

Digital Transformation of Balian Tradition Among The Dayak Siang Community: A Phenomenological Analysis with an Artificial Intelligence Approach

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ABSTRACT

The Balian tradition represents a significant local wisdom within the Dayak Siang community in Puruk Cahu, Central Kalimantan. This tradition embodies deep-rooted spiritual and social values that have been integral to the local community's life. However, the existence of the Balian tradition is currently threatened by the increasingly rapid flow of modernity. This research aims to explore the potential utilization of Artificial Intelligence (AI) technology as a strategy for preserving the Balian tradition through digital transformation. Using qualitative methods and a phenomenological approach, data were collected through in-depth interviews and participatory observation. Informants in this study included Damang (Traditional Leaders), community leaders, church figures, academics, and young people concerned with preserving local culture. The results show that the Balian tradition contains rich philosophical values reflecting inter-subjective relationships, compassion, and strong mutual cooperation within the Dayak Siang community. This practice is also believed to connect humans, nature, and the spirit world. AI technology has the potential to document, analyze, educate, and disseminate information about local cultural heritage efficiently and affordably, thereby contributing to maintaining the existence of the Balian tradition amid modernization.

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1. Introduction

The advancement of technology, particularly in the field of Artificial Intelligence, has progressed rapidly in recent decades. Artificial Intelligence has made significant impacts in various aspects of human life: social life, religion, healthcare, education, business, and lifestyle. However, amid this technological progress, there are also concerns that technology in the field of Artificial Intelligence may increasingly distance humans from cultural values and local wisdom that have been deeply embedded in traditional societies (Bostrom, 2014).

Local wisdom is one of the means of processing culture and defending against unfavorable foreign cultures. Local wisdom is a way of life and knowledge, as well as various life strategies manifested in activities carried out by local communities in addressing various problems in fulfilling their needs. In foreign languages, it is often conceptualized as local policy, "local wisdom" or local knowledge, or local genius (Fajarini, 2014:123).

(Rahyono, 2009) defines local wisdom as human intelligence in social interactions to preserve cultural values in creating a harmonious society, possessed by certain ethnic groups and obtained through community experiences. This means that local wisdom is the result of a particular community's work through their experiences that may not necessarily be experienced by other

communities. Local wisdom can also be interpreted as local cultural values that can be used to regulate community life wisely or judiciously.

The practice of local wisdom, such as traditional ceremonies and religious rituals, is generally carried out in Rumah Betang, which is the traditional ancestral house of the Dayak tribe. Rumah Betang serves as a venue for various traditional ceremonies and religious rituals, including Balian practices. Since Rumah Betang is the center of the Dayak community's social and spiritual life, many healing rituals, spirit summoning, and other ceremonies are conducted there. In this context, the Balian leads rituals involving traditional leaders, which usually take place in the main hall or specific sections of Rumah Betang (Munauwar, 2018).

Rumah Betang also serves as a communal dwelling and contains dedicated spaces for Balian practitioners to perform traditional healing practices. Balian practitioners utilize natural materials harvested from surrounding forests and process them into medicinal concoctions used to treat various ailments. These processes are often accompanied by prayers and incantations performed within Rumah Betang, establishing it as a center for traditional healing practices.

Furthermore, Rumah Betang functions as a venue where local wisdom, including knowledge of Balian practices, is taught and transmitted to younger generations. Through the ceremonies and rituals held in Rumah Betang, Dayak cultural values and traditions are preserved and inherited, thereby maintaining the continuity of the Dayak cultural identity.

The Rumah Betang functions not only as a physical space for Balian practices but also as a symbol of Dayak cultural identity and preservation. Through various activities conducted in the Rumah Betang, including Balian practices, the traditions and local wisdom of the Dayak community remain alive and relevant amid the challenges of modernization. Thus, the Rumah Betang plays a crucial role in the context of Balian practices, as it is where many aspects of the Dayak spiritual and social life take place (Nursam, 2013).

The local wisdom of Balian within the context of the Dayak Siang community in Central Kalimantan holds significant meaning and functions in their spiritual and social life. Similar to the Balinese culture, the term "Balian" among the Dayak people also refers to figures who serve as traditional healers or shamans, but with distinctive contexts and practices aligned with the Dayak beliefs and customs.

The Balian practice among the Dayak Siang tribe is performed by traditional leaders or the Damang who possess the ability to communicate with ancestral spirits, deities, and natural forces. They play vital roles in healing illnesses, conducting traditional ceremonies, and maintaining balance between the human world and the supernatural realm. The Balian tradition is practiced through the recitation of specific incantations and prayers (field research data through interviews, 2024).

The Balian practices within the Dayak Siang community involve various rituals aimed at healing illnesses, protecting against the malevolent spirits, or seeking fortune. One of the prominent rituals is Tiwah, a death ceremony intended to guide the spirits of the deceased to their final resting place in the spiritual realm. In this ceremony, the Balian practitioner serves as the ritual leader who bridges the human world with the supernatural domain.

The Balian practice also includes traditional healing methods utilizing herbal remedies harvested from the natural surroundings, along with sacred incantations believed to cure both physical and spiritual ailments. The local wisdom embedded within the Balian practices reflects the Dayak Siang community's profound understanding of nature, health, and spirituality.

The Balian practices face challenges from modernization and social change. However, the Dayak Siang community continues to preserve this tradition as an integral part of their cultural identity. Furthermore, there are ongoing efforts to document and promote this local wisdom to ensure its broader recognition and preservation for future generations. These Balian practices are generally conducted within the Rumah Betang.

The Dayak Siang tribe, one of the indigenous peoples of Central Kalimantan, possesses a rich cultural heritage and local wisdom that has existed for centuries. One of the most significant cultural legacies for the Dayak Siang community is their traditional healing practice known as "Balian". The

Balian represents a healing practice that combines knowledge of nature, spirituality, and local wisdom in addressing various diseases and health concerns.

With the increasingly sophisticated advancements in Artificial Intelligence (AI) technology, there are significant opportunities to integrate the local wisdom of Balian with technological progress. This integration can be achieved by developing AI systems based on Balian knowledge and practices through technological media, thereby bridging the gap between technological advancement and indigenous wisdom. These AI systems will not only help preserve the cultural heritage of the Dayak Siang tribe but also provide innovative solutions in healthcare and medicine by utilizing local wisdom that has been tested over centuries.

Palangkaraya is the capital city of Central Kalimantan province in Indonesia. The city possesses a rich cultural diversity and spiritual traditions, particularly from the Dayak ethnic group, which constitutes the majority population in the region. The local spiritual traditions in Palangkaraya are deeply interconnected with nature, forests, rivers, and the community's daily life. These cultural values and traditions form an essential part of the local community's identity.

With the advancing emergence of Artificial Intelligence (AI) technology, local spiritual traditions may face sustainability challenges. AI systems are often based on universal principles without considering unique local contexts. This approach may lead to the neglect or disregard of local wisdom and cultural values present in Palangkaraya. Therefore, it is crucial to bridge the gap between technological advancement and local spiritual traditions by developing AI systems based on indigenous wisdom that can effectively incorporate the context and cultural values of the local community.

1.1 Artificial Intelligence (AI)

Artificial Intelligence (AI) is a rapidly evolving field in technology and computing. This field encompasses the development of computer systems capable of performing tasks that typically require human cognition, such as facial recognition, speech recognition, language translation, and decision-making. This section presents a literature review summary of artificial intelligence and relevant recent research.

The literature review on artificial intelligence begins by introducing the fundamental concepts of AI. The field encompasses various techniques such as machine learning, deep learning, fuzzy logic, and artificial neural networks. Recent research has demonstrated significant advances in utilizing these techniques to enhance AI capabilities. One of the primary domains in AI is pattern recognition and image processing. Current research has successfully developed pattern recognition algorithms capable of identifying objects, faces, and even human emotions in images and videos. These developments have broad applications in security, automated facial recognition, and healthcare.

Additionally, the development of text-based intelligent systems has emerged as a primary focus in AI research. Natural Language Processing (NLP) techniques have enabled the development of more sophisticated chatbots, virtual assistants, and automated translation systems. Contemporary research has substantially expanded AI's understanding of complex language contexts and content.

Furthermore, current research has explored the application of AI in healthcare. Advanced AI technologies are being utilized to analyze medical data, diagnose diseases, and predict treatment outcomes. Deep learning techniques and machine learning algorithms have demonstrated promising results in improving the accuracy of medical diagnoses and treatment protocols.

Moreover, AI has been implemented across various sectors including finance, transportation, manufacturing, and customer service. The application of AI in recommendation systems, market prediction, supply chain management, and process optimization has led to significant efficiency improvements and performance enhancements.

Recent research also highlights the challenges and ethical issues associated with AI implementation. Questions regarding data privacy, algorithmic fairness, and cybersecurity have become increasingly prominent concerns. AI researchers and practitioners continue to address these issues and ensure responsible AI development.

In conclusion, contemporary research in artificial intelligence has demonstrated significant advancements across various aspects of AI, including pattern recognition, natural language

processing, healthcare applications, and industrial implementations. However, substantial challenges remain to be addressed to optimize AI's potential and ensure its safe and ethical utilization in the future.

1.2 The Intersection of Local Wisdom and Artificial Intelligence (AI)

Local wisdom encompasses the heritage of cultural values, traditions, and knowledge developed by communities in specific regions over centuries. The relationship between local wisdom and Artificial Intelligence (AI) can provide significant benefits in developing culturally responsive and contextual AI technologies. The following discussion elaborates on local wisdom in relation to AI.

First, local wisdom offers profound insights and understanding of the cultural context in which AI will be implemented. AI systems developed with consideration of local wisdom can be more sensitive to cultural values, traditions, and spiritual practices upheld by local communities. This approach enables AI to operate in a manner that respects and maintains distinctive cultural identities.

Second, local wisdom contributes valuable resources and knowledge for training and developing AI systems. For example, rich local spiritual traditions can serve as a source of inspiration for developing AI algorithms capable of recognizing and understanding symbolic meanings, rituals, and spiritual practices unique to local communities. By leveraging this knowledge, AI can become a powerful facilitator in preserving and transmitting spiritual cultural heritage.

Furthermore, local wisdom fundamentally informs the design and development of more inclusive and sustainable AI systems. Engaging local communities in AI development processes helps identify their needs and preferences while ensuring that the technology does not adversely impact their traditions, environment, and way of life. Establishing strong collaborative partnerships between AI developers and local communities can create more relevant and sustainable solutions.

Local wisdom plays a crucial role in monitoring and controlling the ethical implementation of AI. Communities with a profound understanding of their cultural values can help establish boundaries and principles that must be adhered to in local AI applications. This approach helps ensure that AI is utilized in a manner that respects human rights, social justice, and ethical principles upheld by local communities.

Local wisdom serves as a vital component in guiding and shaping the development of sustainable, inclusive, and culturally responsive AI systems. The systematic integration of cultural values, spiritual traditions, and local knowledge in AI development enables this technology to provide broader benefits and measurable positive impacts for local communities. Through the thoughtful combination of local wisdom with AI technological advancement, a harmonious balance can be achieved between technological progress and rich cultural heritage.

1.3 The Local Wisdom of Balian in the Dayak Siang Tribe

The Balian in the context of the Dayak Siang tribe in Central Kalimantan represents a group of traditional practitioners who hold significant roles in the community's health, spirituality, and social life. These practitioners are regarded as mediators between the human world and the supernatural realm, possessing abilities to heal illnesses, conduct traditional ceremonies, and maintain balance between humans and nature.

The local wisdom of Balian has existed since ancient times, being transmitted across generations within the Dayak Siang community. This traditional practice is deeply rooted in animistic beliefs that consider all entities to possess spirits, including nature, animals, and humans. The Balian practitioners are believed to possess specialized knowledge acquired through ancestral transmission or through divine dreams and revelations bestowed by ancestral spirits.

1.4 The Significance and Functions of Balian Tradition

The roles and functions of *Balian* practices within the Dayak Siang tribe are as follows:

1. **Traditional Healer** The *Balian* practitioners serve as healers, utilizing various herbal remedies harvested from the forests. The knowledge of medicinal plants and their applications constitutes an essential component of this indigenous wisdom. The healing process focuses not only on physical ailments but also encompasses spiritual and mental well-being. These healing practices frequently involve ritualistic ceremonies aimed at expelling malevolent spirits or seeking assistance from ancestral spirits for recovery.

2. **Traditional Ceremonial Leader** The *Balian* practitioners preside over various traditional ceremonies, including the *Tiwah*, a sacred death ceremony intended to guide the spirits of the deceased to *Lewu Tatau* (the spirit realm) for eternal peace. These ceremonial practices are considered highly sacred and essential for maintaining the balance between the human world and the spirit realm. The *Balian* practitioners also conduct ceremonies seeking abundant harvests, divine protection from natural disasters, and overall community welfare.
3. **Supernatural Mediator** The *Balian* practitioners possess the unique ability to communicate with ancestral spirits, deities, and other supernatural entities. They are frequently consulted for spiritual guidance in crucial decision-making processes, both in personal and communal matters. These specialized practices include consultations to determine the underlying causes of illnesses, misfortunes, or to seek divine protection from supernatural forces.
4. **Cultural and Traditional Preservationist** As central figures within the indigenous community, the *Balian* practitioners play a vital role in preserving and transmitting Dayak Siang traditions and culture. They systematically educate younger generations about cultural values, traditional ecological knowledge, and the fundamental importance of maintaining harmony between humans and nature. The indigenous wisdom of *Balian* reflects profound principles of harmonious coexistence with nature. The utilization of natural resources for medicinal purposes is conducted sustainably, ensuring the preservation of the ecosystem.
5. **Ancestral Beliefs** The veneration of ancestral spirits represents a highly esteemed value within the traditional community. Sacred ceremonies and ritualistic practices led by *Balian* practitioners aim to maintain and strengthen favorable relationships between the living community, their ancestors, and the spirit world.

1.5 Challenges and Preservation of Balian in the Dayak Siang Tribe

In the face of modernization and social transformation, *Balian* practices face significant challenges. The shifting mindsets and transitioning toward modern medicine have resulted in a reduced practice of certain traditional aspects among the younger generations. Nevertheless, systematic efforts to preserve this indigenous wisdom continue through comprehensive documentation, cultural education, and the strategic integration of traditional practices with modern healthcare approaches.

Therefore, the indigenous wisdom of *Balian* within the Dayak Siang tribe represents an integral component of their cultural and spiritual identity. Functioning as traditional healers, ceremonial leaders, and cultural preservationists, *Balian* practitioners play a fundamental role in maintaining the balance and harmony within the Dayak Siang community. The preservation of this indigenous wisdom remains essential to ensure the long-term sustainability of the Dayak cultural heritage for future generations.

1.6 Technological Advancement

Technological advancement has played a vital role in the development of Artificial Intelligence (AI). Through continuous innovations and technological advancement, AI has experienced significant evolution. The following discussion examines the fundamental technological advancements in relation to AI development.

Firstly, advances in computational power have emerged as the primary driver in AI development. The substantial enhancement of computer speed and processing capacity enables AI systems to perform increasingly complex calculations and data processing with unprecedented efficiency. This enhanced capability facilitates the development of more sophisticated and accurate AI models, particularly deep neural networks employed in advanced deep learning applications.

Furthermore, significant developments in algorithms and machine learning techniques have yielded substantial progress in AI capabilities. Increasingly efficient and effective algorithms have been developed, particularly deep learning algorithms that have successfully resolved several critical problems in pattern recognition, natural language processing, and computer vision. The enhanced ability to process and learn from large and complex datasets has created unprecedented opportunities for broader and more sophisticated AI applications.

Furthermore, advancements in data collection and storage have played a significant role in the development of AI. More abundant and high-quality data is necessary to train and test AI models.

Progress in data storage technologies and more accessible data sources, such as the Internet of Things (IoT) and improved connectivity, have provided greater access to the data required for developing AI.

Advancements in the field of natural language processing (NLP) have also resulted in significant AI developments. AI systems can now better understand human language, translate text, and interact through increasingly sophisticated chatbots. This has opened the door for the use of AI in applications such as virtual assistants, automatic translation, and sentiment analysis.

Lastly, advancements in sensor and communication technologies have supported the development of AI in areas such as computer vision, speech recognition, and robotics. Better and more affordable sensors, such as sophisticated cameras and microphones, allow AI to collect data from its surroundings more effectively. Moreover, faster and more reliable communication enables AI to interact in real-time with more complex and distributed systems.

Overall, technological advancements in various fields have driven the rapid development of AI. From increased computing power and the development of better algorithms to greater access to data and more advanced sensor and communication technologies, all these factors have resulted in significant progress in the development and application of AI. As technological advancements continue, it is expected that AI will continue to evolve and provide even greater benefits to society in the future.

The city of Palangkaraya, the capital of Central Kalimantan Province in Indonesia, provides an interesting perspective on the progress of technology and local wisdom. In terms of technological advancement, Palangkaraya has experienced significant development. Improved telecommunications infrastructure, broader internet access, and the availability of advanced communication technology have accelerated the growth and adoption of technology in this city. These technological advancements have provided tangible benefits to the residents of Palangkaraya, such as easier access to information, better connectivity, and opportunities to participate in the digital economy. Furthermore, technology has been utilized in the government, healthcare, education, and transportation sectors, enhancing service efficiency and quality.

On the other hand, local wisdom remains an essential part of Palangkaraya's identity. The Dayak people, the indigenous tribe of Central Kalimantan, preserve and pass down their traditions, culture, and knowledge from generation to generation. This local wisdom encompasses a system of knowledge about the natural environment, customary practices, and spiritual wisdom. Despite the changes brought about by technological progress, the people of Palangkaraya strongly uphold these values, maintaining a harmonious relationship with nature and a supportive community life.

The importance of local wisdom in the context of technological progress in Palangkaraya lies in the integration of these two aspects. In adopting and developing technology, the people of Palangkaraya have considered their cultural and environmental values. For example, the use of technology in preserving the natural environment, such as the utilization of drones for monitoring forests and rivers, has been carried out with attention to local wisdom about ecosystem balance and the protection of natural resources.

Local wisdom has also contributed to the development of sustainable technology that is relevant to the needs of the community. For instance, the people of Palangkaraya have utilized their traditional knowledge in food processing, herbal medicine, and natural resource management to develop sustainable local innovations. This provides economic benefits and also maintains their cultural heritage.

In order to advance technology and preserve local wisdom, collaboration among stakeholders, such as the government, community, and private sector, is crucial. By integrating technological progress with local values, the city of Palangkaraya can achieve sustainable development that strengthens their cultural identity, advances the economy, and maintains environmental sustainability.

Overall, the city of Palangkaraya demonstrates that technological progress and local wisdom can coexist and complement each other. When adopting technology, it is essential to consider the local cultural and environmental context and involve the community in the decision-making process. With a holistic approach, Palangkaraya can serve as an example of how technological advancement and

local wisdom can be combined to create a sustainable, inclusive city that preserves its rich cultural heritage.

2. Method

This research employs a qualitative design with a descriptive approach, wherein the researcher endeavors to enter the conceptual world of selected informants, including traditional leaders, community leaders, religious leaders, academic practitioners, and artists in Palangkaraya City. Through this approach, the researcher aims to clearly understand how Artificial Intelligence Based on the Local Wisdom of the Dayak Siang Tribe's Balian can Bridge the Technological Gap in Palangkaraya City.

The purpose of this descriptive qualitative research is to explore the experiences, views, and feelings of individuals or groups regarding the issue at hand. The researcher seeks to understand the world from the subjects' point of view, without intervening in or altering their perspectives. This approach enables understanding the essence of informants' deepest worldly experiences about events or occurrences based on their unique perspectives (Fattah Hanurawan, 2012: 53).

This study aims to understand and describe the experiences of informants throughout the research process, including their attitudes, perceptions, and actions, holistically through descriptions in words and language, within a specific natural context and utilizing various natural methods (Moleong, 2011:6). The research is conducted in a natural setting with both planned conditions and spontaneous engagement with informant activities.

The data collection techniques employed in this research consist of in-depth interviews with traditional leaders (Damang), community leaders, academic practitioners, and local community members. Additionally, participatory observation will be conducted to directly observe and understand spiritual traditional practices in local community life. The collected data will be analyzed thematically to identify cultural values, traditions, and local wisdom that can be integrated into Artificial Intelligence development.

The data analysis technique in this descriptive qualitative research focuses on organizing, interpreting, and drawing conclusions from the collected data to provide a clear picture of the studied phenomenon. The primary benefit of this research is the development of an Artificial Intelligence system that can provide more inclusive and culturally sensitive pastoral counseling to the Dayak Siang tribe. This local wisdom-based Artificial Intelligence system aims to strengthen the unique cultural and spiritual heritage of the Dayak Siang tribe while leveraging technological advances. Furthermore, this research will contribute to pastoral counseling theory and practice by incorporating local wisdom and AI technology implementation.

3. Result And Discussion

In the midst of contemporary modernization, the Practice of Balian is increasingly eroding from the social structure of the Dayak Siang community. Its preservation has become an urgent matter requiring immediate attention. Furthermore, considering that the culture prevalent within the Dayak community is predominantly oral, where cultural traditions are transmitted through verbal transmission from one generation to the next, preservation becomes even more critical. This situation is further exacerbated by the declining number of traditional leaders who possess comprehensive knowledge of these practices. Given these substantial challenges, without adequate documentation, the practice of Balian faces imminent extinction. Preservation efforts must be enhanced through contextual approaches aligned with contemporary advancements. Within the current rapidly evolving digital landscape, new opportunities have emerged for preserving local culture, particularly through the utilization of Artificial Intelligence (AI) technology. As Jopy G.Z Mambu (2023) posits, the implementation of artificial intelligence technology offers significant advantages in addressing digital world challenges.

Artificial Intelligence (AI) has demonstrated remarkable potential, evidenced by its rapid and pervasive development. The advent of AI has precipitated significant transformations across various aspects of human life, including behavioral patterns, cognitive processes, and working methodologies within new global contexts. These changes inevitably impact the continuity of local

cultural practices. Therefore, addressing these challenges requires deliberate integration between digital transformation and indigenous cultural practices.

The implementation of AI technology presents opportunities for documenting, analyzing, educating, and disseminating knowledge about local cultural heritage in an efficient and cost-effective manner. Regarding the relevance of AI utilization in preserving Balian practices within the Dayak Siang Community in Puruk Cahu, AI can be implemented through several approaches, as follows.

3.1. Digitalization and Documentation

This era of advancement is characterized by rapid and accelerating digitalization trends. Predictably, this has evolved into a global phenomenon driving massive transformation across various aspects of daily human life. One tangible manifestation of digital transformation that has been implemented is comprehensive information archiving. This archival process employs a novel approach known as digitalization, which offers a practical system that is both readily accessible and efficiently retrievable. The digitalization process facilitates the conversion of various analog data, including physical documents, images, audio, and video, into digital formats that are easily accessible and conducive to dissemination through diverse social media platforms. According to Intan Diah Nita Saputri (2024), digital archiving systems represent archival management techniques utilizing computerized technology for electronic storage, effectively replacing physical documents that require substantial storage space.

Research findings indicate that one of the most significant challenges in preserving the continuity of Balian practice is insufficient documentation efforts. Addressing this challenge, the implementation of Artificial Intelligence presents a proposition warranting serious consideration for future analysis of local cultural practices such as Balian. The application of Artificial Intelligence significantly facilitates the digitalization process, encompassing the analysis of narratives, music, and songs employed in Balian practice, as well as enabling practical audio-visual documentation.

A particularly relevant Artificial Intelligence methodology for documenting Balian practice is Natural Language Processing (NLP), which functions as both a translator and converter, transforming oral language into structured text. This enables systematic archiving of knowledge for future generations. The technological advancements facilitated by Artificial Intelligence extend beyond mere data conversion, offering additional capabilities including data interpretation, analysis, and information synthesis.

Digitalization plays a pivotal role in documenting humanity's historical and cultural heritage. This encompasses efforts to preserve the local wisdom embodied in balian practices, which can be implemented through comparable methodologies. Through digitalization, archival processes have become highly efficient, facilitating effective educational transmission across successive generations. As Prihatin Dwihantoro (2023) asserts, the implementation of digital platforms as global media is imperative for reaching broader audiences, particularly the millennial demographic. In essence, the progression of digitalization and digital-based documentation ensures the preservation of local cultural values and practices, such as balian rituals, amid rapid civilizational advancement.

3.2. Cultural Data Analysis

A significant challenge in analyzing Balian practice lies in collecting authentic and accurate data, which, as previously mentioned, is affected by the diminishing number of damang traditional leaders possessing comprehensive and thorough knowledge of the balian cultural practices. In its implementation, balian ritual practices are predominantly conducted through oral transmission, incorporating distinctive movements and symbolism rich in meaning. These aspects present considerable challenges for conventional documentation methods. In this context, the advancement of Artificial Intelligence technology offers innovative approaches to documentation efforts.

Through Natural Language Processing (NLP) systems, Artificial Intelligence, with its rapid processing capabilities, can analyze and translate oral narratives found in balian practices into textual content that is readily comprehensible to diverse audiences. NLP facilitates the contextual understanding of traditional narratives, an aspect frequently overlooked in conventional documentation methods. As Agung Nugraha (2023) observes, journalistic work has been substantially facilitated by AI implementation. Furthermore, with anticipated updates to advertising

systems, technology will likely be utilized for management, planning, scheduling, and customer identification through handwriting, voice, and facial recognition.

The emergence of Artificial Intelligence, with its comprehensive advancements, extends beyond mere data analysis capabilities. Additionally, Artificial Intelligence can facilitate comparative studies of balian practices across various Dayak sub-tribal communities and similar practices in non-Dayak cultures. Such comparative analyses prove invaluable in revealing universal values inherent in traditional alternative healing rituals and enhance understanding of how these local wisdom practices evolve through temporal progression and interaction with diverse cultural realities in the public sphere.

3.3. Knowledge Preservation and Dissemination

A significant application of Artificial Intelligence lies in preserving and disseminating knowledge of local cultural wisdom, specifically regarding the balian practice. The implementation of Artificial Intelligence presents an efficient methodology for preserving cultural values inherent in balian practice and disseminating them to broader audiences, thereby reinforcing the primacy of philosophical life values emanating from this practice. Eko Budi Siswandoyo (2023) emphasizes that societies must leverage technological advancements, particularly artificial intelligence, as it enhances welfare, creativity, and innovation while preserving natural and cultural heritage.

Applications leveraging Artificial Intelligence technological advancement demonstrate particular efficacy in transmitting language and culture to younger generations of Dayak Siang, who exist within the contemporary digital landscape. These applications employ contextually appropriate methodologies aligned with modern lifestyles and mindsets, utilizing educational games, interactive applications, and diverse digital platforms. Through these means, the Balian tradition can be effectively transmitted to and preserved by successive generations of Dayak Siang people.

The implementation of Artificial Intelligence serves a crucial function in disseminating information and knowledge about Balian to expanded audiences. Through Artificial Intelligence algorithmic systems, multiple digital platforms can be optimized to present balian-related content creatively across various formats, including articles, videos, and podcasts, tailored to consumer preferences. These algorithms additionally facilitate global preference analysis to identify optimal strategies for content presentation regarding Balian practices.

The application of Artificial Intelligence in cultural preservation efforts, particularly regarding Balian practice, necessitates careful consideration of collaborative aspects within the Dayak Siang community, encompassing traditional leaders, governmental bodies, academics, youth, and the general community. Artificial Intelligence technology facilitates collaborative decision-making processes among traditional leaders and community members. This integration aims to preserve the authenticity of cultural values while adapting to contemporary contexts. For instance, Artificial Intelligence can be utilized to develop guidelines ensuring the preservation of balian practice while maintaining its integral cultural values.

In this collaborative framework, local community involvement in the development and testing of Artificial Intelligence technologies is essential to ensure alignment with community needs and aspirations. Consequently, Artificial Intelligence functions not merely as a preservation tool but as an instrument for empowering the Dayak Siang community in maintaining their ancestral heritage. The multifaceted nature of balian ceremonies, which facilitate both therapeutic healing and spiritual connection with ancestral spirits, underscores their cultural significance (Widaty 2021).

3.4. Digital Reconstruction and Simulation

A significant application of Artificial Intelligence technology lies in creating digital reconstructions of Balian practice, facilitating widespread virtual access to learning and understanding this tradition effectively. This implementation incorporates Virtual Reality (VR) technology supported by Artificial Intelligence, enabling individuals to observe and experience balian practices without physical presence at ceremonial locations. This technological integration substantially enhances cultural preservation processes while establishing foundations for further research and development initiatives.

In addition to virtual reconstruction, Artificial Intelligence facilitates the development of interactive training programs designed for prospective Basir (traditional Balian practice leaders).

These comprehensive programs extend beyond technical instruction and knowledge transmission to systematically integrate fundamental cultural values inherent in Balian practice. Through Artificial Intelligence implementation, training methodologies can be customized to address individual learning requirements, delivering personalized and immersive educational experiences. The sophisticated capabilities of Artificial Intelligence technology enable the creation of authentic training scenarios, allowing prospective Basir practitioners to engage in virtual environments that accurately simulate the experiential aspects of traditional ceremonial settings.

The integration of virtual reconstruction and interactive training methodologies transcends mere cultural preservation, establishing pathways for innovative cultural development. Through the incorporation of advanced technological systems, Balian practices become accessible to diverse demographic groups, particularly younger generations immersed in digital environments who demonstrate diminishing engagement with conventional pedagogical approaches. As Danu Eko Agustinova (2022) observes, digitalization enhances the international dissemination of cultural heritage while fostering increased community participation in preservation efforts.

3.5. Challenges and Future Potential

In the midst of accelerating modernization, the Balian tradition faces significant challenges to its sustainability. Globalization has precipitated substantial transformations across all sectors of human life, profoundly influencing contemporary mindsets and behaviors, particularly among the Dayak Siang people in the present era.

The confluence of modernity and external influences, including religious diversification, enhanced educational access, and technological advancement, has catalyzed fundamental changes in community lifestyles. Society has gradually transitioned from traditional practices toward modern paradigms. This transformation is particularly evident in the lives of younger generations, who demonstrate a marked preference for popular culture and technological innovations, perceiving these as more pertinent to their contemporary experience than their seemingly antiquated ancestral cultural heritage.

While Artificial Intelligence technology presents considerable potential for cultural preservation, it simultaneously poses various challenges requiring careful consideration. Primary among these is the ethical dimension of AI technology implementation, particularly concerning the accuracy of local cultural representation within modern technological frameworks. This necessitates rigorous methodological examination to ensure appropriate implementation of Artificial Intelligence technology within established parameters. Furthermore, the active participation of the Dayak Siang community in integrating Artificial Intelligence technology with Balian practices is essential to maintain data accuracy and preserve the authentic cultural significance inherent in local traditions.

Projecting into the future, the evolution of Artificial Intelligence technology will undoubtedly accelerate. Consequently, it is imperative to strategically address these emerging opportunities to ensure the preservation and contextual appreciation of local cultures such as the Balian practice. Through collaborative support from governmental entities, academic institutions, traditional authorities, and community stakeholders, AI technology can serve as an effective mechanism for maintaining the cultural integrity of the Dayak Siang people, ensuring its continued relevance and vitality within contemporary society.

4. Conclusion

The Balian tradition, fundamentally embedded within the cultural framework of the Dayak Siang community, constitutes a traditional therapeutic system that integrates physical, mental, and spiritual dimensions within its healing methodology. Balian practitioners (Basir) function not merely as therapeutic practitioners but as custodians of cultural heritage, possessing comprehensive knowledge of traditional pharmacopeia and holistic healing methodologies.

In contemporary contexts, the Balian tradition maintains substantial relevance, particularly within geographical regions characterized by limited accessibility to modern healthcare infrastructure. This traditional system provides economically viable, culturally congruent, and comprehensive therapeutic alternatives. Nevertheless, this tradition confronts significant challenges

emanating from modernization processes, evolving societal paradigms, and diminishing engagement among younger demographic cohorts.

The preservation of the Balian tradition transcends mere cultural heritage conservation, encompassing the utilization of indigenous wisdom to complement contemporary healthcare systems. The integration of Balian methodologies with modern medical approaches presents potential for establishing more efficacious and inclusive healthcare frameworks while ensuring the perpetuation of indigenous knowledge for subsequent generations.

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