an effort to encourage interest in artistic activities such as dance, Tabuh/Karawitan, and Dharma Gita.

Implementation of the Kopi Sianida Program

The Regional Art Lovers Community (Kopi Sianida) is part of the Learning Community (learning community) at SMP Negeri 1 Pupuan. This community focuses on arts and culture, particularly on promoting regional arts that are becoming extinct. The implementation of the Kopi Sianida activities is part of the extracurricular program, allowing students to participate in this program

outside of regular class hours. The activities are divided into three main extracurricular programs: dance, music, and Dharma Gita.

In the dance extracurricular program, students are taught basic techniques up to choreography of traditional. The learning process is conducted in stages, starting with an introduction to basic movements, regular practice, and preparation for performances. Instructors always emphasize the importance of discipline, teamwork, and a sense of responsibility during the practice process.

[Source: Rahayu, 2023]
Figure 2. Rehearsal to enliven the ODC2 (One Day Celebration and Competition) event on October 25, 2023.

The percussion extracurricular activity involves training in playing traditional Balinese musical instruments such as gamelan. Through this activity, students learn to understand rhythm, harmony, and coordination within a group. Music training not only sharpens students musical skills but also trains them to listen to and appreciate the contributions of each group member.

[Source: Rahayu, 2023]
Figure 3. Tabuh Gilak training led by instructor I Gede Made Ari Suryawan, S.Pd.

Meanwhile, the dharma gita extracurricular activity focuses on training in traditional Balinese vocal arts.Students are taught to sing kidung or tembang, which have high spiritual and cultural value. This activity provides students with a deep spiritual experience while also strengthening their love for local culture.Students are taught to sing kidung or tembang, which have high spiritual and cultural value. This activity provides students with a deep spiritual experience while strengthening their love for local culture.

[Source: Rahayu, 2023]
Figure 4. Ngayah on Saraswati Day.

The Impact of Arts Education on Children's Emotional Development

Arts education through the Kopi Sianida program has a significant impact on students emotional development. Through art, students learn to channel their feelings positively, whether it be happiness, sadness, or frustration. Dance

and music allow them to express emotions visually and auditorily, enabling them to better understand and manage their own feelings. The integration of arts based on local wisdom in education not only strengthens cultural identity, but also shapes students' adaptive and creative characters (Putri & Wulandari, 2022).

Additionally, performing in front of an audience during art performances helps students overcome shyness and build self-confidence. The experience of performing in front of an audience becomes an important moment that increases courage and pride in oneself. Students also learn to accept criticism and suggestions with an open mind, which is an important part of emotional development.

Art activities have also proven to be a means of relaxation for students, especially amid academic pressure. Through art, students can temporarily forget their academic burdens and enjoy the creative process. This has a positive impact on their mental health, reducing stress and improving overall emotional well-being.

The Impact of Art Education on Children's Social Development

Art activities in schools have been proven to improve students' emotional intelligence, especially in terms of managing emotions and self-confidence (Setiawan & Pratiwi, 2021). The Kopi Sianida program also plays a significant role in developing students' social skills. Group practice in dance and music teaches the importance of coordination and teamwork to achieve common goals. Students learn to understand each other's roles within the group and support one another. Group exercises in dance and music teach the importance of coordination and collaboration to achieve common goals. Students learn to understand their respective roles within the group and support one another.

Additionally, effective communication becomes a crucial skill during thepractice process. Students learn to communicate well, both with their group peers and with their instructors. They also learn to express their opinions, listen to feedback, and resolve conflicts constructively.

Participation in the arts program also encourages students to take responsibility for their roles within the group. They learn to manage their time, prepare for practice, and maintain their commitment to the group. Values such as discipline, responsibility, and social awareness develop naturally through direct experience in artistic activities.

Conclusion

Based on the research results, it can be concluded that the implementation of the Regional Art Lovers Community (Kopi Sianida) Program at SMP Negeri 1 Pupuan Tabanan has proven to be effective in developing students' emotional and social intelligence. Through art activities, students not only acquire artistic skills, but also hone their ability to communicate, work together, and manage their emotions positively. This program also plays a significant role in preserving local art and shaping the character of the younger generation to be cultured and of noble character.

Furthermore, this program has a long-term impact on students, namely in forming a resilient, creative, and adaptive personality in facing the challenges of the times. Furthermore, this program has a long-term impact on students, shaping resilient, reative, and adaptive personalities capable of facing the challenges of the modern era. Culture-based art education, as implemented in Kopi Sianida, is highly relevant for application in other schools as an effort to build a young generation that is intelligent, character-driven, and passionate about national culture.

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The Meyah Marriage System in Manokwari, West Papua, as a Means of Preserving Local Culture and Aesthetics

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Abstract: Marriage as a means of procreation and establishing kinship networks forms the basis of societal structures, with offspring ensuring continuity of lineage and social status. The traditional marriage system of the Meyah tribe in Manokwari Province, West Papua, Indonesia, is of interest to study to assess a process commonly practiced by the indigenous people. In this research, an ethnographic approach facilitates a comprehensive examination of cultural practices and rituals, as well as their aesthetics, yielding significant insights into the relevance of the Meyah community's marriage customs. The analysis reveals that the implementation of the marriage system is currently a challenge for the majority of the Meyah population, especially young men and women. The indigenous Meyah community still has a limited understanding of cultural values, such as marriage structure, normative framework, legal system, and specific regulations still applied in daily life. The decline in traditional leaders leading this traditional system has resulted in differences between the older and younger generations regarding the understanding and implementation of marriage customs. This requires initiatives aimed at educating and representing the importance of cultural and artistic values.

Keywords: marriage system, indigenous people, tribe, culture, aesthetics

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Introduction

Marriage is fundamentally born from the biological human need to reproduce and form a family. As explained (Royani, 2023) in the Customary Law Textbook, marriage is seen as a means of procreating children and establishing kinship networks that form the basis of societal structures, as offspring ensure the continuity of lineage and social status. In other words, the institution of marriage addresses the natural human need for reproduction and social stability. Marriage is not merely biological; it also establishes a legal relationship involving both families. Esti Royani emphasized that through marriage, a person gains recognition from relatives and the customary community; without this recognition, marital status can be questioned. Therefore, marriage serves a dual biological and legal-social function.

Since 1974, the Indonesian government, through Law No. 1 of 1974 concerning Marriage, has codified the institution of marriage to maintain uniformity

in national law while respecting local religious and customary law. Marriages are required to be valid according to religion and recognized by the state, demonstrating how the balance between biological, social, and legal needs is maintained. The role of custom in resolving marital conflicts: when conflicts arise from failed marriage ceremonies, custom acts as a local mediator. For example, if an engagement is canceled, the aggrieved party can seek compensation through customary authorities and relatives to reach a peaceful resolution. This emphasizes the status of custom not only as a complement but also as an instrument for regulating and enforcing social norms in biological and social contexts.

Marriage, as defined by customary law, can manifest as a kinship, family, communal, or personal relationship, depending on the societal structure under consideration. The interpretation of marriage in Article 1 of the Marriage Law articulates that "Marriage is a physical and spiritual bond between a man and a woman as husband and wife with the aim of forming a happy and eternal family or household based on the One Almighty God." The consolidation of regulations in the field of marriage law was realized with the enactment of Law No. 1 of 1974 concerning Marriage (hereinafter referred to as the Marriage Law).

The Marriage Law requires all Indonesian citizens to comply with its provisions. When conducting or arranging a marriage, even if there is their own customary marriage law. Article 64 of the Marriage Law stipulates that, for marriage and all matters related to marriage under this Law, the provisions articulated in the Civil Code (Burgelijk Wetboek), the Indonesian Christian Marriage Ordinance (Huwelijk Ordanantie Christen Indonesia 1933 No. 74), the Mixed Marriage Regulations (Regeling op gemeng de Huwelijken 1898 S. No. 158), and other regulatory frameworks governing marriage, to the extent described in this Law, are declared null and void. "Other regulations governing marriage, to the extent regulated in this law, are hereby declared null and void." However, through a contrario interpretation, matters not regulated in this Marriage Law but contained in customary marriage law remain valid, including various forms of marriage ceremonies and related practices. Consequently, Article 66 of the Marriage Law serves as the legal basis for the application of customary marriage law.

Sari *et al*. (2024) showed that indigenous communities continue to practice customary marriage, integrating it with civil registration requirements and national regulations without abandoning local cultural values. This integration reflects an effort to align the principles of national law with local customary values. Therefore, customary law can be recognized and applied in the realm of marriage practices, provided it does not conflict with the principles established by the Marriage Law. This integration of customary law provides communities with the opportunity to preserve their traditions and cultural values while ensuring that marriage practices align with the overall provisions of the national legal framework. This dynamic creates a balance between respect for cultural heritage and the need to comply with applicable legal norms, thereby providing protection for individuals in the context of marriage. In this regard, in indigenous communities, the institution of marriage is considered a guardian of cultural heritage, functioning as an activity

that can be revitalized through the transmission of tradition, as stated by Koentjaraningrat (1988),

> "Marriage in culture... is the most important transition in the life cycle... not solely because of the relationship between two individuals but also the relationship between all relatives... considered important because of the formation of a new household... a path to widening the bonds of kinship."

The cultural value system manifested within the framework of marriage represents the pinnacle of customary practices. The institution of marriage, encompassing customs and traditions, is a fundamental aspect of human existence. This phenomenon not only alters the status of the individuals involved, namely the bride and groom, but also alters the kinship framework, influencing the dynamics of relational ties. Furthermore, marriage can redistribute rights and responsibilities among other relatives. Consequently, each wedding ceremony holds significant significance for enhancing the kinship network between the two parties involved. This event goes beyond being simply a sacred event for the couple; it also serves as a social cohesiveness that strengthens ties between families and communities. A marriage conducted with sincerity and adherence to tradition can foster a sense of unity among family members and strengthen the cultural identity of each party involved. Marriage evolves into more than just a union between two individuals; it also facilitates the expansion of social networks and the cultivation of a mutually supportive community.

The indigenous Meyah people of Manokwari, West Papua, live harmoniously side by side, as demonstrated by their mutual assistance in farming and daily activities, demonstrating a need for interpersonal connection. This social drive stems from the instinct to help and cooperate, manifested through daily interactions with others, which then form strong social bonds. These interactions foster the formation of communities that share a collective worldview and choose to live together in a specific area. This collective existence is then known as society, where every form of social interaction gives rise to ideas, values, and symbolic expressions collectively called culture.

Culture cannot exist separately from society; the two are closely and complexly intertwined, often difficult to separate. According to Damayanti *et al.* (2023), change is the transformation of a state toward a better outcome, although in reality, change does not always have a positive impact or constitute a transformation from the current state to an anticipated better future. This interdependence arises from the fact that culture cannot exist without society acting as its architect and steward.

In the communal life of the Meyah tribe, the marriage system, practiced through traditional ceremonies, serves as a crucial element in uniting clans or families. Each marriage structure adopted by the community is governed by a distinct set of rules. These customs have been passed down through generations by the community, particularly the Meyah tribe in Manokwari. This investigation is crucial and necessitates their preservation as a sustainable cultural heritage. This cultural heritage not only embodies the Meyah tribe's identity but also serves as a

social glue, strengthening relationships among community members through the management of enduring values and traditions. The presence of these wedding ceremonies, rich in symbolism and significance, serves as a channel for strengthening solidarity and fostering a sense of belonging among community members, encouraging younger generations to uphold and appreciate their cultural heritage. Furthermore, these ceremonies provide opportunities for community members to gather and celebrate collectively, creating valuable moments that strengthen social bonds. Through understanding and preserving this cultural heritage, future generations will be equipped to appreciate and perpetuate the traditions that have played a role in shaping the character and identity of the Meyah tribe for centuries.

Methodology

This research employs a qualitative methodology supported by ethnography. The ethnographic paradigm provides an in-depth understanding of cultural practices and social interactions within various societies, allowing researchers to observe in situ how these traditions are operationalized and embraced by community members. Ethnography is a combination of the words ethno (nation) and graphy (describing/portraying). It can be concluded that ethnography is an attempt to describe or depict culture or aspects of culture (Meleong, 2010). Ethnography is also defined as a body of knowledge that encompasses research techniques, ethnographic theory, and various descriptions of culture (Spradley, 2007).

Ethnography is very important in qualitative research (Mahendra *et al.*, 2024; Rezhi *et al.*, 2023; Rosaliza, 2024; Sari *et al.*, 2023). Ethnographic inquiry is a qualitative research design in which scholars investigate behavioral patterns, linguistic usage, and actions associated with a specific cultural cohort over an extended period of time (Creswell, 2013). By employing data collection methodologies such as comprehensive interviews, participant observation, and document analysis, researchers can delve deeper into the intrinsic values upheld by a society, as well as their adaptive responses to evolving temporal contexts.

Qualitative methods are a crucial component in the development of scientific research; without systematic scientific inquiry, scientific progress stagnates. The rationale underlying research methodology and the autonomy to foster and direct scientific endeavors toward the emergence of new paradigms serve as a critique of the data relative to prior theories regarding genealogy, environment, and mythology. Critical data for exploratory purposes serves as a mechanism for societal control, using certain principles, systems of proof, logical models, and rationalistic modes of thought, thereby positioning humanity as objects of the system rather than enabling individuals to exist authentically.

Researchers studying culture, social systems, marriage systems, and related phenomena are essentially limitless. Any suitable social and cultural environment represents a potential subject for scientific inquiry. Furthermore, beyond the diversity of themes, social and cultural contexts can also be examined. Most

research focusing on cultural aesthetics and other social dimensions is characterized by a carefully delineated study framework, commonly referred to as a research design (Black, 2001).

The expected results of this research are expected to make a significant contribution to increasing understanding of the cultural dynamics inherent in the Meyah people's culture, as well as the various challenges they face in preserving their heritage amidst the tide of modernization.

Results and discussion

Humans are essentially social creatures characterized as homo humanicus, homo economicus, and homo culturalis. As inherently social beings, humans have historically lived together in groups; since their inception, individuals have existed within a structured framework that regulates their personal existence as members of society. This intrinsic quality makes humans homo humanicus, signifying that as a social entity, humans possess an innate sense of community and the capacity to maintain balance among their peers through various affiliations, such as lineage connections, kinship networks, marriage customs, language frameworks, and more. This function is crucial in shaping an individual's cultural and social identity, which then contributes to the sustainability of the overall social construct.

According to Dowansiba (2008), the Meyah traditional marriage system is not merely an individual bond, but a means of building a broad kinship network that maintains social cohesion. Through institutions such as matchmaking, proposals, and sacred dowries, the Meyah community maintains the continuity of inter-family relationships and maintains inherited cultural values. This structure serves as a strong foundation for maintaining community identity. As a result, interpersonal dynamics within the community not only fulfill basic needs but also act as channels for cultivating creativity and innovation that drive the advancement of human civilization. Furthermore, social interactions that occur within these groups facilitate the exchange of ideas and values, enabling individuals to adapt and develop according to their environmental context. In acculturation, Dowansiba (2008) also noted dynamics in Meyah marriage behavior due to cultural acculturation and modernization. For example, rigid matchmaking customs have begun to give way to courtship, and forms of dowries have begun to adapt to the modern context, taking the form of money or electronic goods. This transformation shows how the Meyah community is adaptive, not passive, to external forces, without losing the core cultural essence of its traditional marriage.

The identity of the Meyah indigenous marriage system is related to the distinctive characteristics of individuals or members of a particular group or social classification. The term "identity" comes from the Latin word "idem," which in Latin means "same"; therefore, "identity" encapsulates the idea of similarity or unity among individuals within a defined territory or context. In addition to signifying similarity, identity embodies the concept of difference. Identity can also indicate distinguishing characteristics that distinguish an individual or group from others. Identity encompasses a dual meaning, namely the aspect of equality and the

aspect of difference. The aspect of equality of identity arises when an individual shares similarities with other individuals in a group. Conversely, the aspect of difference of identity arises when an individual or group possesses certain traits that distinguish them from other individuals or groups. Rummens in (Santoso, 2017) this identity not only functions as a connecting element among individuals within the collective but also plays an important role in shaping social perceptions and interactions between different groups. Strong identity can increase the sense of belonging and solidarity within the group, motivating individuals to actively engage in pursuing common goals. Furthermore, identity can also be a source of conflict when differences between groups are not adequately managed. Therefore, it is very important to understand and appreciate diversity in society.

A person's identity can be categorized into personal identity (persona/identity) and social identity (social/identity). Personal identity is the culmination of an individual's self-identification and the evaluations made by others of that individual. Personal identity encompasses distinct characteristics inherent in individuals that distinguish them from others. This personal identity can manifest in physical attributes such as facial features and stature, or in psychological characteristics such as traits, behavior, and speech. Social identity, on the other hand, arises from the perceptions and identifications made by others, representing the identifications approved or ascribed to individuals by social actors (Santoso, 2017). More explicitly, social identity refers to an individual's awareness and self-perception as a member of a collective, in addition to the individual's recognition as part of a group by the group itself (Giles & Johnson, 1987). Furthermore, social identity can significantly influence how individuals engage with others and the perceptions they receive in the broader social context. A strong social identity can enhance an individual's sense of belonging to their group, as well as influence their behavior and decisions in social interactions. An established social identity can play an important role in fostering solidarity among group members, while also offering emotional support and resources amidst shared challenges.

Maintaining balance and bonding through marriage in the Meyah tribe establishes unwritten guidelines or rules that must be observed and upheld by the supporting communal group. This means that indigenous Papuans, as a society that respects traditional values in their community practices, exemplify this adherence through their marriage customs. These customs not only symbolize cultural values that have been passed down from generation to generation but also serve as a mechanism for strengthening social connections and collective identity among the community's constituents. Such marriage customs often include a series of significant rituals and ceremonies, resulting in invaluable experiences that unite families and communities.

Hadikusuma explains that marriage within the framework of Indonesian customary law is not merely considered a civil union, but also a customary affiliation that simultaneously represents kinship ties and commitment (Hadikusuma, 2014). However, customary marriage in the Arfak Papuan community differs from customary marriage practices observed in the broader

archipelago, particularly with the incorporation of firearms into the dowry offering. A community's worldview significantly influences the behavior of individuals living within that communal environment; for an individual to integrate and thrive within a community, it is crucial for them to understand the customs, perspectives (principles), and regulations (norms) prevalent within that society.

Regarding parental perceptions of shifting values, in Salabai (2010) entitled "Perceptions and Responses of Arfak Parents to Shifting Values of Customary Marriage," two patterns of parental response to these changes were found: one that strictly maintains traditional values, and another that accepts change as long as core values are respected. It is this adaptive pattern that helps Meyah culture remain relevant amidst modernization and national marriage laws.

The marriage proposal system of the Meyah Tribe is mostly regulated by men towards female tribe members. This means that descendants of the Meyah tribe are allowed to marry with other tribes in Papuan society and its surroundings, including tribes from Bugis, Java, Sumatra, and even individuals from foreign countries, as long as the prospective bride and groom declare that they like each other and comply with the customary rules enforced by the Meyah tribe. This proposing process exemplifies the adaptability and acceptance demonstrated by the Meyah tribe in fostering intercultural interactions, which consequently enriches the sociocultural tapestry of the Papuan population. Moreover, this process not only reaffirms the importance of indigenous customs but also illustrates the Meyah tribe's commitment to fostering harmonious relationships and mutual understanding among diverse cultural entities.

The delivery of gold (dowry) takes place before the wedding ceremony. The gold requested by the women is delivered through a gathering of the prospective bride's female relatives. This demonstrates that the Meyah tribe in West Papua maintains a strong adherence to traditional values in community practices related to wedding customs. However, in the traditional marriage practices of the Meyah tribe in the Arfak Mountains and various communities throughout Papua, one well-known area is Manokwari, West Papua. Interestingly, the marriage system exhibits variations based on customary practices common among the island's people in general. The dowry historically included the request for firearms as a remnant of past conflicts; this tradition persists today, although various forms of weaponry retain equal value. This system serves as a testament to the rich culture and historical lineage of the Meyah people, where each component of the wedding tradition not only carries symbolic significance but also strengthens social ties within families and communities.

In addition to firearms, remnants of historical conflicts, including colonialism, wedding gold can also manifest in alternative forms, as shown in Figure 1.

Figure 1. Double-eye eastern cloth

This eastern cloth, originating from Kupang, East Nusa Tenggara, comes in both double-eye and single-eye varieties. The double-eye cloth is valued at around IDR 200 million, while the single-eye cloth is estimated at around IDR 100 million.

Figure 2. The shape of Toba cloth, a beaded Eastern cloth, is part of the Meyah tribe's dowry.

Toba cloth also comes in three varieties: the first, a 20-eye Toba cloth, can cost Rp. 200 million; the 15-eye Toba cloth costs around Rp. 150 million; and the 13-eye Toba cloth can cost Rp. 120 million.

Figure 3. The dowry is handed over from the groom's family to the bride's family
and received by the clan and tribal elders.

The white beaded bracelet is priced at around IDR 10 million, while the beads themselves are valued at around IDR 5 million. The cloth is purchased in batches of 100 pieces, with each piece costing IDR 500,000. The cumulative financial outlay for all the materials mentioned above can reach significant sums, reflecting the cultural significance and traditions attached to each item. Investment in these materials not only generates economic benefits but also plays a vital role in preserving rich cultural heritage, such as funding cultural education programs and preserving local traditions. Therefore, it is crucial to recognize and support the local artisans responsible for creating these pieces, ensuring that their traditions and skills are preserved for future generations.

In addition to the dowry given to the prospective bride's family, the exchange also includes various livestock, particularly pigs, as well as branded vehicles with Toyota HILUX badges, motorcycles, and other essential items. Most important is the financial contribution known as "sugar money," which the prospective groom must pay to the bride's mother. This money is given to the mother who gave birth to and raised the child until adulthood and marriage, and grants the groom's family the right to manage the household thereafter. This cultural practice not only forges a sacred union between two individuals but also

strengthens the relationship between the respective families, fostering an environment of mutual respect and accountability that is intended to be passed on to future generations. Such customs encapsulate deep cultural values and a deep respect for the role of family in the wedding ceremony, with each component having significant symbolic connotations. Furthermore, this tradition exemplifies the groom's commitment and sincerity in building the partnership, highlighting his recognition of the sacrifices made by the bride's mother. As an integral aspect of this process, the wedding ceremony typically involves rituals that depict the transition and transfer of responsibilities, ensuring that both parties understand the importance of their roles in fostering a harmonious domestic environment.

After the successful completion of the aforementioned ceremonial process, the bride's family approves of the union, culminating in a mutual agreement between the two parties. The wedding can then be held in a church, subject to the remaining terms and conditions. All proceedings are conducted in a church setting under the auspices of church authorities, guided by a priest until the announcement of the prayer. After seeking blessings, the bride and groom will exchange their solemn vows in the presence of family and friends, marking the beginning of a new phase in their marriage journey.

After the marriage contract has been properly executed, and the dowry has been given to the bride's family, if the groom is unable to pay any of the dowry, the groom has the right to request a deferral of payment and settlement at a later date. Typically, payment of the dowry can be made over a longer period, depending on financial capacity. The Meyah wedding customs are designed to strengthen kinship ties and foster mutual respect between the bride and groom's families. The traditions surrounding dowry in the Meyah tribe are not simply transactional exchanges between families, but rather malleable customs, reflecting the ethos of the community, allowing for adjustment based on the consensus of both families involved. These traditions are also rooted in the traditional practices of the Meyah tribe in Manokwari, reflecting adherence to their customary system.

The involvement of the extended tribal family is crucial in enforcing wedding traditions. Furthermore, this custom undoubtedly yields positive outcomes and functions. The tradition of giving wedding gold is intended to strengthen and solidify the kinship ties between the two parties involved in the marriage. Furthermore, this practice creates a pathway for the younger generation to gain knowledge and understanding of their cultural heritage, enabling them to safeguard it for the future. The importance of preserving and maintaining this tradition lies not only in its social implications but also in fostering a strong cultural identity among members of the Meyah tribe.

Furthermore, this customary practice embodies a deep respect for the cultural values and norms that have been passed down from generation to generation within the Meyah community. This custom not only strengthens family ties but also plays a crucial role in preserving the local culture that shapes the identity of the Meyah people. Consequently, marriage within this framework transcends the mere union of two individuals, evolving into a ceremony that unites

the community and fosters a sense of solidarity among its members. As previously mentioned, there are several stages to navigate, both before and after the marriage ceremony. From this phase, it becomes clear that the groom not only provides monetary compensation to the bride, but the bride also reciprocates with items known as the noken basis. The noken basis represents currency or other valuables given by the female partner to the male counterpart upon completion of the marriage ceremony. According to the explanation of the marriage system among the Meyah indigenous people, this aims to foster mutual respect between the bride and groom. Not limited to just wedding gold, the noken basis serves as a traditional reward; after marriage, the husband is expected to provide for his wife's essential living needs. The husband is obligated to fulfill and provide for both basic and additional needs to uphold the family's future livelihood.

Cultural compilations often transcend the realm of social structures, obscuring the intrinsic relationship between indigenous systems and the supporting communities (users). Expanding to the social dimension of the environment, the focus shifts from the micro-scale examination of environmental studies to the concrete, macro-level of everyday life, achieved through direct observation of communities in their efforts to maintain their environment and investigate its significance. The challenge lies in the fact that formal and functional values are the main essence, making the study of the marriage system in the Meyah community a defense and strength that opens the door wide to integration from the "confusion" of contradictory cultural assumptions. Even if it depicts the contours of syncretic, eclectic, or hybrid styles. Therefore, in reality, the manifestation of cultural representations, as articulated by the indigenous Meyah people, tends to emphasize multiple meanings (polysemy) rather than a single meaning (monosemy). It is crucial to recognize that in this context, the multitude of emerging meanings reflects the complexity of prevailing social and cultural interactions, as well as how the Meyah community adapts to transformations while maintaining their distinct identity.

Customary law in marriage practices can be applied and legally recognized, as long as it does not conflict with the basic principles of Marriage Law No. 1/1974. The author highlights the incorporation of customary law as a means for communities to maintain their traditions and cultural values while aligning with the national legal framework. This aligns with the article (Darmawan *et al.*, 2023) that marriage practices can be applied and legally recognized, as long as they do not conflict with the basic principles of the Marriage Law.

Conclusion

The custom of giving gold in the context of marriage within the Meyah customary marriage system embodies positive meanings, as this practice seeks to acknowledge the groom's efforts in nurturing their offspring. The intensity and capacity of the "meyah-ness" population in Manokwari Province, West Papua, cannot be understood as a mere one-dimensional phenomenon, but rather as a complex, dialectical domain. Such assertions transcend individual and social

interpretations in terms of agency, encompassing the dynamics of group interactions across various temporal and spatial contexts. This dynamism is further complicated by cultural influences, aesthetic frameworks that categorize the marriage system as an ongoing discourse on identity formation. This perspective aligns with the conceptualization of the marriage system in terms of ideals and values; narratives serve to encapsulate the zeitgeist of the times, manifested universally through the communities that support them. This phenomenon undoubtedly arises from cultural fragmentation, the depiction of social strata, and the influence of prevailing ethnic paradigms.

As previously mentioned, the traditions surrounding the Meyah wedding ceremony have positive implications, as this custom is intended to honor the woman's parents who have raised their daughter. The marriage framework used by the Meyah indigenous community serves as a determinant in the enactment of tradition, the transition from the female to the male domain, where inheritance rights are granted to women. This arrangement further facilitates the customary process, where determining the golden wedding payment involves deliberative discussions that take into account the social status, educational background, and professional involvement of the prospective bride.

The Meyah indigenous marriage system can be linked to the idea of renewal within the scope of environmental ideology, in accordance with the paradox of "surviving and striving to maintain local wisdom, preserving life, preserving cultural paradoxes," as the condition of difference in connecting meanings will be the trigger for cultural survival.

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The Creative Process in the Creation of Tabuh Lelambatan Kreasi Works by I Ketut Gede Asnawa

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Abstract: Traditional music is experiencing rapid development from various aspects, including the creative process of making original works and the psychological expression of the artist in the creation process. This research examines the creative process in working on lelambatan music by I Ketut Gede Asnawa, with the aim of analyzing the stages of creation and exploring the knowledge contained in the work. The method used is qualitative with an ethnomusicology approach, which emphasizes direct involvement in the cultural context. The research location was determined purposively, while data collection techniques included observation, interviews, and in-depth documentation. The results showed that the creativity process includes three main modalities: imagination, skill, and sensitivity. In addition, "The Four P's of Creativity" approach (person, process, press, and product) plays an important role in the dynamics of creation. The resulting works are widely appreciated for demonstrating artistic integrity, depth of process, and high sincerity in realizing monumental works of art.

Introduction

Balinese gamelan is an integral part of Balinese life—social, religious, economic, educational, and artistic—passed down from generation to generation (Kartawan, 2022: 1). In terms of (1) social aspects, this can be seen from the relationship between artists, both in performance activities and in forming communities or gamelan artist organizations, where all of these things constitute social interaction; (2) the religious aspect, where Balinese gamelan plays an important role in Hindu religious rituals in Bali, such as Dewa Yadnya, Pitra Yadnya, Rsi Yadnya, Bhuta Yadnya, and Manusa Yadnya; (3) the economic aspect, where gamelan can be used to support the community's economy, either as musicians, composers, or gamelan product makers.

This is also supported by Bali's position as one of the world's tourist destinations, where performing arts, including traditional music, are often included in tour packages; (4) in terms of education, learning Balinese gamelan can shape the character, mentality, and integrity of learners to develop optimally; and (5) in terms of art, traditional music is an expression of art and a form of creativity for artists. Various aspects greatly influence development, one of which is traditional Balinese music.

This has undergone a transformation in terms of varied creation methods, aesthetic processing (in accordance with the needs of the work), and the expression of the artist's soul to embody the creative values contained within a work. The works of art created by artists not only reflect originality, but also reveal psychological dynamics (moving the soul) in the creative process. Artists position themselves as

creative agents who respond to their environment and experiences, which become sources of new ideas that are realized in the form of collective artistic creativity. As stated by Bandem & deBoer (1995), Balinese gamelan functions as a collective expression that is closely related to Balinese ceremonies and cultural identity.

Creativity in art does not come instantly, but is the result of a long process involving practice, thought, physical effort, time, and encouragement from an environment that supports the process being undertaken. An artist is born into the world to carry out a life process that is given in an educational (special) context and has been honed since an early age in a supportive environment, such as teaching by parents (devotion). They are then guided towards a preferred role, and as they enter adolescence, they are directed towards more specific levels through art education institutions or through direct interaction with the cultural environment. As stated by Agus Sachari (2002: 150), creativity is human intelligence in solving problems through aesthetic and innovative approaches that are reflected in their daily routines. Therefore, the creativity of artists cannot be separated from the social and cultural life that surrounds them. A cultural environment with authentic treasures provides fertile ground for the growth of creative ideas, which are then expressed in various forms of art. In this context, the role of social institutions is very important in providing a space for artists to express their art through performance media. This is one concrete way to introduce and develop artistic creativity through regional and national events.

The Balinese government and cultural institutions have played an important role in the development of cultural preservation by organizing various artistic events such as festivals, art parades, and cultural exhibitions. One of the most prestigious events is the Gong Kebyar Festival (FGK/Festival Ging Kebyar), which has been held since 1970. In this case, FGK is a competition between regencies that presents performances of karawitan, dance, and puppetry. FGK plays a significant role in stimulating the creativity of Balinese artists to produce new works that are distinctive in terms of structure and musical ornamentation. The FGK has produced various inspiring works that combine various aspects of tradition with a modern touch. It realizes compositions that maintain cultural norms and roots while responding to the increasingly developing movements of the times. Therefore, the FGK has become a strategic place for artists to express their aesthetic power and develop musical innovations into traditional Balinese compositions, namely Tabuh Lelambatan creations. One of the artists in this context is I Ketut Gede Asnawa.

In this case, Tabuh Lelambatan's works created by Asnawa—Windu Segara (1987), Berare (1988), Semare Metu (1992), Wari Drawa (1995), Batur Sari (1997), Kalingga (2001), Tapuk Manggis (2014), Gita Semara (2016), and Pusering Ding Ro (2023)—demonstrate a deep understanding of traditional musical structures and the courage to explore new forms and ornamentation. In these compositions, Asnawa remains steadfast in his creative process—pakem, uger-uger, and jajar pageh—while incorporating contemporary approaches and reflections. Based on this, Asnawa presents this genre of slow creation not as a musical work, but rather as a reconstruction of a culture rich in intuition, experience, and values. Tenzer (2000) states that Balinese gamelan is an expressive medium that is always open to transformation and reinterpretation, as long as it remains grounded in collectively recognized musical idioms. In this context, Asnawa's work in FGK has become a source of inspiration for young artists on how traditional creativity can be a means of cultural

reflection, as well as an opportunity for scientific research on the creative process experienced by artist I Ketut Gede Asnawa.

Asnawa's works have been performed in various art events such as gong kebyar parades between villages, cities, and regencies in the Bali Arts Festival. To date, there have not been many academic studies that specifically discuss Asnawa's works, so that these works demonstrate a wealth of musicality and innovation that warrants in-depth study. This study aims to identify the creative process behind Asnawa's Tabuh Lelambatan Kreasi. Creativity is not merely a result but rather a process, through which problems are recorded and defined, experiences, knowledge, and related concepts are developed, and new things are processed and realized (Herlangga *et al.*, 2021). Rhodes (1961) in Fatmawijayanti (2018: 3) states that there are four dimensions of creativity called "The Four P's of Creativity" (4P) that influence one another. First, person (people) concerns matters such as personality (background); Second, process is an idea that arises from the absorption of things around us, such as difficulties, problems, gaps, experiences, knowledge, and concepts; Third, press (pressure) is an internal drive or initiative gained from various knowledge about the object of thought and field experience; Fourth, product (product) is the result of thinking in the form of work.

The focus of this topic was chosen because the author had previously conducted research on lelambatan. The author found studies that only discussed the history of the Gong Gede gamelan, local musical styles, and lacked in-depth explanations of the creative process behind lelambatan, which is so popular today. However, the author found a problem in previous research in that no one had studied the creative process of one of the famous artists, and the discussion was still very limited. There is potential to scientifically examine the creative process and musical principles used by Asnawa to create the Tabuh Lelambatan Kreasi composition. In fact, Asnawa expressed his pride and appreciation for the efforts to examine his works, which contribute to the development of scientific studies on Balinese music in general.

Methodology

This study basically uses qualitative research based on in-depth interviews and reviews assumptions based on scientific art theory. The author uses Surdawan Danim's thinking as the basis for this study. Surdawan Danim (2002: 51) states that qualitative research is descriptive in nature, meaning that the data collected is in the form of words and images rather than numbers. Even if there are numbers, they are only supporting data. The data obtained includes interview transcripts, field notes, photographs, personal documentation, and so on. Danim adds that qualitative research also emphasizes meaning, namely that the focus of the study is directly related to human life issues. In simple terms, qualitative research reveals data in an abstract manner and understands the meaning behind the visible data.

The next step is to collect data in depth, so as to find hypotheses in the form of symptoms experienced based on the collected data. Several limitations in the use of a qualitative approach are certainly in line with the objectives of this study, especially to reveal the creative process in the creation of Tabuh Lelambatan Kreasi. The advantage of this approach is that it can show consistency in the estimation of thoughts about the research object and assist the author in collecting data to be identified narratively and in detail from one object and its variables.

Furthermore, in-depth interviews in this study were conducted orally and prepared several questions specifically related to the research object to determine the creative process in the creation of Tabuh Lelambatan Kreasi. Asnawa was the main informant, along with several other artists who were credible in understanding traditional music concepts.

Results and discussion

Analysis of the Creative Process of Tabuh Lelambatan by I Ketut Gede Asnawa

Based on observations and interviews regarding the creative process in the creation of Tabuh Lelambatan by Asnawa, it offers a variety of creative processes that are greatly appreciated by the community. The creative process is very intensive in the creation of Tabuh Lelambatan. His work remains rooted in classical lelambatan, but also incorporates innovations in musicality and aesthetics, which ultimately produce a valuable work and serve as a concrete example of the dynamic evolution of Balinese karawitan. Therefore, Asnawa adds a modern touch to his work to bring novelty and a new flavor to classical lelambatan, transforming it into creative lelambatan. This creative effort aims to attract public interest in the art of lelambatan.

As discussed earlier, Rhodes (1961) in Fatmawijayanti (2018) said that there are four dimensions of creativity, namely person, process, press, and product. Creativity is not only the result of a product, but also a multidimensional process that involves interaction between individuals, the environment, and a complex cultural context (Runco & Jaeger, 2012). In this concept, the creative process in the creation of Tabuh Lelambatan Kreasi Karya Asnawa can be analyzed through these four dimensions, which are relevant to the movement as a whole.

Person

I Ketut Gede Asnawa, often known as Asnawa, is a composer and gamelan artist born on December 26, 1955, in Banjar Kaliungu Kaja. When Asnawa was eight years old, he became interested in playing Balinese gamelan. Although he initially only played gamelan to fill his spare time, Asnawa always listened to the melodies played on the gamelan, which were arranged according to existing aesthetic tastes. This attracted the attention of his uncle, I Nyoman Gebyuh, a gamelan craftsman and leader of the Kaliungu Kaja gamelan group, who invited Asnawa and his older brother, I Komang Astita, to join the Sekaa Gong Kalingga Jaya Banjar Kaliungu Kaja as young musicians in the penglingsir gong group. Asnawa became the youngest member and was entrusted with playing the terompong instrument, which is generally played by experienced musicians (Bakan, 1999: 196-198). After gaining experience after experience, Asnawa finally completed his junior high school education and continued his studies at KOKAR Bali (Karawitan Conservatory), where he was very fortunate to be taught by teachers who were experts in the field of karawitan, such as I Wayan Bertha, I Nyoman Rembang, I Wayan Sinti, and others. After studying at KOKAR Bali, Asnawa continued to a higher level of education at ASTI Denpasar (Indonesian Dance Academy Denpasar) in 1974 and obtained his S.Skar degree in 1981.

[Source: Rustika Manik]
Figure 1. Profile of I Ketut Gede Asnawa)

In the 1980s, Asnawa often participated in overseas art missions on behalf of private institutions/governments, traveling to countries in Asia, Europe, and America. Unexpectedly, Asnawa was given the opportunity to study and teach gamelan at the University of Maryland Baltimore County (UMBC), USA, where he earned a Master of Arts degree in ethnomusicology. During his studies in the USA, Asnawa founded one of the gamelan groups, "Genta Semara," at the University of Maryland Baltimore County. Currently, Asnawa serves as an arts consultant at the Denpasar City Cultural Office. Furthermore, Asnawa has a strong background in the creative process and works earnestly in the realm of art, which is steeped in tradition and rich in cultural value. Asnawa's personality as an artist who is serious, meticulous, persistent, and dedicated in his work reflects his character, resulting in valuable and meaningful works.

Process

Asnawa's creative process is not instantaneous, but involves several phases that need to be carefully considered in order to achieve maximum results in the creation of his work. Through a long process that reflects integration, inner experience, aesthetic understanding, musical structure, and intuition, a brilliant idea is born. The creative process used by Asnawa to realize his work is a method developed by his teacher, I Wayan Beratha. The process of creating tabuh lelambatan such as Wari Drawa, Batur Sari, and other works. Asnawa involves various methods in the process of creation: Nguping (analyzing and listening); Menahin (perfecting); and Ngelesin (refining) (Senen, 2002: 45). In (Mawan *et al.*, 2023), it is stated that Asnawa, a skilled composer in Balinese karawitan who is also a student of I Wayan Beratha, adds the process of Ngungkab Rasa (expressing artistic feelings). In his creative process, Asnawa does not rely solely on technical knowledge, but also takes into account his intuition and deep musical experience, reflecting both intellectual and instinctive (innate) aspects in the creation of traditional music. Asnawa produces original and valuable works and has a wealth of traditional music through innovation rooted in tradition.

Press (Pressure/Encouragement)

Asnawa's social and cultural environment closely follows the dynamics of life that are lived well. Asnawa participates in cultural activities organized by the provincial government of Bali, namely the Gong Kebyar Festival, which is a significant space for honing creativity. Interview with Asnawa, September 5, 2024, regarding FGK: At that time, there was a principle of how to explore, preserve, and revive existing gendings, because kebyar had a revolutionary influence in 1960. (Asnawa's intention as the main program in FGK events was to make it compulsory material), so that the *gending* would be preserved and enjoyed by the community without becoming too monotonous. Therefore, Asnawa created a gending/mepayas, and the first creative composition Asnawa heard was Tabuh Nem Kreasi. When Banjar Belaluan Sadmerta represented Badung Regency in 1968, which was mentored by I Wayan Beratha, Asnawa was still a child and Tabuh Nem Kreasi had already been worked on. Therefore, FGK is a creative event that has stimulated the creativity of artists to create new compositions with typical concepts (Adi, 2020).

Product

The final result of Asnawa's creative process is a Tabuh Lelambatan composition that has authentic aesthetic value, weight, and musicality. Works such as Wari drawa and Batur sari display a distinctive musical style, while remaining rooted in tradition, *pakem*, *uger-uger*, and *jajar pageh* conventions. Asnawa's works have not only been positively received by the public, but also serve as a reference for young artists in developing and preserving traditional musical compositions in Balinese gamelan. According to Asnawa, the enjoyment of being a composer is that, on the one hand, we are faced with the power of shanti (peace) that we must maintain and never stray from, and on the other hand, we are faced with how to make the original new without changing the existing structure. Ultimately, our predecessors (ancestors) created the classic pegongan compositions, and what is important in creativity is our sensitivity, how we use our imagination, and then our skills and experience in music will produce good work (interview with Asnawa, September 5, 2025). The resulting product demonstrates not only personal creativity but also a tangible contribution to the enrichment of the musical heritage in a significant way. Artistic works are always the result of a collective network—creative individuals and the social systems that support them—so that the final outcome is a fusion of the individual and the culture (Becker, 1982).

Conclusion

Balinese gamelan, especially in the genre of lelambatan kreasi, is an integral part of Balinese society, which continues to grow rapidly through the creative processes of artists such as I Ketut Gede Asnawa. The creative process involved in the creation of Lelambatan Kreasi reflects not only musical technique, but also a deep intervention with the cultural environment, artistic experience, and support for preserving traditional values while introducing contextual innovations. Asnawa is consistent in creating works that not only entertain but also convey moral messages steeped in culture through the exploration of aesthetics, musical structure, and spiritual nuances rooted in Balinese karawitan philosophy.

Through the "Four P's of Creativity" approach, namely person, process, press, and product, it is evident that Asnawa's works are the result of a long process involving artistic experience, intuition, and reflection on socio-cultural dynamics. The Gong Kebyar Festival is an important aspect for the actualization of creativity, providing stimulus for artists to continue creating. Asnawa's work has multiple functions, such as individual expression, a source of reference for other artists, the sustainable development of traditional music, and opening up space for academics to study Asnawa's work in greater depth in terms of the process of creating art based on tradition.

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Analysis of the Art Ecosystem in the Development of Musicmathematics

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Abstract: Musicmathematics is the integration of mathematical principles in music, offering a new approach in contemporary music composition. This study arises from the urgency to understand the impact of musicmathematics on the art ecosystem holistically, encompassing cultural, social, economic, educational, legal, and technological aspects. The research employs document analysis and audiovisual analysis methods to identify patterns, relationships, and the influence of musicmathematics on various elements of the art ecosystem. The study is based on the art ecosystem theory which emphasizes the interaction between art actors and social structures, and fractal theory which observes recurring patterns in music structures. Additionally, the concept of dynamic culture is used to understand cultural transformation through the application of mathematical innovations. The results of the research indicate that musicmathematics significantly contributes to music composition innovation, despite facing challenges in social acceptance and commercialization. Culturally, musicmathematics creates tension between innovation and tradition; socially, this genre forms a limited experimental community; and in education, it enriches curricula with analytical approaches facilitated by technology. The study concludes that musicmathematics holds great potential in supporting the transformation of contemporary arts, particularly through strengthening education and technology. However, adaptive strategies are needed to increase the acceptance of this concept in a broader art ecosystem.

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Introduction

Musicmathematics is a field that integrates mathematical principles, such as fractal theory, numbers, and geometry, into music creation. The application of fractals in music, as proposed by Mandelbrot, results in repeating patterns that can be translated into musical compositions with complex structures and infinite variations. This concept opens up new opportunities in artistic exploration, where composers are increasingly adopting musicmathematics to create more innovative and meaningful contemporary musical works.

The development of musicmathematics is not limited to technical aspects or music theory, but is also influenced by dynamics within the broader art ecosystem, encompassing cultural, social, economic, educational, legal, and technological factors. According to Becker (1982), art is always related to the

interaction between art actors and the surrounding social structures. In the context of music mathematics, mathematical innovation interacts with society's need for more complex art, supported by technological advancements and developments in mathematics and music education, enabling the creation of music based on scientific concepts.

This research aims to fill the gap in the existing literature regarding the impact of musicmathematics on the art ecosystem holistically. The main focus of this research is to explore how musicmathematics influences various elements within the art ecosystem, including cultural, social, economic, educational, and technological aspects, as well as the challenges faced in the acceptance of this concept within society. This research is expected to broaden understanding of the role of musicmathematics in supporting social, educational, and cultural transformation within the context of contemporary art.

Methodology

This research uses document analysis and audio-visual analysis methods to explore the phenomenon of musicmathematics within the art ecosystem in greater depth. This method aims to understand the development of the concept of musicmathematics and its impact thru various relevant sources, such as journals, books, scientific articles, and audio-visual works.

In the document analysis phase, the research mapped the development of musicmathematics theory in the context of contemporary music by examining academic literature and the works of figures such as Iannis Xenakis and Benoît B. Mandelbrot. This analysis includes a study of fractals in music and the mathematical theories used in composition, as well as their influence on compositional practice and public understanding.

At the audio-visual analysis stage, the research examines musical works that apply mathematical principles, such as fractals or number theory. This includes listening and structural understanding of musical works, as well as visual analysis of graphs or diagrams illustrating mathematical patterns in the composition.

This study explores how abstract concepts are translated into audio and visual forms that are acceptable to the audience. Additionally, the views and works of relevant figures are also examined to understand their contributions to the development of musicmathematics. This approach provides a comprehensive overview of the relationship between mathematical theory, musical practice, and societal reception of this concept, as well as its role in shaping the landscape of contemporary musical arts.

Results and discussion

Cultural Ecosystem Analysis

The cultural ecosystem encompasses a variety of interacting elements, including social values, traditions, norms, and cultural products that develop within a society. In the context of music mathematics, the cultural ecosystem focuses on how mathematical concepts in music are received, adapted, and influenced by cultural factors. Music, as part of the cultural ecosystem, not only

serves as a form of artistic expression but also as a social product influenced by the norms and traditions prevalent in society.

The cultural ecosystem theory is rooted in the understanding that culture is a dynamic system that interacts with other elements in society, such as technology, economics, and education. For example, Fiske (2010) in his work *Understanding Popular Culture* argues that culture is not a static entity, but the result of negotiation between interacting social forces. Fiske emphasizes that culture is formed in the relationship between cultural products, such as music, and the broader social structures. In this case, the application of musicmathematics can be seen as a phenomenon that interacts with cultural norms and societal expectations regarding music. Furthermore, Geertz (1973b) in *The Interpretation of Cultures* explains that culture is a system of meaning constructed thru symbols and practices practiced in daily life. In this context, musicmathematics can be understood as a new symbol in the world of music, presenting a fresh understanding of how music can be created and interpreted. This process involves changes in the way society views music and art as a whole.

In a cultural context, musicmathematics can be seen as a form of innovation stemming from the interaction between art and science, which often receives mixed reactions from society. Most people, especially those tied to musical traditions, might see this concept as too technical or difficult to understand. This aligns with Susan McClary's (2002) view in *Feminine Endings*, which states that art is often in tension between tradition and innovation (Butler, 2009). Innovation in mathematics-based music might be seen as a threat to traditional musical values, which tend to emphasize emotional expression and direct connection with the audience more.

However, musicmathematics also opens up new opportunities to create more complex and structured musical forms, which may be more readily accepted in societies that are more open to experimentation and innovation. For example, the use of fractals in music creates repeating patterns that naturally captivate listeners' attention, due to their regular yet unpredictable nature. For people accustomed to more structured music, such as classical or popular music, acceptance of this form of music may take time. However, for people who are more familiar with experimental approaches and contemporary music, the concept of musicmathematics can be accepted more quickly.

This process of reception is also related to what Bourdieu (1984) in *Distinction: A Social Critique of the Judgment of Taste* calls "aesthetic ratio," which is how society judges and categorizes art forms based on taste and social tendencies. In this regard, musicmathematics might be seen as a more elite art form, accessible only to a select few with specialized knowledge of mathematics and music theory. However, over time, if more educators, musicians, and composers adopt this concept, its acceptance in popular culture could grow.

The application of musicmathematics in music not only serves as a form of artistic expression but also as a tool to test the boundaries of existing musical traditions. This challenges our understanding of music as an art form that must be emotionally accessible, replacing it with a more rational and structural understanding. In turn, this has the potential to revolutionize the paradigm of

musical art within the cultural ecosystem, which could ultimately broaden the acceptance and appreciation of more innovative and theory-based types of musical works.

Social Ecosystem Analysis

The social ecosystem refers to the dynamic relationships between individuals, groups, and institutions within a society that shape values, norms, and patterns of social interaction. In the context of music mathematics, the social ecosystem refers to how the application of mathematical principles in music interacts with the broader social structure, encompassing its influence on social identity, the community of musicians, and the dynamics of society in accepting or rejecting this new form of music. Research on musicmathematics within the social ecosystem is important for understanding how innovation in mathematics-based music not only affects the creative processes of musicians, but also its impact on social relationships and public reception of such artworks.

The theoretical foundation of the social ecosystem is drawn from the social perspective of theory, which emphasizes the importance of the relationship between individuals and social structures. Durkheim (2018) in *The Division of Labor in Society* argues that social structure is formed thru collective relationships that arise from mutual agreement within society. In this regard, musicmathematics can be seen as a new element that introduces artistic forms of expression combining science and art, which indirectly changes the existing social values and norms in society. Bourdieu (2018) in *Distinction: A Social Critique of the Judgment of Taste* also notes that cultural taste, including in music, often reflects social position in society. Mathematically-based music that might be considered too technical or exclusive could be confined to certain social classes, while broader groups might reject or not appreciate such music because it's perceived as "too complex" or "too academic."

Musicmathematics holds the potential for change within the social ecosystem of music. Social acceptance of this concept is often hindered by the general public's lack of understanding of the underlying mathematical theory. As mentioned by Pierre Bourdieu, social taste in music is heavily influenced by one's cultural and educational capital (Ashwood & Bell, 2017). Individuals who lack knowledge or access to mathematical concepts in music may feel alienated from works based on musicmathematics. Even in professional settings, the acceptance of musicmathematics as a legitimate form of musical art is still limited. Many musicians and composers consider this mathematically-based music to be incompatible with more conventional traditions or esthetic tastes.

However, on the other hand, musicmathematics can also open up opportunities for the formation of new, more progressive social communities. Such as the International Society for Music Information Retrieval (ISMIR), Sound and Music, and The Algorithmic Composer Network. As technology and information have advanced, music that integrates mathematical concepts has begun to gain attention from academics and communities more open to artistic experimentation. According to Giddens (1979) in *The Constitution of Society*, social change occurs thru the interaction between social structures and individual

agents. In this case, musicians working with musicmathematics can be agents of change influencing the social structure within the music world, opening space for shifts in esthetic values and acceptance of music.

Based on my personal experience, this phenomenon is very clear. When I first started integrating mathematical concepts into musical composition, the main challenge I faced was understanding and acceptance from the broader musical community. Many people feel that these concepts have no relevance to the emotional or esthetic experiences they typically have with music. However, on the other hand, I also felt the presence of a small group that was very open to exploring this math-based music. These groups are often more connected to technology and higher education, and they see musicmathematics as a form of art that challenges traditional boundaries.

Additionally, musicmathematics has the potential to create more inclusive social connections within the music world. In the digital age, mathematically-based music can be disseminated more widely thru online platforms that facilitate interaction between individuals from different backgrounds, both in educational and cultural aspects. Online communities and social media allow musicians working with musicmathematics to build a global audience that may not be limited to traditional audiences. This creates opportunities for international collaboration and the exchange of ideas that can break down social barriers hindering the spread of new ideas in music.

However, there are significant challenges in terms of social acceptance of musicmathematics. Many people still consider music based on mathematical theory to be merely a scientific experiment and inadequate as a form of art that can be widely enjoyed. According to McClary (1992), art exists in a tension between innovation and tradition, where new art forms are often rejected or less accepted by society because they conflict with established values or expectations. In this case, musicmathematics faces a similar tension, where the musical community prefers types of music that are easier to understand and more resonant with their emotional experiences. Therefore, one of our tasks as practitioners and researchers is to continuously open dialog about the potential of musicmathematics in breaking down these social barriers, so that mathematics-based music can be accepted and appreciated by a wider audience.

According to the author, although social challenges to the acceptance of musicmathematics are clearly present, the author believes that thru proper education and promotion, we can introduce this music to a wider audience. Acceptance of mathematically-based music requires a more inclusive approach, where public understanding of mathematical concepts can be improved. Musicmathematics can serve as a bridge between art and science that is more accessible to the general public, and enrich the social ecosystem within the world of music.

Economic Ecosystem Analysis

In the context of economics, the development of musicmathematics has implications for two main things: commercial value and impact on the music industry. Based on cultural economic theory, as explained by Throsby (2001), the

economic value of art lies not only in the artwork itself, but also in the processes and experiences involved in its creation. The application of music mathematics offers added value to music by combining art with science and technology, creating a product that is potentially appealing to a specific market segment, particularly among experimental and academic music enthusiasts.

This musicmathematics ecosystem is strengthened by the technology industry, which supports the production and distribution of mathematics-based music. Software like Max/MSP, SuperCollider, and Pure Data, used for creating algorithmic music, opens up opportunities for musicians to create their work at a lower cost compared to conventional methods. However, despite the increasing number of musicians using this technology, economic challenges remain in terms of monetizing music-mathematics-based musical works. Many of these works cannot be sold in conventional formats, such as pop or commercial music, and are often found only in niche or limited markets.

According to Hesmondhalgh (2008), in his book *The Cultural Industries*, the modern music economy is increasingly driven by innovation and technology. In this case, the use of musicmathematics as an innovative method in music has the potential to influence how music is consumed, distributed, and appreciated. Nevertheless, Hesmondhalgh also emphasizes that while there is potential for monetization, there is tension between experimental art and commercialization, where highly experimental art often does not gain widespread market attention.

Analysis of the Education Ecosystem

In the context of music mathematics, the educational ecosystem plays a crucial role in facilitating the understanding and application of mathematical principles in music. Music education has long been one of the main channels for developing technical and theoretical skills for musicians. With the emergence of musicmathematics, music education must adapt to include learning about how mathematics, particularly concepts such as fractals, number theory, and algorithms, can be applied in musical composition.

Music education from elementary school to university levels already incorporates mathematical elements into its curriculum, although it primarily focuses on traditional music theory and notation. With the advancement of technology and music mathematics, some educational institutions are beginning to offer courses and study programs that focus more on the application of mathematics in musical arts, as seen in various universities that have experimental music and music technology programs. For example, institutions like Berklee College of Music and the California Institute of the Arts offer courses that integrate mathematical theory with technology-based music creation, including in algorithmic composition and fractal analysis in music.

Although there has been progress in integrating music and mathematics into education, the challenge lies in the need to systematically introduce and teach this discipline to music students. Many music education institutions still focus on traditional music theory and more general composition techniques, and only a few offer courses that delve into the application of mathematical principles. Additionally, teachers with expertise in this field are limited, and there are still

gaps in educational resources for delving into the technical aspects of musicmathematics.

According to Hoelscher (2021) in *Mathematics and Music: Mathematical Visualization in Music Composition*, integrating mathematics into music education can open up new perspectives on how we understand and create music. He believed that, although many musicians responded to traditional music theory, future music education should include the application of mathematics to prepare musicians for the global challenges that are increasingly leading to the use of technology in music creation. Additionally, Miller (2024) in his book *Music, Mathematics and Education* emphasizes the importance of collaboration between music and mathematics instruction, with the goal of fostering critical thinking and analytical skills in musicians that can be translated into the creation of more innovative musical works.

Analysis of the Legal Ecosystem

One of the major challenges faced by musicmathematics is how this concept is treated within the legal context, particularly in terms of copyright, licensing, and intellectual property protection. Music based on algorithms or mathematical structures often raises questions about whether the work is considered an original creation or whether it is more a product of a system that can be replicated or modified by anyone.

One of the main issues in musicmathematics is whether works produced by applying algorithms or mathematical principles can be copyrighted, considering that mathematics is essentially a universal science that cannot be claimed by individuals. In this case, many composers who use mathematical algorithms in their compositions find it difficult to determine whether they are entitled to copyright over the work. So far, copyright law in many countries, including the United States and the European Union, tends to assess originality in terms of creativity in composition and execution, but does not explicitly address works generated by machines or algorithms.

On the other hand, the legal challenges in musicmathematics also involve issues of licensing and distribution of mathematical music works. Many software and programs used to create algorithmic music, such as Max/MSP and Pure Data, are available for free or under an open license. This raises questions about the business model and distribution rights for works created using the software. Copyright law here must adapt to ensure that the rights to works are still respected even tho the music creation process relies on devices or code that are publicly accessible.

According to Lawrence Lessig (2004) in his book *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*, copyright protection for works created with the help of technology and mathematics needs more attention (Lessig, 2018). Lessig argues that copyright law in the art world should be more flexible and capable of accommodating technology-based innovation, so that musicians and composers working with musicmathematics still retain their rights to their works. Meanwhile, Wendy Seltzer in *The Legal Nature of Music and Algorithms* (2013) also emphasized that

the law needs to adapt and respond to technological changes in the arts industry so that creators can innovate safely without fear of their works being exploited without permission (Urban *et al.*, 2017).

Analysis of the Technology Ecosystem

The technology ecosystem plays a very important role in the development of musicmathematics, as technology allows musicians and composers to implement and develop mathematical concepts in musical works in a more structured and innovative way. In this case, technology serves as a bridge between mathematical theory and applicable musical practice, creating space for more complex and dynamic musical exploration.

The application of mathematics in music would not have been able to develop rapidly without technological advancements, especially in the fields of software and hardware, which enable algorithmic and mathematically structured music analysis and creation. One of the most significant examples is software like Max/MSP, Pure Data, and Supercollider, which allows musicians to process mathematical data into musical compositions. This technology allows composers to work with mathematical principles, such as number theory, geometry, or fractals, in a more practical and efficient way, rather than relying solely on theoretical or manual approaches.

In addition to software, hardware technologies such as digital synthesizers, computers, and digital recording tools have enabled the creation of sounds and compositions that are not only based on traditional instruments, but also on the exploration of sounds based on mathematical algorithms. Composers like György Ligeti, who used fractal theory in his works, and musicians like Steve Reich and Philip Glass, who utilized the concepts of minimalism and repetition in their compositions, have leveraged technology to realize their musical ideas based on mathematical principles.

Technological advancements have also significantly impacted how composers create music based on music mathematics. By using algorithm-based software, a composer can automatically create musical compositions with specific data input, which is then processed by a computer. This process allows for experimentation with more complex musical structures, such as creating sounds generated thru fractals and creating sound patterns based on chaos theory and number theory. This opens up opportunities for the creation of musical works that might have been previously unimaginable with manual techniques.

For example, works that utilize the principles of fractal geometry, such as those by composers like John Milbauer and David Cope, demonstrate how fractal concepts in musicmathematics can be translated into truly new musical compositions with structures that are not easily achieved by traditional compositional techniques. Technology also allows musicians to simulate sounds in a short amount of time, experiment with sounds and compositions without physical limitations, giving them artistic freedom to develop mathematical ideas in their musical works.

Technology not only influences the process of creating mathematics-based music but also plays a key role in disseminating musicmathematics to the wider

public. With the emergence of digital platforms like YouTube, SoundCloud, and others, musicians can easily publish works that incorporate mathematical principles in music to a global audience. Additionally, technology provides opportunities to build a larger community for those interested in musicmathematics, including collaborations between musicians, mathematicians, and educators. This community thrives thru blogs, discussion forums, and online courses, enabling more open knowledge sharing about the application of mathematics in music.

In addition, open-source software like Pure Data and Supercollider also facilitates wider access for anyone who wants to learn or create with musicmathematics. This creates a more inclusive and open ecosystem where individuals from diverse backgrounds can participate in the creation of mathematical music. However, while technology has opened up many new opportunities, there are also challenges in integrating musicmathematics more widely into the world of music. One of these is dependence on complex tools and software, which require high technical skills to use effectively. Additionally, some musicians and educators may find it difficult to adopt mathematical concepts in music creation due to limitations in their understanding of mathematics or technology. Additionally, while technology offers musicians creative freedom, many argue that musicmathematics generated thru algorithm-based software can diminish the emotional element and spontaneity that often lie at the heart of traditional music creation. For example, composers and musicians working with musicmathematics often face criticism from those who believe that algorithm-based music is less capable of conveying the same emotions as manually created music.

According to Larry Polansky, a composer and music technologist, in his book *The Mathematics of Music* (2009), technology has enabled the creation of new methods in musical composition, but at the same time, he emphasizes the importance of maintaining a balance between algorithms and human expression (Sievers *et al.*, 2013). Polansky argues that although technology opens up space for innovation in musicmathematics, the presence of the human element in the music creation process remains essential. On the other hand, Iannis Xenakis, a pioneer in mathematical composition, stated in his book *Formalized Music: Thot and Mathematics in Composition* (1971) that technology not only expands the boundaries of musical expression but also opens up possibilities for creating entirely new and previously unimaginable sounds (Nierhaus, 2009).

Musicmathematics is an important phenomenon in the art ecosystem, particularly in the exploration of contemporary music that combines mathematical principles such as fractal theory and numbers to create innovative works. Becker (1982) emphasizes that art is the result of complex interactions within a social ecosystem, where musicmathematics introduces a new approach that enriches culture, although it still faces tension with mainstream musical traditions. In this context, Geertz (1973a) states that culture is a constantly evolving system of meaning, so innovations like musicmathematics have the potential to create new paradigms in art.

Socially, Bourdieu (2018) shows that the reception of art is heavily influenced by cultural capital, meaning that musicmathematics is often only accessible to experimental communities with technical backgrounds. In education, Miller (2024) emphasizes the importance of integrating mathematics into music to build analytical skills among students, although its application in the curriculum is still limited. From a technological perspective, Xenakis *et al*. (2003) assert that mathematical algorithms enable the exploration of new sounds that expand artistic boundaries, but the gap in audience reception remains a challenge. In legal aspects, Seltzer (2013) emphasizes the need for copyright law adaptation to protect algorithm-based works, which are often considered less original.

Conclusion

Overall, musicmathematics has great potential to support the transformation of contemporary art. However, adaptive strategies are needed to increase social acceptance, strengthen synergy between mathematical theory and artistic practice, and bridge the gap between technology and society. Further research is needed to address these challenges and maximize their impact within the art ecosystem.

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The Phenomenon of Baris Pendet Dance at Dalem Tanjung Sari Temple, Tanjung Bungkak Traditional Village, Denpasar City, Bali

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Abstract: This research aims to obtain a holistic understanding of Baris Pendet Dance in Tanjung Sari Temple, Tanjung Bungkak Traditional Village, Denpasar City, Bali Province. This research was conducted by analyzing aspects of dance form, function, and philosophical meaning of Baris Pendet Dance. This research uses a qualitative research model with a descriptive approach. Data collection using observation techniques, interviews, literature studies and documentation studies. Several theories such as Aesthetic Theory, Structural Functionalism Theory, and Semiotics Theory are used to analyze data about the form, function and meaning of dance. The results showed that Baris Pendet dance in Pura Dalem Tanjung Sari is a group dance consisting of eight boys who have not yet entered puberty. The function of this Baris Pendet dance is the function of ritual, spectacle, and cultural preservation. Denotatively, this dance symbolizes respect for the value of spirituality in periodic rituals at Tanjung Sari Temple. While connotatively, this dance symbolizes the welcoming of humanity to the descent of the gods during the ceremony held at Tanjung Sari Temple.

Introduction

The richness of traditional arts and heritage has long been a well-known hallmark of Balinese culture, integral to people's daily lives (Sudirga *et al*., 2024; Yulianti & Marhaeni, 2021; Yulianti & Jayantini, 2023). One aspect that has captivated researchers since childhood is Balinese dance, which includes a variety of sacred and performing dances. Balinese dance is an integral part of people's lives and is one of the cultural heritages that has deep aesthetic, philosophical and spiritual values. Every movement and expression in dance not only reflect beauty but also represents cosmological concepts, beliefs, and values derived from Hindu teachings. One form of dance that has an important position in religious rituals is the Baris Pendet Dance. This dance is not only part of the ceremony, but also has a deep meaning in the social structure and beliefs of Balinese society.

Mok (2019) and Sugiartha (2018) classify Balinese dance into three main categories, namely *Wali, Bebali,* and *Balih-balihan*. This classification becomes the basis for understanding the role of Baris Pendet Dance in a religious context as part of sacred art. Sumertayasa *et al*. (2023) emphasized that Baris Pendet Dance is

included in the *Wali* dance which has spiritual and religious values, especially in ceremonies at Pura Dalem. In addition to aspects of classification and ritual functions, research conducted by Komala *et al.* (2020) shows that social changes and technological advances have an impact on the younger generation's interest in traditional arts. Digitalization changes people's cultural consumption patterns, including in the appreciation of sacred dance arts such as Baris Pendet Dance. Although many studies have highlighted the historical aspects and ritual functions of Baris Pendet Dance, research on revitalization strategies and adaptation of this dance in the modern era is still limited. Therefore, this study seeks to fill the research gap by examining the adaptation strategy of Baris Pendet Dance in the face of social change and technological development in order to maintain its sustainability as part of Balinese cultural heritage.

In Tanjung Bungkak Traditional Village, Denpasar, Baris Pendet Dance is an integral part of the ceremony at Tanjung Sari Dalem Temple. The village has the Kahyangan Tiga Temple, which consists of the Village Temple, Puseh Temple, and Dalem Temple, where various sacred arts are still preserved. In general, Balinese dance is classified into three categories, namely *Wali* (being sacred), *Bebali* (ritual), and *Balih-balihan* (entertainment) (Mok, 2019; Sugiartha, 2018). Baris Pendet dance is included in the *Wali* category, which is a sacred dance specifically performed as part of Hindu religious ceremonies (Sumertayasa *et al.*, 2023). The presence of this dance not only strengthens the ritual aspect, but also holds philosophical values that serve as guidelines for the local community.

However, in the midst of the times and the rapid digitalization, the younger generation's interest in traditional arts is diminishing. Technological advances often make them more interested in popular culture that tends to be global compared to the traditional arts of their own region (Komala *et al.*, 2020). This phenomenon threatens the existence of Baris Pendet Dance as part of a valuable cultural heritage. In addition, previous studies tend to discuss more about the historical aspects and ritual functions of Baris Pendet Dance, but not many have explored how this dance can adapt to social changes and technological developments.

Research on revitalization strategies and innovative approaches in maintaining the sustainability of sacred dance in the digital era is still very limited. Therefore, this study aims to dig deeper into the form, function, and significance of Baris Pendet Dance, as well as identify adaptation strategies that allow its sustainability amidst the challenges of the times. With this study, it is hoped that it can provide a broader understanding and increase appreciation for Balinese culture, as well as encourage efforts to preserve high-value cultural heritage for future generations.

Methodology

Baris Pendet dance can be analyzed through various theoretical approaches relevant to performing arts, especially in the context of culture, aesthetics, and functionalism. The first approach is Aesthetic theory, which helps in understanding the value of beauty in dance performances. According to Soedarsono (1999), aesthetic elements in performing arts are realized in the harmony between dance movements, musical accompaniment, makeup, costumes, and properties used. In Baris Pendet Dance, aesthetics appears in the dynamic movements of the dancers, the use of gamelan gong kebyar as accompaniment, and white clothing with a touch of gold that

symbolizes purity. In addition, Djelantik's Aesthetic Theory (1999) emphasizes that aesthetic aspects can be analyzed through three main elements, namely form, weight, and appearance (Divo *et al.*, 2023, Listiawan *et al.*, 2023; Sariada *et al.*, 2022; Sidiastini *et al.*, 2022). The aesthetic form of Baris Pendet Dance can be seen from its distinctive movement structure as a group dance danced by eight boys. Aesthetic weight refers to the symbolic and spiritual values contained in each dance element, while the appearance aspect reflects the expression of the dancers who display beauty visually and emotionally.

In addition to aesthetics, this research also uses Structural Functionalism Theory proposed by Radcliffe-Brown (1952) to understand the function of Baris Pendet Dance in indigenous communities. This dance has a ritual function, namely as part of a religious ceremony at Pura Dalem Tanjung Sari to invoke the arrival of the gods. In addition, this dance also has a spectacle function, which allows dance performances not only in sacred contexts but also in art performances for the wider community. Another function is the function of cultural preservation, where this dance is part of an effort to maintain and pass on traditions to the younger generation.

The philosophical meaning in Baris Pendet Dance was analyzed using the Semiotic Theory from Roland Barthes (1964). This theory divides meaning into two levels, namely denotative and connotative. Denotatively, Baris Pendet Dance is a dance performed by eight boys using properties such as fans and *canang* in a series of religious ceremonies. Connotatively, this dance symbolizes respect for the value of spirituality in periodic rituals at Pura Dalem Tanjung Sari and implies the welcoming of humanity to the descent of the gods in the *piodalan* ceremony. The symbolization of the fan property used in this dance also has a deeper meaning, namely as a representation of butterflies, which in Balinese belief symbolizes the spirits of ancestors or gods who descend to earth. By referring to these theories, this research aims to provide a deeper understanding of Baris Pendet Dance, both in terms of aesthetics, social functions, and preservation strategies in the digital era.

This research uses a qualitative approach that is descriptive-analytical as a method in the observation process. In this case, the research focus is on the Baris Pendet Dance at Pura Dalem Tanjung Sari. The qualitative method allows researchers to explore the subjective aspects and meanings contained in the phenomenon under study, such as performing arts. Meanwhile, the descriptive analytical approach emphasizes a detailed and detailed description of various aspects of the dance, such as movements, costume appearance, types of musical accompaniment, as well as the cultural and religious background that surrounds it.

The main purpose of using this method is to comprehensively understand Baris Pendet Dance in Pura Dalem Tanjung Sari. By conducting an in-depth description of the various elements of this dance, such as how the dance is performed, its function in a religious context, and its meaning in the local culture, it is hoped that it can summarize clearly and in detail the aspects that are at the core of this dance and its relation to Pura Dalem Tanjung Sari and the surrounding community. A qualitative method with an analytical descriptive approach is used to provide an in-depth and detailed understanding of the important aspects of the Baris Pendet Dance at Pura Dalem Tanjung Sari.

Results and discussion

Baris Pendet dance at Pura Dalem Tanjung Sari, Tanjung Bungkak Traditional Village, is formed from several main elements that support the existence of this dance. These elements include dancers, dance movements, dance structure, fashion, musical accompaniment, and performance venue. The discussion of these elements will provide a clearer understanding of the form of Baris Pendet Dance. In this study, researchers used Djelantik's aesthetic theory as the basis of analysis to explore more deeply the meaning and beauty of Baris Pendet Dance. According to Djelantik, every art object or event has three basic aspects, namely (1) visual appearance or physical appearance, (2) substance or content, and (3) expression or presentation (Dewi, 2020; Djelantik, 1994; Fachrissal *et al.*, 2021).

Aesthetic Aspects in Baris Pendet Dance and Performance Structure

The physical appearance (form) of a work of art is the result of how structural elements are arranged, organized, and grouped in an aesthetic form (Fachrissal *et al.*, 2021). In this context, the Baris Pendet Dance performance can be categorized as an art form, because it presents a visual form that can be observed and enjoyed. Baris Pendet Dance is a group dance performed by eight dancers. Group dance itself involves a number of dancers who collectively depict an activity in performance (Purwaningsari & Dhony, 2022).

In this dance, all dancers sometimes perform uniform movements, but there are also parts where they divide themselves to perform complementary movements (Hadi, 2012). Based on the number of dancers, Baris Pendet Dance is classified as a small group, considering that small groups consist of three to fifteen people, while large groups involve more than fifteen to hundreds of dancers.

In addition to form, the substance or essence of a work of art is also an important aspect of aesthetics. In Djelantik's perspective (1994), the weight of art is not only limited to the visual aspect, but also includes the experience, meaning, and value felt and lived from the work of art. The substantive part of art consists of three main elements, namely mood, idea, and symbolism or symbolic message. In this case, Baris Pendet Dance contains a deep spiritual message, namely as a form of request to the gods and goddesses to be spiritually present at Pura Dalem Tanjung Sari to witness the *piodalan* ceremony. Thus, this dance not only functions as an expression of art, but also as an intermediary medium between humans and gods.

The last aspect in aesthetic analysis is appearance, which refers to the way a work of art or performance is presented to the audience (Djelantik, 1994; Rediasa & Sutrisno, 2016). In the context of Baris Pendet Dance, appearance includes how this dance is performed in front of the audience, emphasizing various elements such as performance arrangement, movement variations, makeup and costume aesthetics, supporting equipment, and musical elements that contribute to strengthening the aesthetic experience for the audience.

Dance structure refers to the composition of parts that make up a dance (Putra & Hasan, 2022; Angeline & Fajaria, 2023). In Balinese dance tradition, almost every dance is built on three main parts: beginning, middle, and end (Ardana & Consentta, 2022; Astini, 2020; Rianta *et al.*, 2019). These three parts are in line with the *Tri Kona* (three stages of life concept, namely *stiti* (birth), *utpeti* (life), and *pralina* (end) (Wiraputra, 2022). In Baris Pendet Dance, the performance structure consists of three

parts that have their own meaning, but overall relate to spirituality related to Ida Bhatara Dalem as a divine manifestation. In the first part, eight dancers are divided into two groups of four people each. Each group represents the concept of *Asta Dala*, the eight symbols of Hyang Widhi's majestic nature. This section reflects balance and order in life. The second part of the dance depicts the concept of Sad Ripu, the six enemies within humans, which is also associated with *Rwa Bhineda*-the concept of duality in life, such as good and bad that always coexist. In the third section, the dance movements depict a conflict that symbolizes the chaos caused by the influence of Sad Ripu. This conflict reflects man's struggle to control his six vices. However, through the spiritual process in this dance, these negative influences are expected to be neutralized and transformed into harmony, thus bringing balance to life.

The beginning of Baris Pendet involves two groups of dancers, each consisting of four people who perform a series of movements. The first group carries *canang oyodan* and steps to the rhythmic music of *gilak bebarisan*. After dancing, they offer the four *canang oyodan* to *Ida Bhatara*, with the guidance of a *pemangku* who has authority in spiritual activities at the temple. After the first group's procession is complete, the second group continues the same steps. This part represents the concept of Asta Dala, the eight symbols of Hyang Widhi's majestic nature, which reflect the purity and harmony of the universe.

The *pangadeng* section in Baris Pendet Dance is divided into two subsections, namely *mamendak* and *nedunang*, which are the core of this dance. In the *mamendak* section, six dancers move towards the east of the temple or *pelinggih*, symbolizing the effort to present Ida Bhatara to witness the *piodalan* ceremony. This movement ends with the *ngayabin* procession, which is the offering of *canang*, arak, and *berem* in front of the Bhatara Dalem temple as a form of respect. After the *ngayabin* procession, the six dancers continue with the *pangecet* dance, which symbolizes the presence of *Ida Bhatara Dalem*. The presence is expressed through butterfly movements using a *kepet* (fan), with gentle *aras-arasan* movements, signifying spiritual softness and coolness.

The *pakaad* or *panamprat* section in Baris Pendet Dance is the highlight of the dance choreography, where eight dancers return to perform and are divided into two groups. Four dancers carry the *panamprat canang*, while the other four act as *panamprat*. This section is characterized by a war of movement between the two groups of dancers, creating a dynamic that represents the concept of *Rwa Bhineda*, the duality in life such as good-bad, life-death, and rich-poor. This concept not only illustrates the balance in life, but also reflects the social values in Tanjung Bungkak Traditional Village. For the local community, duality is not a separator, but part of the life experience that must be accepted as a harmony that unites social relations.

Dancers and Movements

Dance is a manifestation of human inner expression conveyed through rhythmic movements that are aesthetic and artistic (Maryono, 2023; Yulianti *et al.*, 2024). In other words, dance is a manifestation of beauty that is reflected in patterns of body movements performed rhythmically, harmoniously, and meaningfully (Lestari & Gunada, 2021; Meli, 2021; Rochayati, 2017). Therefore, dancers are one of the main elements in dance, because they are the ones who bring life and convey the meaning of dance. Baris Pendet dance is danced by eight male dancers, with group divisions

based on dance parts. In the first part, the dancers are divided into two groups, each consisting of four people. In the second section, six dancers take roles, while in the last section all dancers perform together. As part of the tradition, Baris Pendet Dance dancers must come from the Tanjung Bungkak Traditional Village. Generally, they are between 6 to 12 years old, in accordance with the characteristics of the dance that demand agility and expression typical of children.

The technical selection of dancers is carried out in rotation in each traditional *banjar*, namely Banjar Tanjung Bungkak Kaja, Banjar Tanjung Bungkak Kelod, and Banjar Sebudi. The task of selecting dancers is carried out by the *kelihan banjar*, who is responsible for visiting the houses of residents in the Tanjung Bungkak Traditional Village in accordance with the turn of *ngayah*. One of the obstacles often encountered in this process is the difficulty of finding male dancers who have not yet reached puberty. Therefore, on some occasions, there are children who have to dance more than once. After being appointed by the *kelihan banjar*, the dancers will receive *ulam tanding* obtained from the temple as part of the preparation ritual. Before the performance, the dancers undergo rehearsals that begin a week in advance. These rehearsals are guided by dance coaches who have been appointed in each *banjar* to ensure the dancers' readiness to perform the dance well.

Dance movement is one of the most basic elements in a dance (Gautama *et al.*, 2020; Sustiawati *et al.*, 2018; Nurina & Indrawati, 2021). Dance movements include various body expressions performed by dancers, including the movement of hands, feet, head, and body as a whole. These movements can be in the form of steps, poses, changes in position, and expressions that describe a particular story or emotion. In Baris Pendet Dance, the movements used are relatively simple, but still maintain the sacred meaning contained in it. The movements have differences with Baris Dance in general, because they rely more on movements such as *metayungan, ngoyod, agem, nengkleng, aras-arasan,* and *nuding.* Each of these movements not only functions as an aesthetic expression, but also has a symbolic value that strengthens the ritual meaning in the dance.

(Source: Sariada, 2023)
Figure 1. Baris Pendet dancers

Accompanying Music, Makeup, Fashion, and Properties

Music and rhythm are important elements in dance. This subsection covers the selection of music or sounds used to mark the rhythm or tempo of the dance (Yulianti *et al.*, 2024). The movements and steps in a dance are often matched to the rhythm and melody of the supporting music. Music, or *tabuh* in the context of Balinese dance, is one of the most important elements. Its main function is not only as the basis for the choreographic structure, but also as an identity assertion for a dance. It gives a dimension of life to the whole dance performance. Music also has a key role as a guide and guide for the dancers, often becoming a distinctive feature that distinguishes one dance performance from another (Hadiprayitno, 2021; (Ruastiti *et al.*, 2021; Raharja, 2019).

There are many different types of Balinese gamelan. Behind the diversity of their forms, this gamelan produces music that is rhythmic, melodic, expressive and dynamic. The types include Pagambuhan gamelan, Semara Pegulingan, Palegongan, Gong Gede, Jegog, Semara Dhana gamelan, and Gong Kebyar. When viewed from the musical accompaniment, Baris Pendet Dance uses Gong Kebyar gamelan accompaniment.

Makeup and costuming are vital aspects of Balinese dance, because they not only serve to change the visual appearance of the dancer in accordance with the role being played, but also reinforce gender identity, social status, character, and the type of dance performed. In addition, makeup and clothing provide an aesthetic appeal that supports the sacred and artistic atmosphere of the performance. In this research, observation of the makeup of Baris Pendet Dance shows that the makeup used has similarities with the makeup in Baris Dance in general. This makeup emphasizes a firm and authoritative expression, in accordance with the sacred and heroic character of the dance.

Meanwhile, the clothing used in Baris Pendet Dance belongs to the *bebarisan* dance genre, which is characterized by *awiran* clothing design. *Awiran* in this outfit consists of several layers of fabric that encircle the dancer's body, starting from the shoulders to above the knees. This design not only beautifies the appearance of the dancer, but also gives a dynamic impression in every movement performed, reflecting the assertiveness and flexibility of the dance.

Properties in dance performances not only function as aesthetic elements, but also strengthen the cultural context and assist dancers in describing the character or theme being performed (Febrianty *et al.*, 2024). In Baris Pendet Dance, the main property used is a pair of white *kepet* or fans with gold or *prada* motifs, which are carried by each dancer. This fan is used in the *pangecet* or *aras-arasan* section, providing a visual accent that strengthens the expression of movement and dance symbolism.

In addition to the kepet, there are several tools carried by dancers as part of the ritual, namely *canang oyodan,* arak *berem*, and *canang panamprat*. *Canang oyodan* is the first tool used in the initial part of the dance. There are six pieces of *canang oyodan*, with a variety of bases used, namely two pieces placed on a bokor, two using a small *dulang*, and the other two using a basket as a base. Each *canang oyodan* has meaningful contents, including *biu mas* (golden banana), jaje *sukla* (white cake as a symbol of purity), *nyanyah gegringsingan* (traditional snacks), *lengis miik* (fragrant oil), *boreh miik* (fragrant *boreh* herb), *naga sari* tree leaves, cypress leaves,

puring wood leaves, base lelet five colors (five types of color powder symbolizing the elements of life), young ivory coconut, *juuk sibak* (open orange), *linting* or *suluh* (small torch), and cigarettes. As a complement, each *canang oyodan* is decorated with *pidpid* nails and *gemitir* flowers, which add aesthetic value and symbolic meaning to the Baris Pendet Dance ceremony and performance.

(Source: Sariada, 2023)
Figure 2. Means of arak *berem* Baris Pendet dance

Arak *berem* is the second tool carried by the dancers in Baris Pendet Dance and used as part of the *tetabuhan* ritual. This tool is carried by six dancers, with a division of roles, namely four dancers carrying arak, while the other two dancers carry *berem*. The existence of arak *berem* in this dance has a symbolic meaning related to religious ceremonies and offerings to Ida Bhatara.

(Source: Sariada, 2023)
Figure 3. Means of arak *berem* Baris Pendet dance

Besides arak *berem*, another property used in Baris Pendet Dance is *kepet* or fan, which is used during the *aras-arasan* movement (Dewi & Arshiniwati, 2023). *Kepet* in this dance has the same shape as traditional fans in general, but what distinguishes it is its dominant white color and is decorated with *prada* or gold-colored motifs. The use of this fan not only adds to the visual beauty of the dance, but also has symbolic value in describing the presence of spiritual energy in the performance.

(Source: Sariada, 2023)
Figure 4. Baris Pendet dance *kepet*/fan property

In addition, there is *canang panamprat*, also known as *canang sari*, which is used by dancers at the end of the dance, during the *penamprat* section. *Canang panamprat* contains *canang* sari which is placed on top of the bokoran and covered with saab property. As part of the ritual procession in Baris Pendet Dance, the use of *canang panamprat* marks the symbolization of the delivery of offerings to Ida Bhatara, as well as being a closing element that strengthens the spiritual value of this performance.

(Source: Sariada, 2023)
Figure 5. *Canang Penamprat* Baris Pendet dance

The Role as Ritual, Entertainment, and Cultural Preservation

Baris Pendet dance is performed every *piodalan* at Pura Dalem Tanjung Sari, precisely on *Anggara Kasih* day, *Wuku Medangsia*. This piodalan lasts for four days, with the peak of the celebration being the time of the Baris Pendet Dance performance. This dance is performed after the ngelebar dateng procession, around 20.00 WITA (Central Indonesian time), and takes place in the innards or *penataran* of Pura Dalem Tanjung Sari.

Art in the context of religious rituals forms an inseparable unity and continues to develop over time (Azizah & Maulani, 2024). The function of art, especially in ceremonies and ritual processions in Bali, has become an inseparable part of the tradition that has been passed down from generation to generation (Kartika, 2021). In this case, dance plays a central role in various ritual ceremonies in Bali and becomes the main element in the whole sacred procession. Brown in Malarsih (2004) argues that the social structure of a civilization is always functionally integrated, so that each component has an influence on the sustainability of the social structure.

(Source: Sariada, 2023)
Figure 6. Baris Pendet dance performance

In general, dance has three main functions, namely as part of a ceremony or ritual, as a source of entertainment, and as a form of aesthetic expression or artistic performance (Pamardi *et al.*, 2014). In this study, the analysis of the function of Baris Pendet Dance uses the structural functional theory of Radcliffe-Brown, which explains that the function of dance is closely related to the traditions of society (Wrahatnala, 2021). Baris Pendet Dance has a close relationship with the *piodalan* ceremony at Pura Dalem Tanjung Sari, so its existence must be maintained and performed every *piodalan*.

In accordance with Brown's theory, art and religious rituals are interrelated and inseparable. However, in 2020, the Baris Pendet Dance experienced changes in its performance schedule due to the Covid-19 pandemic. In order to maintain the continuity of the tradition, the performance was moved to the afternoon, and as a form of request for safety, the local community held a *ngaturang guru piduka* ceremony to ask for protection from all kinds of dangers. Dance in Bali has a significant role in preserving culture. Of its various functions, there are three main roles that remain relevant today, namely as an expression of ritual or ceremony, as a medium of entertainment, and as a means of preserving traditional culture. Soedarsono (2021) elaborates that ritual dance has special characteristics, such as the selection of a sacred place, the right time, the involvement of dancers with a certain status, the use of offerings, and the presence of spectators who participate in the procession.

Baris Pendet Dance performed at Pura Dalem Tanjung Sari, Tanjung Bungkak Traditional Village, has an important role as a ritual dance that is still preserved by the local community. The performance is in a series of piodalan ceremonies in accordance with the Balinese calendar, namely on the day of *Anggara Kasih, Wuku Medangsia*. Besides having a sacred function, Baris Pendet Dance also functions as entertainment (Hera, 2020). The function of spectacle or entertainment in this dance still holds high aesthetic value, so that it gives a deep impression to the audience (Istiqomah & Habudin, 2018).

The function of Baris Pendet Dance as a spectacle was evident in the Denpasar Festival 2020, where the dance was performed at the Catur Muka Statue, Denpasar, as part of the cultural celebration. However, in this performance, the costumes used were duplications and not the original costumes commonly used in sacred ceremonies at Pura Dalem Tanjung Sari. This shows that, although Baris Pendet Dance can be performed outside the ritual context, its sacred value is still maintained by distinguishing the elements used. Aside from being part of ritual and entertainment, Baris Pendet Dance also plays a role in cultural preservation. Performances that are done regularly every six months in the celebration of *Anggara Kasih, Wuku Medangsia*, maintain the continuity of this tradition. The local community applies a *banjar* (hamlet) based management system in rotation to ensure the sustainability of Baris Pendet Dance from generation to generation.

In Roland Barthes' semiotic perspective, dance can be understood through the analysis of two levels of signification, namely denotation and connotation. Denotation refers to the explicit and direct meaning of the Baris Pendet dance performance, such as the implementation of the dance in the main mandala or the innards of Pura Dalem Tanjung Sari, the formation of the dance performed by eight boys, and the variety of movements consisting of *metayungan, ngoyod, agem, tanjek, aras-arasan,* and *nuding.* These movements follow the accompaniment of the Gong Kebyar gamelan, with typical properties such as *canang oyodan, arak berem, fan/kepet,* and *canang panamprat.* The costumes worn have the concept of *awiran* with the dominance of white and a touch of gold. Meanwhile, the connotation in Baris Pendet Dance reflects a deeper cultural meaning. Every element in this performance, ranging from movement, musical accompaniment, costumes, makeup, to property, has symbolism that represents a request to the gods to be present at the *piodalan* ceremony. The sacred nuances that emerge in this performance create a spiritual dimension that deepens the aesthetic experience for the audience and ritual performers.

The aesthetic element in Baris Pendet Dance is reflected in the harmony between movement, music, clothing, and properties used. The dynamic movements are combined with the accompaniment of Gong Kebyar, which strengthens the dramatic nuances in the dance. The costumes consist of various traditional elements such as shirt, pants, *stewel, semayut, keris, gelang kana, lamak,* and *simping*, with the dominance of white and gold accents. The fan property used symbolizes butterflies, which in local belief is interpreted as a symbol of the arrival of the gods. The makeup of Baris Pendet Dance also has its own characteristics, with the use of distinctive colors such as brown base powder, blue, red, and yellow eye shadow, and red lipstick to emphasize the dancer's expression. Each element in this dance is not just an aesthetic ornament, but has a symbolic meaning that is closely related to the beliefs and traditions of the Balinese people. Baris Pendet Dance not only functions as part of religious rituals, but also as entertainment and a means of cultural preservation. The continuation of this dance performance reflects the commitment of the community in maintaining traditions and strengthening Balinese cultural identity through performing arts that are rich in meaning and aesthetic value.

Conclusion

Based on the explanation in the results and discussion section, it can be concluded that Baris Pendet Dance in Pura Dalem Tanjung Sari has a close relationship

with the religious and social system of the Tanjung Bungkak Traditional Village, Denpasar City. This research reveals that aspects of the form, function, and philosophical meaning of the dance play an important role in the religious system of local Hindus and in maintaining the continuity of cultural traditions.

First, in form, Baris Pendet Dance is a group dance specifically danced by boys who have not entered puberty. This reflects the element of sacredness in religious rituals, where the selection of dancers becomes part of the sacredness of the dance. Second, the properties used in this dance are not just artistic elements, but also have symbolic meanings that complement the ritual procession at Pura Dalem Tanjung Sari. This strengthens the close relationship between art and ritual in the life of Balinese Hindu society. Third, in terms of function, Baris Pendet Dance not only acts as part of the ritual ceremony, but also develops into a spectacle dance and a medium for cultural preservation. This dance not only contains spiritual value, but also elements of entertainment and education for the wider community. Fourth, the philosophical meaning of this dance is manifested in its role as a medium for expressing gratitude and respect for the spiritual entities in Pura Dalem Tanjung Sari. In addition, the staging system which is carried out in turn between hamlets (*banjar*) in the Tanjung Bungkak Traditional Village reflects the value of togetherness and strengthens the social solidarity of the local community.

This research has provided further insight into the Baris Pendet Dance as part of the cultural wealth of the Tanjung Bungkak Traditional Village community. However, there is still room for further research, especially to dig deeper into the historical aspects and development of this dance, so that it can further enrich the understanding of the sustainability of performing arts traditions in Bali.

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A Biophilic Design Approach Resort in the Pari Island of Kepulauan Seribu, Jakarta Province

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Abstract: One of the Jakarta City islands is the Pulau Pari (Pari Island). Even though small, it has the natural beauty includes white sandy beaches, coral reefs, and a unique marine ecosystem. Unfortunately, the remarkable tourism potential of Pari Island has not been matched with adequate facilities. The lack of proper accommodations and poorly organized tourist areas are some of the main issues. Therefore, this study in qualitative methodaims to design a resort hotel using a biophilic approach, which integrates natural elements into architectural design. The biophilic concept was chosen to respond to the tropical island climate of Pari Island by offering architectural solutions that connect the built environment with nature. by employee the metaphoric in architecture form. Based on literature studies, the biophilic design approach contritbuted to built environments fostering a strong connection between humans and nature. By accomadated the biophilic design approach is implemented through natural lighting, incorporation of water elements, and the integration of vegetation.

Introduction

Indonesia has 10 national tourist destinations designated as Special Economic Zones (SEZ). (Indonesia ZEIZ, 2018). Meanwhile, the Special Region of Jakarta also has a prime destination located in the Thousand Islands, which the Jakarta City Government has targeted for strategic tourism development. Cumulatively, tourist visits to the Thousand Islands have increased annually. This increase in annual tourist arrivals is projected to make Jakarta a global city, according to data from September 2023 to June 2024. Pari Island boasts natural beauty, including white sand, coral reefs, and a unique marine ecosystem. These advantages make Pari Island a popular tourist destination, as seen in the following graph.

To support tourists visiting Pari Island, homestays are available, but insufficient capacity and inadequate accommodation facilities present obstacles for visitors. This lack of capacity and accommodation facilities can serve as a basis for a study on the design needs of a resort hotel on Pari Island. The presence of a resort hotel on Pari Island could attract tourists to Pari Island.

According to Law No. 10 of 2009 concerning Tourism, a hotel is defined as a type of accommodation business offering various types of accommodation along with other tourism activities (Disparekraf DKI Jakarta, 2023). According to Nyoman S. Pendit, in his book "Ilmu Pariwisata," a resort hotel should have land related to

tourist attractions. Therefore, resort hotels should be located on hills, mountains, valleys, and even on the coast (Amelia, 2017).

Based on various definitions of hotels, it can be concluded that the definition of a hotel is a public facility that is managed commercially in the form of a business or company that functions to provide accommodation, food and beverage services and other services for the general public.

According to the Director General of Tourism in 1988, a resort is a temporary residence for someone outside their hometown, with the goal of refreshing their body and soul, as well as a desire to learn more. It can also be associated with interests related to specific activities such as sports, health, conventions, religious activities, and other business purposes (Neksidin, Fahrudin, and Krisanti, 2021).

According to Murdhanti in Saputra (2023), a resort is an accommodation located quite far from the crowds and close to tourist attractions. A resort is a lodging built in a location with beautiful natural views, such as the beach or mountains (Ramdhan and Anggraini, 2024).

From the definitions of hotels and resorts above, it can be concluded that resort hotels are generally located far from urban areas or located in the mountains or waters, providing facilities for vacations, recreation, and sports. Resort hotels are the result of accommodation in several tourist areas developed as a place for recreation, physical refreshment, and various forms of tourism activities with complete accommodations to support tourists and hotel visitors. According to Sumarno (1999), a temporary lodging place that utilizes the natural potential and physical culture that are characteristic of the local area. Therefore, in general, what is sold by resort hotels is Scene (Natural Potential), namely the physical potential of the resort area and Culture that is characteristic of the local area. One prominent resort is The Mandalika of Lombok. (Ardhiati, Tia Begin, Begin, Hari Prasetyo, 2021).

Biophilic and bioclimatic design are related but distinct architectural concepts for sustainable buildings. Both, are often combined to create buildings that are both environmentally responsible and occupant-friendly. Bioclimatic design focuses on using local climate to ensure thermal comfort and energy efficiency through passive strategies. Biophilic design focuses on incorporating nature into buildings to improve human well-being and health by creating a connection between people and the natural environment. Biophilic design need to improve the physical and mental health of building occupants by fostering a connection with nature by integrates natural elements and patterns into the built environment to stimulate the senses. This can include: Directly bringing in nature (plants, water features).

Biophilic design comes from the word "biophilia," a combination of two Greek words: "bios," meaning life, and "philia," meaning love. The term "biophilia" refers to the love of living things, parts of life, and the love of nature, the place where life exists. It expresses this love through appreciation for nature and other life forms (Putra and Elviana, 2024).

Biophilic design can be implemented through an emotional or psychological approach and utilizes a combination of methods to create a more natural effect. According to a study published by Terrapin Bright Green, a strategic planning and environmental consulting firm (Justice, 2021), there are fourteen patterns of biophilic design, divided into three categories based on their connection to nature: (1) nature in space, consisting of seven patterns; (2) similarity to nature, consisting of three patterns; and (3) the natural nature of space, consisting of four patterns (Zhonget al., 2022).

Incorporating nature indoors includes: visual connections with nature, non-visual connections with nature, non-rhythmic sensory stimulation, temperature and airflow variability, the presence of water, dynamic and diffused light, and connections with natural systems: resembling nature in space, including: Biomorphic forms and patterns, material connections with nature, complexity and order; and Natural characteristics of space: prospect, sanctuary, mystery, risk, and danger. In an effort to apply a biophilic approach to design, a harmonious relationship between humans and nature is created through building design elements. The following is an example of the application of biophilic design in the design of the Pari Island resort hotel, including the use of plants, natural light, and natural ventilation.

Biophilic-based architectural design became popular after architect Ken Yeang applied it in his work titled "Bedrtaju" (The Unconventional Approach to High-Rise Buildings) (Mbiti, 2025). Subsequently, the application of biophilic concepts in architecture became a choice in architectural design. (Justice, 2021) and (Putra &Elviana, 2024).

Geographically, Pari Island is located in the Java Sea, in the Seribu Islands District, Jakarta Province, Indonesia. It can be reached by boat from Muara Angke or Mariana Ancol ports. The island is relatively small, at 3.61 square kilometers. It has flat land with some elevated areas and is surrounded by white sand and coral reefs. The vegetation on Pari Island consists of tropical trees, including coconut palms, shrubs, and mangrove forests. The wind is always blowing on Pari Island, feeling hot during the day and cool in the evening.

Figure 1. Pari Island

Pari Island itself is named after the island's shape, which resembles a stingray. The Bintang Beach and Rengge Beach resemble the tips of the stingray's wings, and the pier resembles its tail. This is why locals believe the island is named Pari Island.

Pari Island is renowned for its natural beauty, white sandy beaches, and tranquil atmosphere, making it a popular urban tourist destination close to downtown Jakarta. Pari Island also offers numerous water activities such as snorkeling, diving, and exploring the marine ecosystem. The community relies on tourism and fishing as their primary sources of livelihood.

The architectural form and design theme refer to the architectural metaphor (Youssef, 2016). Its main strength lies in the narrative (Monmi Sarma, 2024). Garden Island was chosen as the theme for this resort hotel, combining entertainment with nature to provide a natural space experience for visitors, focusing on plants, air circulation, and light.

Several principles for each biophilic element were derived through precedent studies of the Alila Seminyak Resort Hotel by architect Gaurang Khemka of UBNarc. This hotel is located in Bali, Indonesia (2015). The Putri Duyung Ancol, located in North Jakarta, and the Hotel Jakarta, by SeARCH Architects, located in Amsterdam, the Netherlands, in 2018.

The author's conclusions from the three precedent studies are as follows. The first precedent study employed a biophilic concept, a building approach to nature, represented by an indoor garden. The use of natural materials and energy-efficient systems can be applied to the design of the Pari Island resort hotel. The placement and site of the building in the second precedent study are very interesting. The site's location is similar to the Pari Island site, allowing the building's form to mimic that of the Pari Island site. The building's shape and circulation within the hotel and resort will make the Pari Island resort hotel a comfortable place to visit. The spatial program implemented in the third precedent study can be applied to the design of this resort hotel on Pari Island, with the placement of private, semi-private, and public spaces appropriate to its scope. With proper boundaries, it will enhance the comfort of vacationers. The private value of a hotel and the public value of a resort complement and reinforce each other.

Based on the author's observations on Pari Island, there are problems, namely a lack of accommodation capacity and inadequate regional planning on Pari Island. Based on the identified problems, the objective of this research is to design a resort hotel with a biophilic approach, taking into account local natural conditions, the influence of biophilic architecture, building regulations, and design. This is expected to address the problem of insufficient accommodation capacity and the lack of tourist area planning on Pari Island.

Methodology

In presenting this research, the author used qualitative methods (Ardhiati, 2018). The researcher collected data by observing the research subjects. The obtained data will then be analyzed by considering the accommodation needs of the research subjects. The research process can be summarized as follows: The first stage involves conducting a comprehensive evaluation of existing literature and formulating a research framework and methodology. The second stage involves searching for related data from several relevant sources. The third stage involves

reconstructing existing data with the collected data. The fourth stage involves analyzing the data by adapting the results obtained.

This research focuses on assessing the need for resort hotels, as influenced by biophilic studies. The research location is on Jalan Pari Utama, Pari Island, Seribu Islands District, Seribu Islands Regency, Jakarta. The research location was chosen because the large number of visitors has not been matched by sufficient accommodation capacity, thus providing a foundation for the construction of a resort hotel in the selected location.

Results and discussion
Location of Pari Island

The location is south of Virgin Beach and west of Rengge Beach. On the west side, the main road to Pari Island passes, providing access to Pari Island, accessible by motorbike and bicycle. The site is abundant with wild plants and fields managed by women from the Family Welfare Movement (PKK). The area is not flooded during the rainy season.

In selecting the location, the authors had several criteria for selecting a location for the resort hotel design (Ibrahim & Tatura, 2024).

These are: (a) Land conditions, which will be used for the design area. These conditions include soil conditions, land contours, and the soil's bearing capacity for the proposed design. (b) and Use: Buildings must comply with the applicable RTRW regulations in the area, ensuring that the land function and design type are appropriate. (c) Site potential in the surrounding area, such as views, tourist attractions, or infrastructure that can add value to the site. (d) Accessibility: the ease or difficulty of accessing the site for visitors. Factors influencing accessibility include roads, transportation, and the location's distance from existing public transportation. (e) Facilities and infrastructure, such as clean water utilities, waste disposal utilities, and electricity utilities. These facilities and infrastructure can support the design.

Potential of the Site and its Surroundings

The site location was chosen because it offers several advantages, including:(a) It is close to popular tourist attractions such as Pasir Perawan Beach and Rengge Beach. (b) Easy road access from the port through residential areas. (c) It offers two ocean views, one to the north and one to the south. (d) It has a flat contour, making construction relatively easy. (e) Several public facilities and utilities, such as bicycle rentals, electricity, and clean water, are already located near the site.

Problems with the Site and its Surrounding Area

The site location was chosen because it faces several problems, including: (a) Due to its proximity to the beach, noise from the beach can disrupt activities on the site. (b) The location is far from the port, requiring public transportation or bicycles. (c) The sandy soil prevents all plants from growing on the site. (d) There is a lot of seaweed along the beach, which requires frequent cleaning.

(Macro and Micro) Design Analysis

Pari Island is an island located in the Java Sea in the Thousand Islands District, Jakarta Province, Indonesia. This island has a relatively small area of 3.5 km^2. It has a flat land with some higher areas and is surrounded by white sand and coral reefs. The vegetation on Pari Island is tropical trees, namely coconut trees, shrubs and mangrove forests. The location is on Jl. Pari Utama, Pari Island, Seribu Islands District, Seribu Islands Administrative Regency, Jakarta. It has an area of 36,120 m2 or 3.61 Ha. The location is close to the Pari Island crossing pier, 500 m from the location to the pier.
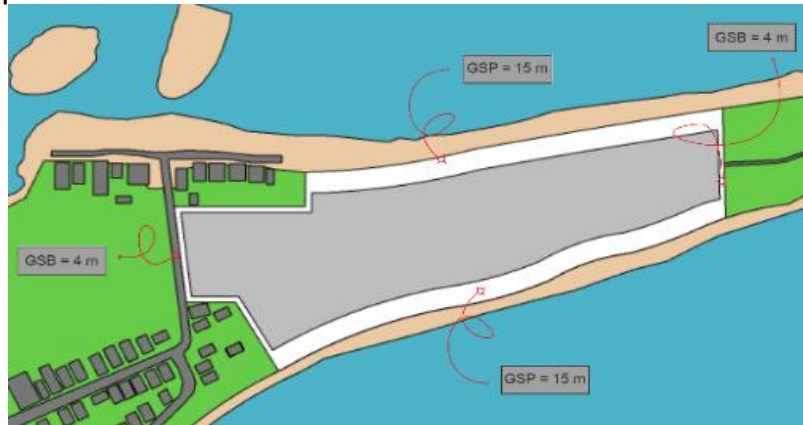
Figure 2. Site location

Luas Tapak	36.120 m^2	RTH	$= 30 \% \times 36.120$ m^2 $= 10.836$ m^2
Peruntukan Lahan	Hotel & Resort	KDB	$= 30 \% \times 36.120$ m^2 $= 10.836$ m^2
		KLB	$= 1,2 \times 10.836$ m^2 $= 13.003,2$ m^2
Ketinggian Bangunan	3 Lantai	KDH	$= (36.120 - 10.836) \times 20\%$ $= 5.056,8$ m^2
Lebar Jalan	Jl. Utama Pulau Pari : 8 m	GSB	$= 1/2 \times$ Lebar Jalan $= 1/2 \times 8$ $= 4$ m
Batas Jalan	Utara : Pantai Pasir Perawan Selatan : Pantai Pasir Timur : Pantai Rengge Barat : Jl. Utama Pulau Pari	GSP	15 Meter dari Pasang tertinggi air laut (Sumber : Peraturan Gubernur DKI Jakarta Nomor 20 tahun 2024)

Table 1. RTRW regulations

The sun's rays are not too strong in the morning and afternoon, but they become hot during the day. Winds blowing from the north and south are hot, while those from the east and west are cool. Noise from the tourist and residential areas can disturb the area, while the sound of the waves adds to the natural feel of the site. The best views are to the north and south of the site, so the building will face north and south.

Site Intensity and Concept

The Resort Hotel building was constructed taking into account the Road Equivalent Line (GSJ), the Coastal Equivalent Line (GSP), and accommodation needs. The Resort Hotel building was constructed on vacant land designated as a tourism area. The Resort Hotel design allows for reforestation of the island by planting plants around the building and transforming the area from a grassland into buildings and gardens that can be used by visitors.

Figure 3. Location before planning

In designing the hotel resort, the approach taken is a biophilic approach. This approach focuses on bringing nature into the room. In designing the hotel resort area, there are several forms of nature that are used as ideas in designing the hotel resort area of Pulau Pari.

Using organic patterns to design the garden and swimming pool creates a natural feel, adds a unique touch, and brings harmony to the surrounding environment.

Figure 4. Building mass

The building mass concept consists of several buildings less than four stories tall. It is divided into three sections: commercial and hotel resorts, restaurants, and supporting buildings. The building massing is adjusted to meet visitor needs.

Circulation within the site is accessible by bicycle and public transportation. The site has one two-lane road and a town square to facilitate vehicle circulation. In addition to the road, a pedestrian path surrounds the entire area, accessible on foot.

Building Concept

Garden Island Hotel Resort is a resort hotel theme that combines a hotel with a resort, combining entertainment and nature. This resort hotel provides a natural space experience for visitors. The Garden Island design focuses on bringing nature closer to the building's users, emphasizing plants, air circulation, and light.

Massing Analysis

The application of the idea of form refers to architectural metaphor (Youssef, 2016). Metaphoric architectural design can evoke emotion, enhance communication by conveying complex ideas through a single symbol, and create more memorable and meaningful spaces for occupants. It uses an analogy to relate one object or concept to another, allowing for abstract ways of thinking about design and creating a strong narrative or identity for a building. An emotional and imaginative impact was found by accommodating the metaphor. It can activate the imagination, conveying emotions and impressions to evoke a stronger, more memorable experience for the user (Faraj & Shaban, 2025).

The design was implemented using a marine animal, the multi-legged octopus. The idea of octopus legs was chosen because of its unique and dynamic shape, known for its high suction power. To maximize the space's usefulness, the tentacles were transformed into rectangular shapes. The lower tentacles above them provide a balcony space.

The idea for the starfish shape was taken from a breeding ground around the island. The star shape is stretched to create volume within it. The ends are curved, while the bottom is pulled upwards, creating a hollow space underneath.
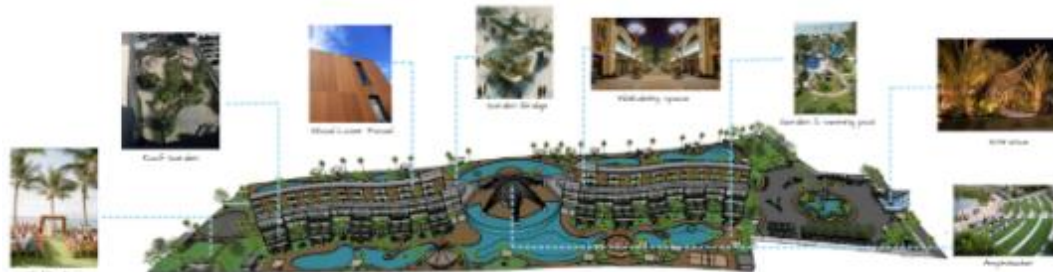
Figure 5. Architectural concept
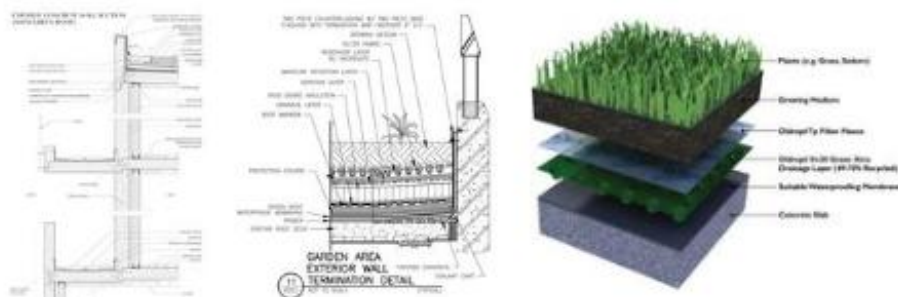
Figure 6. Roof structure
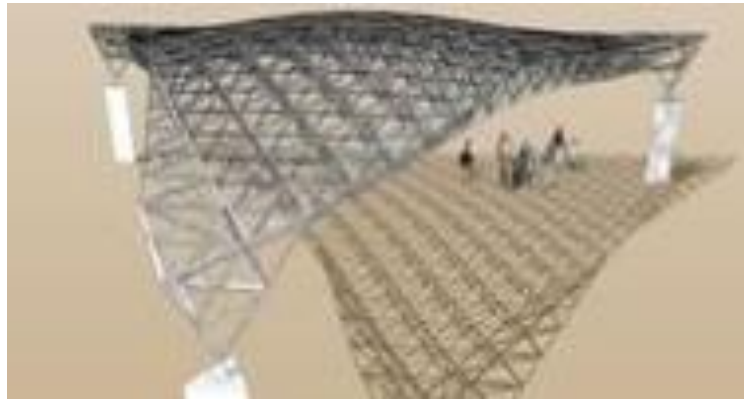
Figure 7. Semi-outdoor roof structure

The roof structure uses a space frame with an Aluminum Composite Panel roof covering. The space frame structure is supported by columns at each corner.
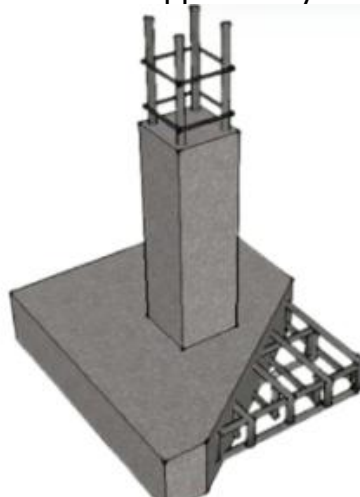
Figure 8. Substructure

The footplate foundation was chosen because it is easy to construct, the building is not high, and the building is not located in a swamp.

Figure 9. Bridge structure

The bridge structure is made with a glass roof using concrete supports.

Figure 10. Amphitheater frame structure

The amphitheater structure uses a stepped system to maximize the stairwell area for several functions, such as a conversation area and a garden for green space around the building.

Buildings use reinforced concrete column and beam structures because they are easier to construct and less expensive.

The building's clean water utilities come from PDAM water, which is pumped into the building's rooftop storage tank and distributed throughout the building. Hot water is first distributed to the water heater.

Wastewater utilities will flow to a control tank, after which it will flow to a holding channel, which will treat the wastewater. Once the wastewater meets the requirements for discharge, the treated water will be discharged into the sea. Wastewater utilities will flow to a septic tank. The septic tank has a catchment area with a filter so that the wastewater does not flow into the ground, potentially contaminating clean water sources. After reaching the septic tank, the wastewater will be further treated in a wastewater treatment system that filters the wastewater, so that the treated water can be discharged into the sea.

To save on air conditioning costs, a split AC system will be used. Resort hotels aren't always occupied by guests every day, so using a split AC unit can save energy when some rooms are unoccupied.

Swimming pool water installations must include filters and clean water and wastewater drainage channels. A dedicated maintenance area must be provided for all pool filters.

Space Program

Figure 11. Space requirements
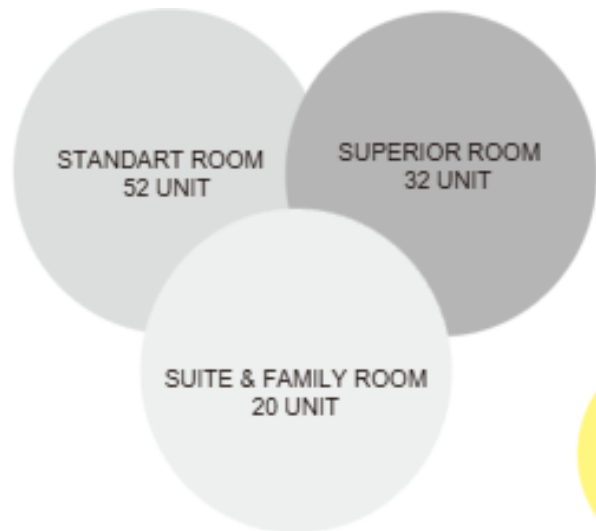
Figure 12. Guest room requirements
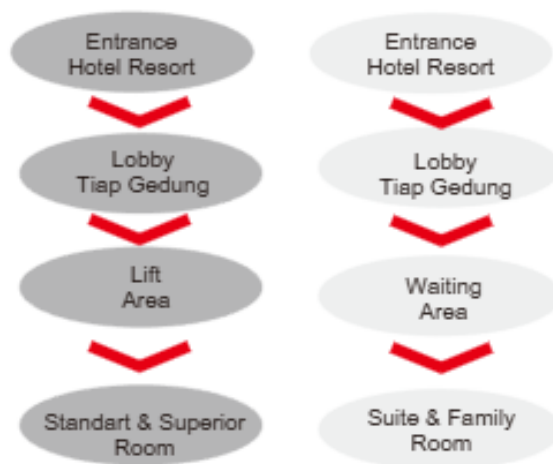
Figure 13. Guest room accessibility
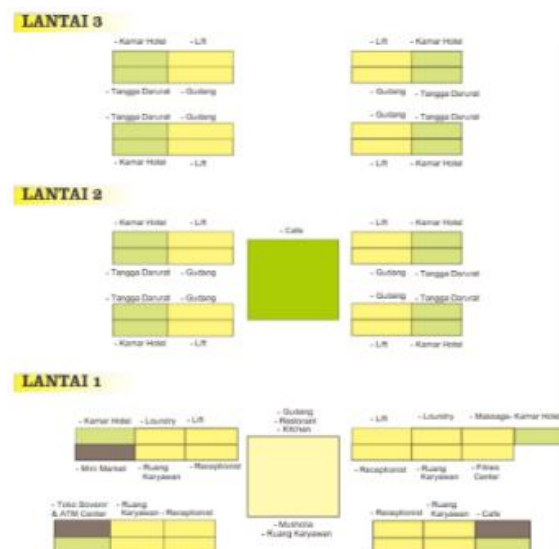
Figure 14. Building space division

Design Drawing
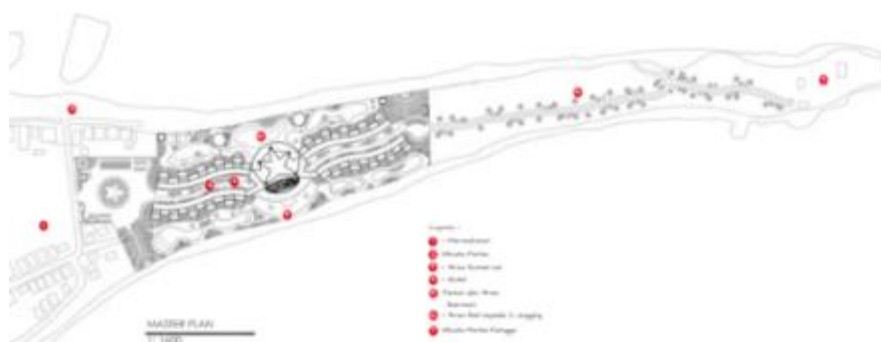
Figure 15. Master plan of Pari Island Resort Hotel

Figure 16. Site plan of Pari Island Resort Hotel

Figure 17. Building View
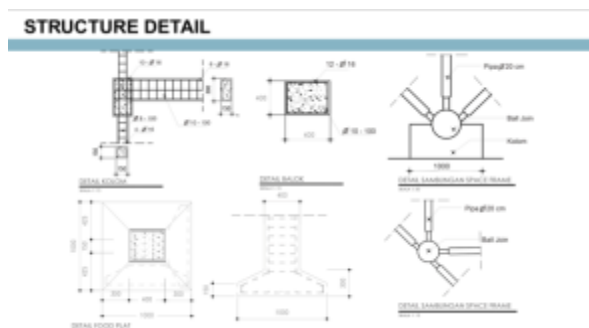
Figure 18. Structural details
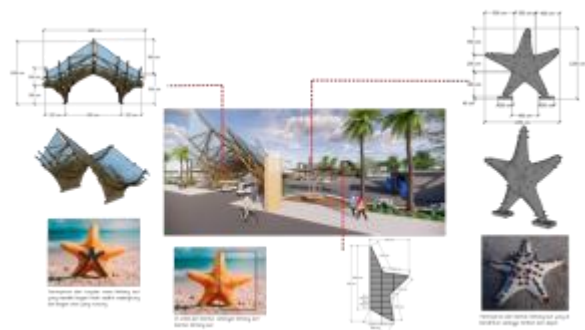
Figure 19. Architectural details

Figure 20. Exterior perspective
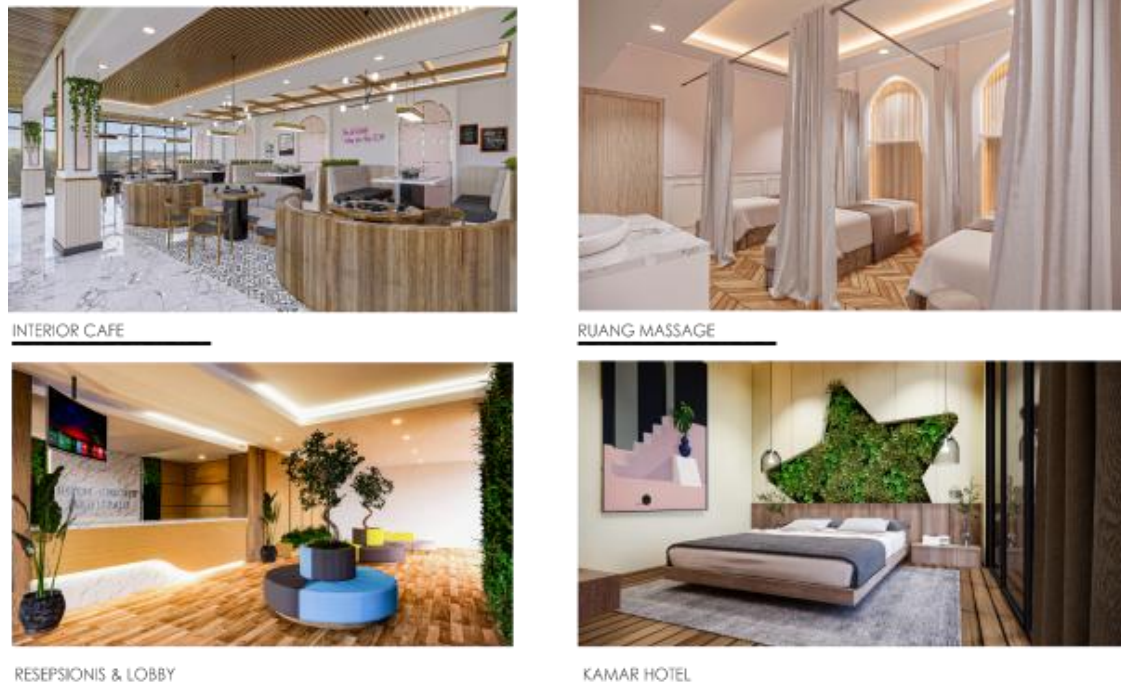
Figure 21. Interior perspective

Conclusion

This study designed a resort hotel on Pari Island using a biophilic approach by incorporating biophilic elements into the architectural design. The biophilic approach was used to create a harmonious atmosphere with the Pari Island environment. Natural elements included lighting, vegetation, and air conditioning, which were utilized to support tourist comfort. Biophilic design not only considers the building's function as a lodging facility but also strengthens the relationship between humans and nature, appropriate to the location and climate of Pari Island. The resulting biophilic design elements can add green open spaces between private and public spaces and enhance visual and functional connections with nature, enhancing the visitor experience by providing a unique experience that supports environmental awareness. The biophilic approach also impacts tourism and sustainable design on Pari Island by increasing tourist appeal, extending tourist stays, preserving the environment, raising awareness of the importance of environmental protection, and enhancing the value of tourism on Pari Island.

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Origami Architecture of an Office Tower in Mega Kuningan, Jakarta

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Abstract: Mega Kuningan, as a business district, has a vision for the future. Applying Postmodern Architecture theory to one of its styles is one option. This design study aims to redefine conventional office buildings, offering forward-thinking solutions that meet the evolving needs of modern businesses. A growing economy is creating more workers renting offices in high-rise buildings through innovative workplaces. By exploring new design approaches, we propose a building facade inspired by folded architectural origami.

Introduction

The competitive business climate in Indonesia improved in 2021. This was recorded in the 2021 annual report of the Business Competition Supervisory Commission (KPPU), published on its official website. Data for 2021 was available as of April 2022. This year's IPU score is also approaching the National Target set in the 2024 Medium-Term Development Plan, namely a Business Competition Perception Index of 5.0 points. According to the KPPU, high business competition will indirectly boost labor productivity and, at the same time, drive higher wages (Databooks, 2024).

Based on Government Regulation No. 24 of 2022 concerning the Implementing Regulations of Law No. 24 of 2019 concerning the Creative Economy, the creative economy makes a significant economic contribution to gross domestic product, employment, and exports. Data from the Ministry of Tourism and Creative Economy (Kemenparekraf) from 2013 recorded that the creative economy quantitatively contributed 7.05% to gross domestic product (equivalent to IDR 641.8 trillion), 7.8% to the number of businesses, and 6.8% to employment opportunities. (Government Regulation No. 24, 2022).

Changing fashion trends stem from the increasing prevalence of idealism in social life. For example, the term "work-life balance" is frequently heard today. A survey of over 9,000 British workers showed that 65% of job seekers prioritize work-life balance over salary and benefits. A similar trend is observed in the US: of 4,000 respondents to the 2022 Flex Jobs Career Survey, 63% said they would choose balance over a higher salary (BBC Work life, 2025). This term was coined and adopted as an ideal standard for human life. This idealism is certainly different from the past, when people faced more serious situations, and their mindsets and perspectives on life changed. This is especially true in office architectural design, as

revealed by the correlation between functional requirements and architectural design processes and programs (Nurwasih, 2017).

According to Marlina's explanation, a rental office is a building that accommodates business transactions and services professionally, that a rental office is an office facility grouped in one building that is rented as a response to the rapid economic growth, especially in big cities (development of industry, building/construction, trade, banking, etc.) (Marlina, 2008).

In office property products, several factors are key to success in reaching the target market. These factors are (Marlina, 2008): 1. Space flexibility, 2. Occupancy rate, 3. Rental price, 4. Service charge, and 5. Image.

Like other commercial buildings, the design of rental office buildings takes efficiency and effectiveness into account. These two aspects will impact several things, including: 1) Efficient design in terms of financing. 2) Efficient spatial planning, meaning maximizing profitable rental space; a minimum of 60% of the total area must be rentable. 3) Effectiveness, meaning the building design must be appropriate to the function it accommodates, minimizing non-functional spaces. 4) Spatial planning, circulation routes, and service facilities must be equitable to meet the needs of all tenants.

The complexity of the functions and activities within a spatial program. Next, it will be determined whether the building has a single mass or a complex mass. The placement of a building indicates the status level of its function, as well as the activities that occur within it. To determine the placement of functional groups according to their hierarchical status and requirements, it is necessary to classify the activities within those functions. This classification is adjusted according to the status level of the activity actors, both in number and type (Laksito, 2014). To plan the correlation of functions outlined in the programming, architects must consider the type of data, how it is needed, and in what format it should be presented. Data compilation is essential to obtain the most useful information. Architects must choose an approach to data collection based on the above considerations, sketching an outline and summarizing the data for analysis purposes.

Based on organization, rental offices are divided into several categories: 1. Commercial offices, such as offices used for trade and insurance. 2. Industrial offices, which are connected to factories. 3. Professional offices, which are used only for a specific period of time. 4. Institutional offices, which are used for long-term purposes (Mukhtar & Dwiyanto, 2024).

The theme and concept serve as the overall design ideas that guide the entire process from start to finish. They provide insights into how the design will be executed and how it is intended, ensuring that the entire design process adheres to the established theme and concept. Many innovative ideas have been implemented in the world of architecture, inspiring examples to consider.

Precedent studies were conducted on several international buildings below.

IAC Head quaters	Nakagin Capsule Tower	Google Bay View, California
Location: New York, USA Area: 4.56 hectares Architect: Frank Gehry Theme: White Sail Deconstructive	Location: Tokyo, Japan Size: 3,091 m² Architect: Kisho Kurokawa Theme: Metabolist Architecture	Location: California, USA Size: 4.56 hectares Architect: BIG Theme: Green Adaptive
The façade uses frits, ceramic dots applied to the glass. The pattern of dots is dense near the top and bottom of each panel and transparent in the middle—at eye level—framing the cityscape with blurred edges. It serves to reflect light and glare.	The Nakagin Capsule Tower is Kisho Kurakawa's attempt to address the temporary nature of buildings by designing them to be adaptable to different situations, with a modular system. The purpose of this building can be seen from the interior of the capsule, which is compact yet innovative.	Google Campus Bay is a creative office building with a biophilic approach. Its open concept blends with its surroundings, including nature and social interaction within and outside the building.

Table 1. Identification of technical regulation site area

Aspect	Description
Zone	K
Subzone	K-1
Sub-district	East Kuningan
City	South Jakarta
Land Area	15,886 m2
KDB 55%	8,737 m2
KDH 20%	3,177 m2
KLB	6.84

Methodology

Baris Pendet dance can be analyzed through various theoretical approaches This design method is based on qualitative methods to obtain data related to the design of rental offices in Mega Kuningan, South Jakarta, referring to Ardhiati (2017). This study consists of four stages: data collection, analysis, concept, and design.

Results and discussion

Design Location

The selected design location is in Mega Kuningan on Jalan Dr. Ide Anak Agung Gede Agung, RT.1/RW.2, Kuningan, East Kuningan, Setia Budi District, South Jakarta. This location is a well-known business zone and is highly strategic for office development. The area is included in the "Golden Triangle," which represents 28 major business, financial, and diplomatic areas in this area, which also serves as the city center of Jakarta.

Site Area Identification
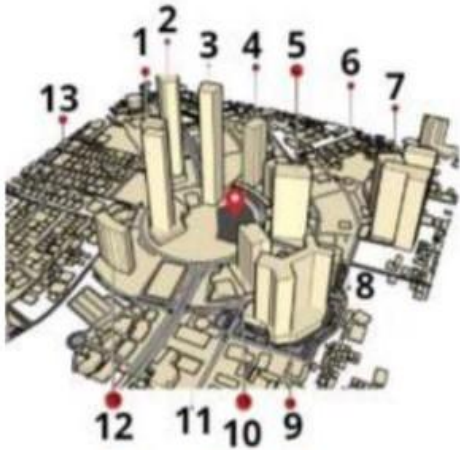
Located on the Mega Kuningan Ring Road with Jalan Dr. Ide Anak Agung Gede Agung in the front center of the site. One-way traffic (yellow arrow) is used on the Mega Kuningan Ring Road and Jalan Dr. Ide Anak Agung Gede. Two-way traffic (black arrow) is used on Jalan West Mega Kuningan. Each road has a pedestrian walkway. Congestion occurs during commuter hours (1), (2), (3), and (4) (6:00 AM – 8:00 AM) and commuter hours (5:00 PM – 7:00 PM), as the site is located in an office district.

The site's location, which has several alternative access roads, provides a relatively mild traffic jam during peak hours, allowing for continued traffic flow.
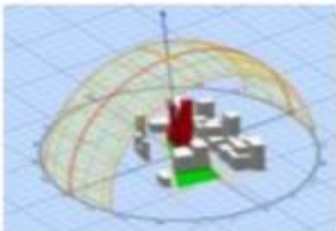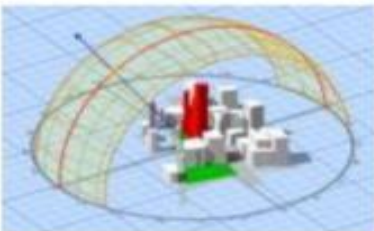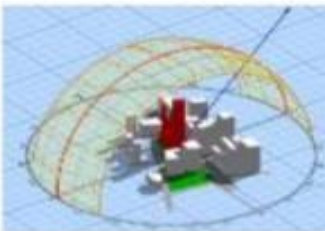
1.View Data

Data
Design response
The site faces one side of the road in front of it, namely the Mega Kuningan Ring Road and Jalan Dr. Ide Anak Agung Gede Agung. The building's focal point is located in the center, creating an attractive image. The center is a strategic viewpoint, directly overlooking the two-way road, namely Jalan Dr. Ide Anak Agung Gede Agung and the Mega Kuningan Ring Road.

2. Site Data

Data	
Gambar 4.15 Analisis Site 1	Legend: 1. The Ritz-Carlton (Hotel) 2. World Capital Tower (Office) 3. PT. AISIN ASIA (Office) 4. NET (Office) 5. Noble House (Office) 6. Culinary 7. Dea Tower (Office) 8. Loewe (Restaurant) 9. Bellagio Boutique (Mall) 10. VOffice Tower (Office) 11. Shopping 12. JW Marriott 13. Trade Services
The site is located in a central office area with a bustling business district in Jakarta. The site is surrounded by modern high-rise buildings, with trees separating the buildings and helping to freshen the air.	
Design response	
The influence of environmental values on buildings designed from the view and adaptation of the building's character to the environment: 1. The character of the surrounding area's buildings fulfills the balance of design with the environment, so the elements of modern building style based on the style of buildings around the area are used as a reference. 2. Site Management: The exterior area of the building requires a design that becomes the attraction of the office for the surrounding environment and also adds to the beauty of the road can be done. 3. Façade Processing: As an effort to attract the building, façade processing is one of the main factors. With the modern style of the surrounding buildings, this style element becomes one of the references in the design.	

3. Sun path orientation

Data

(1) Jam 08.50   (2) Jam 12.00   (3) Jam 14.00

Sumber gambar : Andrewmarsh-openstreetmap, 2023

High-intensity sunlight exposure occurs on the east side (7:00 AM - 12:00 PM) and the west side (12:00 PM - 5:00 PM). The site is oriented north and south. The average temperature is 30°C.

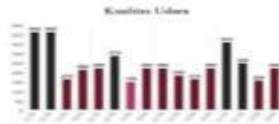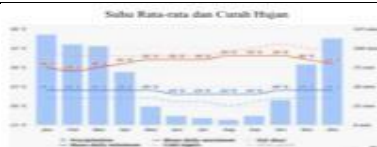| Design response |
|---|
|
Sumber gambar : Marsha Dzakira Fauzi, 2023 diolah berdasarkan google maps |
| 1. According to SNI-14-1993-03, the optimal cool to comfortable temperature ranges from 20.8 to 25.8 degrees Celsius, a solution is needed to reduce the heat radiation to achieve an optimal cool and comfortable room: 1. Double Façade Technology Excessive use of AC will have a negative impact by causing a greenhouse effect, the use of façade technology can reduce the outside temperature by 4% and reduce energy emissions.
2. Selecting Solar Gard/Thermal Glass is one way solar radiation enters, so reducing solar radiation should begin with selecting the type of glass. Using Solar Gard and thermal energy storage has long-term benefits in buildings. |

Wind and Climate
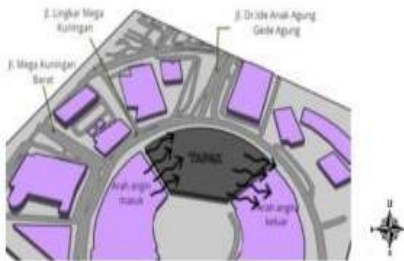
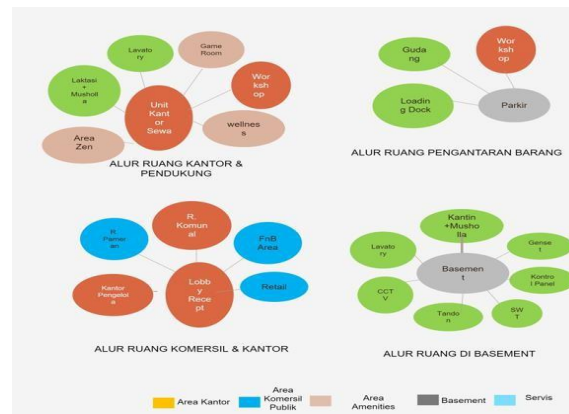| Data	
 Gambar 4.18 Analisis Angin Sumber Gambar : Marsha Dzakira Fauzi, 2023 diolah berdasarkan google maps	
According to Ventusky's research, in 2023, the strongest wind direction on Jalan Lingkar Mega Kuningan was from Southwest to East, with a wind speed of 3 mm at an altitude of 10 m above the ground, a wind gust of 7 mph, and an air pressure of 29.8 Hg.	According to Ventusky, the 2023 climate in Mega Kuningan was 40% humidity, a high temperature of +30°C, a thunderstorm intensity of 300 J/kg, and an air quality score of 119 on the Air Quality Index (AQI), which is considered unhealthy for sensitive groups.
Design response	
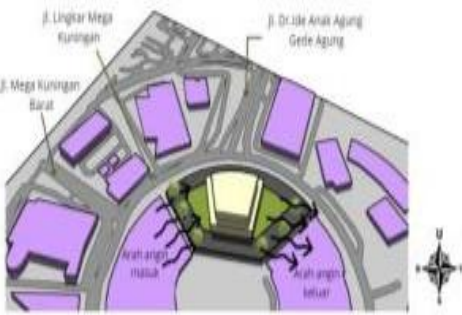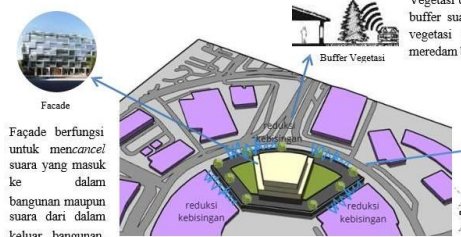
Gambar 4.18 Analisis Angin
Sumber Gambar : Marsha Dzakira Fauzi, 2023 diolah berdasarkan google maps

Based on the analysis, the strongest wind direction is from the southwest to the east side of the site. Therefore, vegetation can be placed to break up the wind direction, ensuring even circulation and reducing the force of gusts directed into the site. Having different building heights is beneficial for avoiding turbulence caused by strong winds.

Jakarta, as a tropical climate with hot temperatures and high rainfall, requires shading to protect buildings from solar radiation and rainfall. Wide overhangs prevent rain splashes on buildings and protect them from direct sunlight. The layout of a building will determine the indoor temperature.

Installing windows directly facing the East and West, which are high-intensity, will result in heat entering the room, so the room temperature will depend on the direction of the facade. Using vegetation will act as natural shading and regulate air humidity

Noise

Data
Located in the Mega Kuningan commercial area, the strongest noise (red) on the site comes from road activity with vehicle noise, namely on Mega Kuningan Ring Road, West Mega Kuningan Road, and Dr. Ide Anak Agung Gede Agung Road. While moderate noise (blue) comes from neighboring buildings, namely PT. Aisin and the Ritz-Carlton.
Design response

Gambar 4.20 Analisis Kebisingan
Sumber Gambar : Marsha Dzakira Fauzi, 2023

Memory of 'Paper Material' as a Conceptual Idea for Form

This building's theme refers to one of Charles Jencks' 13 theories on postmodern architecture (Jenck, 1985). The use of 'paper material,' known as a functional material, correlates with the function of offices in the past, now replaced by digital devices, and is presented as a 'memory of paper.' Paper's functionality and its closeness to symbols are closely interconnected. Paper is smooth and flexible yet firm, lightweight, simple, and sustainable, and possesses strength when folded. Architectural theories that take advantage of the properties of paper folding have become popular (Torondek et al., 2017). The design, named the Paper Tower, aims to create a harmonious blend between the office workspace/office spirit and urban architecture. Because the design of tall buildings will impact the city's aesthetics (Karimimoshaver & Winkemann, 2018), careful planning is required.
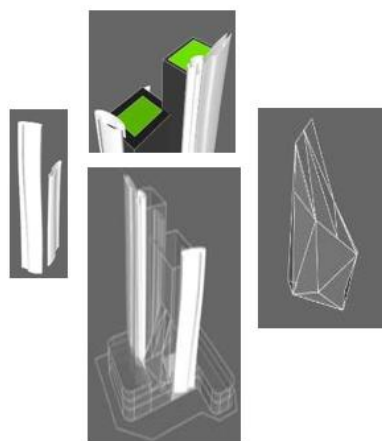
The basic idea behind the design of "paper architecture"

The design of the Paper Tower required knowledge of tall building structures (Larsen, 2016), as a bridge between architects and engineers.

High-Rise Building Structure Concept

In addition to referring to the CTBUH (2025) standard regulations, in practice, tall building designs are required to comply with several safety standards, including: (a) National Standardization Agency of Indonesia. Structural Concrete Requirements for Buildings and Commentary, (b) Nugroho, Sagara, and Imran, 2023), (c) Sucipto and Sucipto, 2023, (d) Worku and Hsiao, 2021), (e) FEMA 440, 2023.

The building is a multi-story structure with a fairly heavy load, so bored pile foundations are used to support the load and strengthen the building's foundation structure. The pile depth and length will be adjusted based on the soil hardness level determined by the soil test.

Reinforced concrete structures use a mixture of concrete and steel reinforcement. The advantages of reinforced concrete structures include fire and water resistance, structural strength, low maintenance costs, high durability, and cost-effective materials.

Utility Concept

Heating, Ventilation, and Air Conditioning (HVAC) system installations are commonly used in office buildings. HVAC systems effectively regulate temperature and air circulation in large office areas, providing three main functions: heating, ventilation, and cooling (SNI 8153, 2015).

The electrical system in commercial multi-story buildings is divided into two sources: the main electricity source from PLN (State Electricity Company) and a backup power source from a generator. The components of the building's electrical system are as follows.
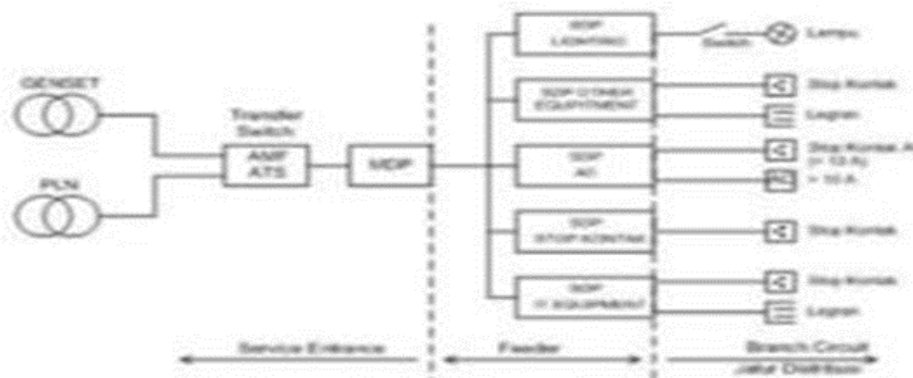

Plumbing

The plumbing system serves to distribute clean water and provide a drainage channel for wastewater to designated locations, preventing environmental pollution.

The Water Treatment Plant (WTP) clean water supply system sources water from wells (Deep Wells) and the Regional Drinking Water Company (PDAM). Water pumped from the well is collected in a raw water tank and processed through the WTP. Once clean, the water is collected back into the clean water tank, along with the PDAM. The collected water is then distributed to the parts of the building that need it. 61 b. Waste Water Supply System Wastewater from toilets and kitchens is generally collected in separate locations. Wastewater must first go through a filtration process to remove impurities. Next, the wastewater is processed again in the Sewage Water Treatment (SWP) before being discharged into the city drains.
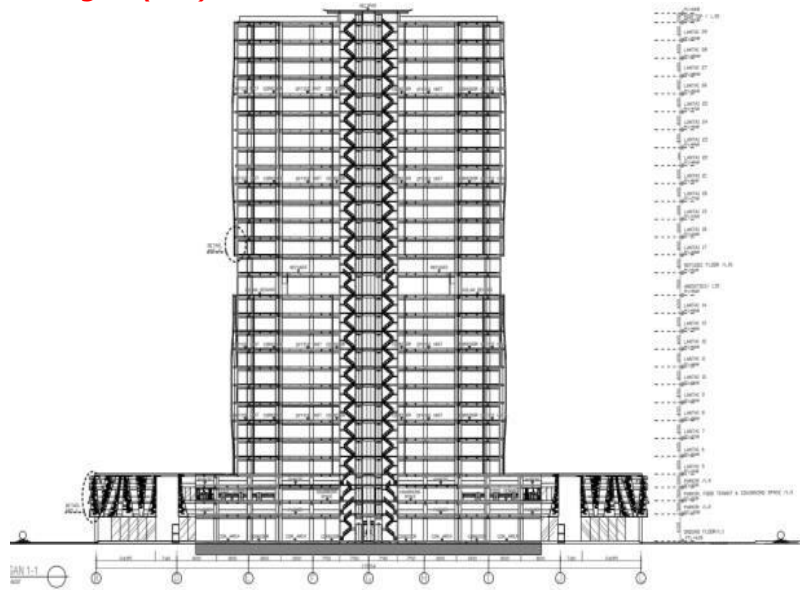
Plan Pictures
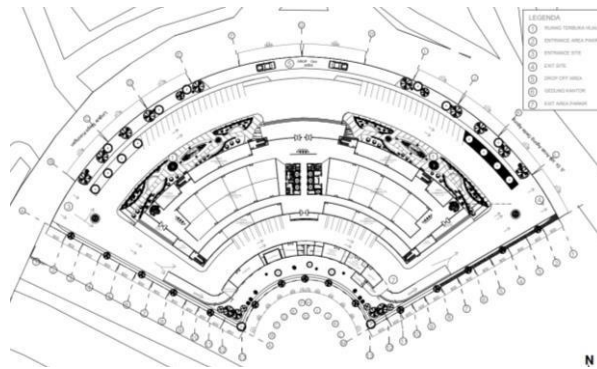
Block Plan Image
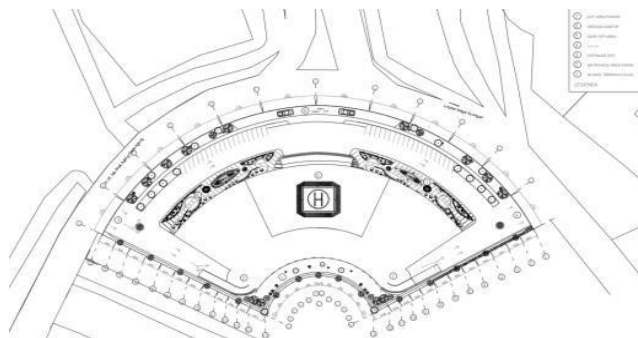
Siteplan Image

One of the Cut Images (1-1)

Conclusion

Like other commercial buildings, the design of rental office buildings takes efficiency and effectiveness into account.

The growing economy is creating more workers renting offices in high-rise buildings through innovative workplaces. By exploring new design approaches, a building facade inspired by folded architectural origami has been proposed.

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