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Post-Colonial Spiritual Adaptation in Macau: A Case Study on the Mechanisms of Intergenerational Coupling Selection

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ABSTRACT

This study develops an evolutionary model of post-colonial spiritual adaptation to explain the dynamic resilience of Macau's faith systems under its unique governance framework. Employing collective case study methodology, three multi-layered cases are selected: the Procession of Our Lord of the Passion as a macro-level public ritual, Chinese motifs in Catholic art as exemplified by the Ruins of St. Paul's at the meso-symbolic level, and the coexistence and fusion of Mazu worship with veneration of the Virgin Mary in everyday folk practices. Cross-case analysis identifies a common pattern of ritual functional secularization, whereby religious practices are redirected toward cultural tourism and social services to mitigate political and economic pressures. The core finding is the inter-generational functional coupling selection principle: only faith elements that simultaneously satisfy the identity needs of older and younger generations are selectively retained. This principle transforms spiritual tension into an adaptive driving force. The research demonstrates that hybridity constitutes an advanced form of cultural adaptation in post-colonial contexts, providing a dynamic analytical framework for understanding the resilience of Asian post-colonial faiths. By integrating evolutionary theory with post-colonial perspectives, the model extends beyond Bhabha's static "third space," offering enhanced explanatory and predictive power while emphasizing Macau's distinctive socio-political context and the role of inter-generational dialogue in sustaining cultural diversity amid globalization.

Keywords: Post-Colonial Adaptation; Macao Faith; Evolutionary Model; Secularization of Ritual

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ARTICLE INFO

Received: 13 November 2025 | Revised: 19 December 2025 | Accepted: 21 December 2025 | Published Online: 13 January 2026

DOI: <https://doi.org/10.55121/cci.v3i1.944>

CITATION

Li, Z., Zou, Y., 2026. Post-Colonial Spiritual Adaptation in Macau: A Case Study on the Mechanisms of Intergenerational Coupling Selection. *Cultural Conflict and Integration*. 3(1): 19–32. DOI: <https://doi.org/10.55121/cci.v3i1.944>

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1. Introduction

1.1. Research Background

Post-colonial cultural and religious adaptation constitutes a significant global issue, directly influencing social identity, community cohesion, and geopolitical dynamics. Former colonies generally face the cultural legacies left by imperial rule, where indigenous beliefs and imported religious traditions become deeply intertwined, forming unique hybrid forms^[1]. The process of globalization has further intensified the necessity of this adaptation, making it a key mechanism for constructing pluralistic societies.

As a Special Administrative Region, Macau serves as a quintessential case of long-term co-existence between Chinese and Portuguese cultures. From the start of Portuguese colonization in 1557 to its return to China in 1999, over four hundred years of Sino-Western cultural fusion have shaped a unique integrated landscape. Its belief system is characterized by the coexistence and mutual infiltration of Chinese folk religion and Catholicism, forming hybrid practices that transcend binary oppositions^[2].

Macau's unique economic status exists alongside its cultural identity, providing a distinct socio-political background for religious evolution and prompting beliefs to adapt to the post-colonial environment while maintaining their core characteristics. Urbanization, as the primary driver of economic transformation, has reshaped Macau's socio-economic landscape and profoundly influenced the adaptation of cultural customs. Empirical research within the broader Chinese context shows that urbanization promotes the development of cultural industries through resource allocation and market expansion; this mechanism is equally applicable to Macau^[3]. Economic prosperity has driven the secularization of religious practices, integrating rituals into tourism and cultural activities to meet modern demands. Macau's religious landscape presents a phenomenon of diverse coexistence and adaptation: temples and churches stand in close proximity, Mazu worship and the veneration of the Virgin Mary coexist, and festival processions merge, while individual practices often combine burning incense with the adoration of icons. This hybridity helps the community cope with the challenges of modernization and globalization. However, beneath the surface harmony lie internal tensions regarding how beliefs

respond to secular policies and globalization trends, which elements are preserved or reconstructed, and what the underlying mechanisms are. These observations lead to the core question of this study: What are the driving mechanisms of post-colonial spiritual adaptation in Macau—namely, the “why” and “how” of religious choice and evolution?

1.2. Knowledge Gaps and Theoretical Dialogues

Post-colonial theory provides an essential framework for understanding cultural hybridity, among which Homi Bhabha's theory of the “Third Space” is particularly prominent^[4]. This theory posits that colonial encounters produce an ambiguous “Third Space” where identity is negotiated through mimicry and ambivalence, forming a resistance to colonial hegemony. It has contributed significantly to the analysis of marginality in post-colonial societies, specifically revealing how subaltern groups challenge narratives of cultural purity through hybrid practices. In Macau, for instance, the fusion of Mazu worship with Catholic elements can be seen as a creative resistance that breaks down the boundaries between East and West. However, a key limitation of this theory lies in its lack of explanation for long-term, endogenous, and systemic adaptation mechanisms. While the “Third Space” emphasizes boundary blurring and moments of resistance, it overlooks how belief systems evolve across generations to cope with environmental pressures, such as political transitions or socio-economic transformations. Its static descriptions fail to provide a predictive framework or explain the dynamic equilibrium of Macau's belief systems in a stable post-colonial environment—for example, why certain Mazu rituals are preserved for their public functions while others are restructured due to adaptation needs.

To address these deficiencies, this study introduces the philosophy of life, evolutionary theory, and selection principles, drawing on the ideas of Henri Bergson and Charles Darwin. Unlike Bhabha's focus on discursive contradictions, an evolutionary approach views cultural adaptation as an organic process akin to biological evolution: elements of belief evolve through mechanisms of variation, selection, and retention based on their fitness within the community

ecology^[5]. For instance, laws of selection can explain why Mazu rituals persist due to their alignment with local maritime culture or gain broader inclusivity through fusion with Catholicism. Compared to the perspective of marginality, the evolutionary approach offers a more systemic and predictive analytical framework^[6].

Nevertheless, the biological metaphor of this evolutionary framework has its own limitations. It easily falls into the trap of functionalism, overemphasizing the utility of belief elements—such as social cohesion, tourism appeal, or political mitigation—thereby potentially underestimating pure theological, spiritual, or irrational motivations. These motivations, while lacking secular adaptability, persist due to their intrinsic faith value. Furthermore, unlike random genetic mutations in biological evolution, cultural variation is often intentional and strategic: church leaders or community elites actively promote hybrid practices, such as integrating Chinese prayers or Chinese artistic imagery, whereas variation at the grassroots level tends to be more organic and unconscious. This study partially mitigates these limitations by incorporating spiritual tension into evolutionary costs and highlighting selection mechanisms of intergenerational coupling, aiming to more comprehensively explain the resilience and complexity of Macau's beliefs.

1.3. Research Objectives

This study aims to reveal the inherent selection principles governing the retention and reconstruction of religious elements during Macau's post-colonial spiritual adaptation through a collective case study method. Specifically, the research explores how belief systems utilize mechanisms of selective retention and reconstruction to adapt under the social, political, and cultural pressures brought about by the post-colonial environment within a unique governance framework, thereby achieving cultural resilience and inheritance.

The contributions of this study are reflected in the following aspects, providing theoretical and methodological innovations for post-colonial cultural studies:

- (1) **Theoretical Innovation:** By integrating evolutionary theory and selection principles, this study transcends Bhabha's static hybridity framework of the "Third Space" and proposes a dynamic model of cultural evolution. This model offers greater explanatory and pre-

dictive power, enabling a systematic analysis of the long-term adaptation mechanisms of beliefs.

- (2) **Empirical Contribution:** Through an in-depth analysis of hybrid religious practices in Macau, this research fills an empirical gap in Asian post-colonial spiritual adaptation, elucidating how selection mechanisms balance retention and reconstruction in the real world.
- (3) **Practical Significance:** The cultural evolution model proposed in this study provides a reference for policymakers in hybrid societies, supporting the use of adaptive mechanisms to maintain cultural diversity in response to the challenges of globalization.

These contributions provide new perspectives and tools for post-colonial research to understand the dynamic evolution of culture and belief.

2. Literature Review and the Construction of the Evolutionary Adaptation Model

2.1. Third Space and Spiritual Tension in Post-Colonial Studies

The ritual fusion of Mazu worship and Catholicism in Macau can be viewed as a form of creative resistance within the "Third Space," which questions and breaks through the rigid dichotomy between Eastern and Western cultures^[7]. This hybridity is manifested both in the reshaping of symbolic levels and in the collective negotiation of identity by the post-colonial community. Although the Third Space theory effectively illustrates the blurring of cultural boundaries, it also highlights the widespread existence of spiritual tension. Spiritual tension refers to the internal conflicts and psychological burdens faced by individuals and communities in hybrid religious practices; these burdens stem from adherence to orthodoxy, the influence of colonial legacies, and identity dilemmas triggered by globalization^[8].

In Macau's religious field, believers often encounter cognitive and emotional dissonance when integrating Mazu and Catholic rituals, falling into a dilemma between traditional loyalty and modern adaptation. On one hand, this tension hinders identity integration; on the other, it stimulates cultural innovation. To explore the dynamic significance of

spiritual tension more deeply and to shift from static analysis to an investigation of long-term adaptation processes, this study introduces an evolutionary perspective, redefining it as adaptive variation and evolutionary cost, thereby establishing a theoretical bridge for model construction.

2.2. Theoretical Foundations of Religious and Cultural Evolutionary Adaptation

Evolutionary theory, as an interdisciplinary tool, has been widely applied to the fields of culture and religion, providing a systemic perspective for the analysis of the dynamic adaptation of belief systems^[9]. Drawing upon Charles Darwin's theory of natural selection and Henri Bergson's philosophy of life, this section rigorously defines the core concepts of biological evolution—variation, selection, inheritance, and isolation—and maps them onto the religious and cultural spheres:

- (1) Variation, originating from diversity brought by genetic mutation in biology, corresponds to localization or hybridization in a cultural context. An example is the new ritual forms generated by Macau's Mazu worship through the absorption of Catholic elements; driven by social needs and historical contexts, this serves as the starting point for religion to respond to external pressures.
- (2) Selection, which preserves advantageous traits in biology, is manifested as environmental fitness in the religious field, where communities filter belief elements based on their utility or contribution to social cohesion.
- (3) Inheritance, transmitted via genes in biology, is expressed as intergenerational transmission in culture. For instance, passing hybrid practices to future generations through festivals or education ensures the continuity of adaptive traits and the stability of the religious system.
- (4) Isolation, which facilitates speciation in biology, corresponds to social or political boundaries in culture, protecting the uniqueness of local beliefs and preventing external assimilation^[10].

The precise definition of these concepts constructs a

quantifiable framework for cultural evolution, transcending static descriptions to provide dynamic, testable tools that lay the methodological foundation for the empirical investigation of Macau's spiritual adaptation.

However, the biological analogy of this evolutionary framework has limitations. First, it may fall into a functionalist trap by over-emphasizing the practical value of belief elements, thereby ignoring components stemming from pure theological, spiritual, or irrational motivations; these components persist due to intrinsic faith significance even if they lack secular adaptability^[11]. Second, cultural variation differs from the random mutations of biological evolution, as the former usually entails intent and strategy. Church leaders or community elites often actively promote hybrid practices, while variation among ordinary believers tends to be more organic and unconscious. This study mitigates these limitations to an extent by emphasizing the selection mechanism of intergenerational coupling.

2.3. The Evolutionary Adaptation Model of Macau's Beliefs

To systematically examine the process of post-colonial spiritual adaptation in Macau, this study constructs an evolutionary adaptation model. Integrating post-colonial theory and evolutionary theory, this model aims to clarify how belief elements achieve retention and reconstruction through the mechanisms of variation, selection, inheritance, and isolation (**Figure 1**)^[12].

The model inputs primarily consist of post-colonial environmental factors, including secularization policies under the political framework, economic transformation pressures, and identity conflicts triggered by globalization. These factors collectively stimulate the process of variation and drive the overall mechanism through the principle of intergenerational functional coupling selection. The mechanisms, mediating variables, and outputs will be further tested in the subsequent cross-case analysis; this section focuses on emphasizing how these environmental factors, as unique inputs, shape the model, thereby highlighting the differences between the Macau case and other post-colonial contexts.

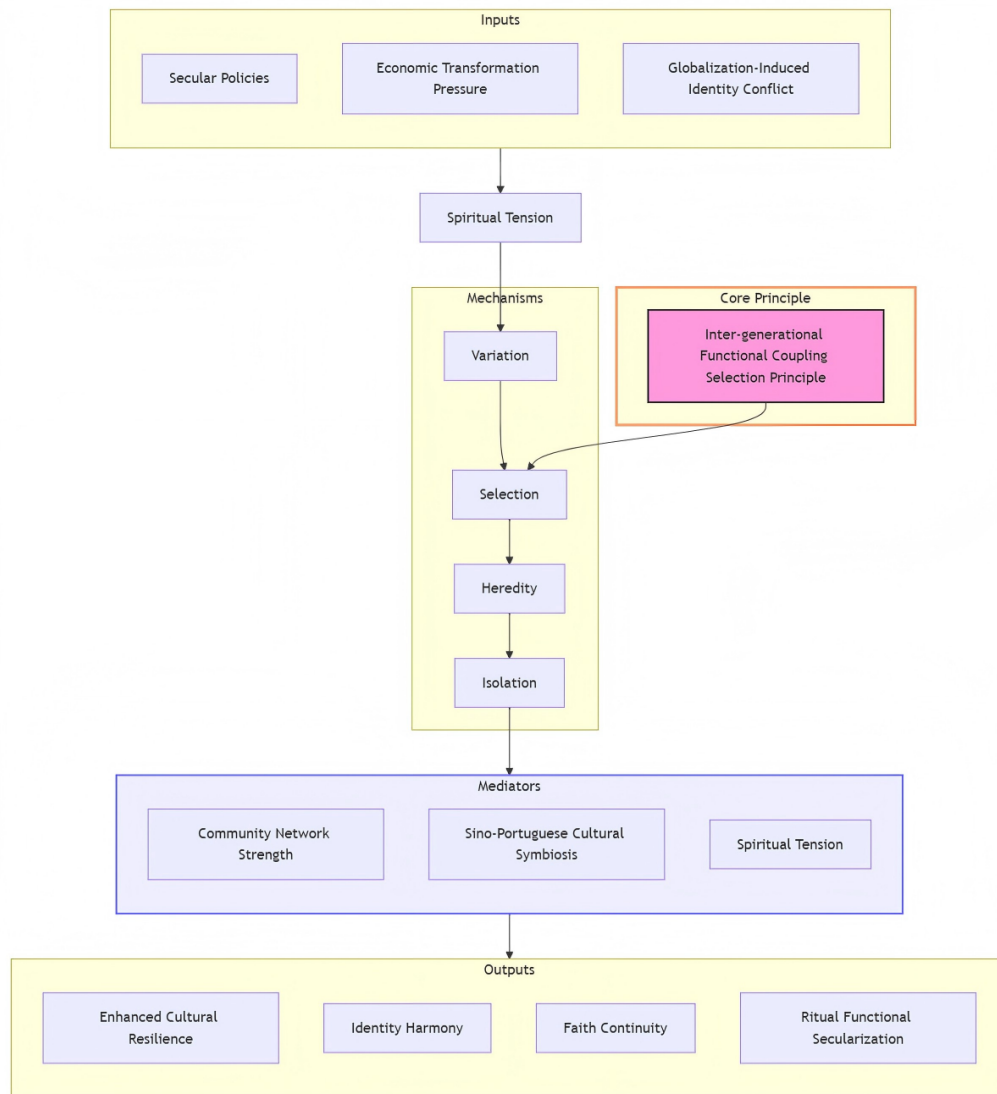


Figure 1. Theoretical Framework.

3. Research Design and Methodology

3.1. Case Study Design and Selection

This study employs a collective case study design, taking Macau's post-colonial spiritual adaptation as the holistic unit of analysis and implementing a theoretical replication logic through three sub-cases. The core of this design lies in the repeated testing of the same evolutionary theoretical framework—including mechanisms of variation, selection, inheritance, and isolation—to evaluate its robustness and applicability across different contexts^[13]. Through cross-case comparison, the study reveals common patterns in the adaptation mechanisms of beliefs, enhancing theoretical explanatory power and the potential for analytical generalization.

This approach is particularly suitable for handling complex socio-cultural phenomena, such as the hybrid evolution of Chinese and Portuguese beliefs in Macau, ensuring both depth and rigor in the research.

The case boundaries define a timeframe from the late 1980s to the present, covering the signing of the Sino-Portuguese Joint Declaration in 1987, the transfer of sovereignty in 1999, and the subsequent stage of stable evolution to capture the dynamic changes of the belief system from the transition period to the contemporary era. The geographic scope is limited to the Macau Special Administrative Region, including the Macau Peninsula, Taipa, and Coloane, with a focus on core areas of Sino-Western cultural intersection, such as the Historic Centre of Macau. These boundaries help

control variables, reduce external interference, and facilitate data collection and fieldwork.

3.2. Operationalization of Evolutionary Variables

Operationalization is a pivotal step in ensuring theoretical rigor and empirical testability. This study translates the abstract concepts of biological evolution into observable and evaluable indicators within the context of Macau's spiritual adaptation, establishing a systematic analytical framework (Table 1)^[14].

This operationalization framework supports the system-

atic verification of the principle of intergenerational functional coupling selection. Specifically, the occurrence of innovation within variation is captured through archival content analysis; the adaptive filtering and retention during the selection process are evaluated via observation and surveys; the intergenerational transmission of inheritance mechanisms is tracked through literature review and interviews; and the efficacy of the isolation mechanism is indirectly measured through narrative analysis, while incorporating spiritual tension as an evolutionary cost. By doing so, the framework elevates the analysis of Sino-Portuguese cultural hybridity from static description to a level of dynamic prediction, ensuring the rigor and replicability of the research.

Table 1. Operationalization of Evolutionary Variables.

Variable	Theoretical Implication	Empirical Indicators
Variation	Innovation and hybridization of spiritual elements under external pressure.	Frequency of new symbol integration and the degree of ritual localization, quantified through content analysis of historical archives.
Selection	The community's screening and retention of variations.	Years of practical persistence, changes in community participation rates, and organizational acceptance, assessed through field observations and surveys.
Inheritance	Intergenerational transmission and stabilization of adaptive traits.	Proportion of localized religious practices and cross-generational similarity, tracked through documentary analysis and in-depth interviews.
Isolation	Boundary protection to prevent external assimilation.	Intensity of identity tension and the frequency of local belief uniqueness narratives, evaluated through narratives of believers, with spiritual tension treated as an evolutionary cost.

3.3. Selection of Three Cases and Research Objectives

This study validates the evolutionary model of post-colonial spiritual adaptation through a multi-level case analysis of Macau's hybrid belief system, revealing how religious practices achieve cultural resilience through variation, selec-

tion, inheritance, and isolation. Three cases were selected via theoretical sampling to test these mechanisms (Table 2)^[15].

This multi-level sampling design covers macro public rituals, meso symbolic expressions, and grassroots practice levels, ensuring a comprehensive investigation of Macau's hybrid belief system and providing multi-dimensional empirical support for the validity of the evolutionary mechanisms.

Table 2. Case Selection and Analytical Objectives.

Sub-Case	Analytical Level	Rationale for Selection	Research Objective	Corresponding Theoretical Mechanism
Procession of the Passion of Our Lord, the Carrying of the Cross	Macro Public Ritual	High historical depth and public exposure; a classic sample for testing persistence following variation.	To analyze how new forms of faith practice in the public sphere achieve persistence when facing selection pressures.	Variation, Selection
Chinese Imagery in Catholic Art	Meso Symbolic Expression	Symbols are the most enduring cultural forms, capable of revealing the interaction between Catholicism and local customs.	To examine the social logic of symbolic variation and analyze the co-evolution of Catholicism and local customs.	Variation, Selection
Coexistence of Mazu Worship and Veneration of the Virgin Mary	Grassroots Practice Level	A typical hybrid of folk beliefs, highlighted by the proximity of temples and the fusion of individual practices.	To evaluate spiritual tension and identity adjustment at the folk level.	Inheritance, Isolation

3.4. Data Collection Methods and Triangulation

This study employs a multi-source data collection strategy to ensure transparency, rigor, and reliability. The primary methods include in-depth interviews, documentary analysis, and field observation, with triangulation used to mitigate bias and enhance validity (Table 3)^[16].

The study utilizes this multi-source strategy to empirically test the evolutionary adaptation model of Macau's post-colonial belief system. Specifically, in-depth interviews include 15 key informants, 3 focus groups, and 30 semi-structured interviews across three generations, generating approximately 50 h of transcripts. These are primarily used to capture subjective narratives of spiritual adaptation, focusing particularly on personal experiences of the coexistence of Mazu worship and the veneration of the Virgin Mary^[17],

as well as feedback related to the Procession of the Passion of Our Lord.

Documentary analysis systematically examines church archives, policy documents, media reports, and Mazu temple records from the 1980s to the present. By coding keywords such as “hybridity” and “adaptation,” the study confirms symbolic variation in Chinese imagery within Catholic art and the inheritance mechanisms of folk belief coexistence. Field observations include five participations in the 2024–2025 Procession of the Passion of Our Lord and activities surrounding Mazu temples, recording live dynamics and participation rates to provide direct evidence for variation and selection mechanisms. Triangulation integrates interview, documentary, and observational data to enhance overall reliability, with spiritual tension assessed through the characterization of narrative features.

Table 3. Data Collection Methods and Correspondence.

Method	Rationale	Objective	Primary Corresponding Cases
In-depth Interviews	Capture subjective experiences and narratives.	Reveal internal mechanisms and tensions.	Personal experiences of Mazu/Virgin Mary coexistence; participant feedback from processions; interpretation of artistic symbols.
Documentary Analysis	Provide objective historical data and avoid recall bias.	Validate inheritance and variation at the symbolic and institutional levels.	Catholic art archives; historical records of Mazu temples.
Field Observation	Capture real-time dynamics and enhance authenticity.	Quantify community interaction and practical changes.	Procession of the Passion of Our Lord; symbolic usage; activities around temples.
Triangulation	Cross-referencing multiple sources to reduce bias.	Integrate data to form robust conclusions.	All cases.

This comprehensive approach achieves full coverage of the belief system across macro, meso, and folk levels, establishing a reliable empirical foundation for the model's predictive efficacy and the analysis of cultural resilience.

3.5. Ethical Considerations

This study was formally approved by the Institutional Review Board of City University of Macau (IRB Approval No.: [EA20250166]). All procedures adhered to international ethical standards, including the Declaration of Helsinki and local research ethics regulations.

Participants were fully informed and provided written informed consent prior to interviews, focus groups, or observations. Consent forms outlined the study's purpose, procedures, risks, benefits, and right to withdraw. Anonymity and confidentiality were ensured through pseudonymization; data were stored securely and accessible only to the research

team. Participants could withdraw consent at any time, with immediate data deletion. No sensitive issues posing psychological or social harm were involved.

4. Case Analysis

This chapter provides an empirical validation of the evolutionary adaptation model through a multi-level analysis of three sub-cases, elucidating how Macau's post-colonial spiritual system employs mechanisms of variation, selection, inheritance, and isolation to navigate political, economic, and cultural tensions^[18]. The analysis unfolds layer by layer—from macro public rituals and meso symbolic expressions to grassroots practices—revealing the symbiotic fusion of Chinese and Portuguese cultures. Data derived from in-depth interviews, documentary analysis, and field observations are presented within a unified framework to illustrate the interplay

between evolutionary pressures, adaptive behaviors, and hybrid elements. This evidence provides robust support for the model, highlighting the resilience and dynamic equilibrium of the spiritual system under a unique governance framework.

4.1. Case 1: The Procession of the Passion of Our Lord in Macau

The Procession of the Passion of Our Lord, popularly known as “Chut Tai Ye Su” (The Outing of the Great Jesus),

dates back to 1708 and serves as a core Lenten activity for Macau’s Catholic community. The procession commences at St. Augustine’s Church, traverses the historic district, and passes near the Ruins of St. Paul’s. Conducted over two days, the first day involves silence symbolizing Christ’s suffering, while the second day features prayers and singing as devotees carry the statue, attracting thousands of residents and tourists in a blend of colonial Portuguese heritage and a contemporary pluralistic atmosphere (**Figure 2**)^[19].



Figure 2. Scene of the Procession of Our Lord of the Passion^[19].

Evolutionary pressures primarily stem from post-colonial secularization policies and economic transformation. Following the 1999 handover, regulatory requirements necessitated adjustments in scale to mitigate political sensitivity; meanwhile, the gaming economy intensified materialistic tendencies, challenging traditional purity. A senior clergyman noted in a 2024 interview that post-handover, the procession had to avoid being perceived as a colonial relic, placing significant pressure on organizers.

Adaptive behaviors are manifested as localization adjustments: the integration of Chinese prayers, local music, and bilingual signage, alongside inviting non-Catholic residents to participate. After 2000, organizers proactively coordinated schedules to avoid conflict with secular festivals, embedding the procession within cultural festival frameworks, as recorded in the 2010 church annals. Hybrid elements are highlighted by the combination of the Catholic Stations of the Cross with the form of Mazu processions, utilizing Chinese-style lanterns to illuminate the sacred statues, symbolizing collective protection and redemption. A participant observed in 2025 that these similar forms provide communal solace for both Chinese and Portuguese believers. This fusion alleviates tension and strengthens spiritual resilience, exemplifying the mechanisms of variation and selection^[20].

4.2. Case 2: Sinicized Symbolic Expressions in Catholic Art

The fusion of post-colonial culture in Macau is articulated with particular vibrancy in Catholic art, as exemplified by Chinese-style statues of the Virgin Mary and the sculptural reliefs on the façade of the Ruins of St. Paul’s. Originally, the front wall of the Church of Mater Dei, adjacent to St. Paul’s College, the façade remained as the sole standing structure following a fire in 1835, becoming a landmark of Macau. On the third level of the façade, in the left relief section, a bas-relief depicts an Oriental-style demon—a monstrous creature with wings and horns—accompanied by a Chinese aphorism: “魔鬼诱人入诱惑/诱使他们作恶” (“The devil tempts people into temptation/leads them to commit evil”). On the opposite side, a skeleton is carved alongside the Chinese inscription “念死者无为罪” (“Remember the deceased without committing any sin”) (**Figure 3**). This phrase both continues the Christian tradition of memento mori and resonates with the Buddhist concept of Sunyata. Among Baroque structures of the same period, only the Church of St. Paul in Macau features Chinese characters engraved on its front; the edges of these large bas-reliefs are further adorned with subtle motifs such as doves and crowns. These patterns possess cross-cultural commonali-

ties, carrying profound symbolic weight in both Christian and Chinese cultures^[21]. As tourists stand before the façade, sunlight bathes the Chinese characters and reliefs, reflecting a kaleidoscopic interplay of light and shadow that embodies

the intertwining of Eastern and Western art. In the distance, the bustling marketplace and Portuguese-style architecture complement one another, collectively creating an atmosphere of trans-temporal cultural dialogue.

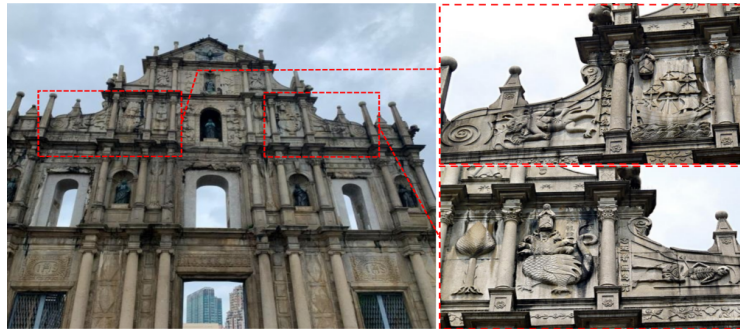


Figure 3. The facade of São Paulo Church, third-level elements of the facade, featuring Chinese characters, on the right side of the front and the left side of the facade^[21].

Evolutionary pressures originate primarily from identity conflicts and the risks of cultural assimilation in the post-colonial era. Following the handover, Macau faced the dual challenge of preserving its Portuguese heritage while integrating into Chinese culture. The commercial exploitation of the Ruins by the global tourism industry has further complicated the maintenance of religious purity. An art historian noted in a 2024 interview that post-handover, the façade has transcended its role as a mere religious symbol to become a hallmark of national identity; this has triggered cultural tensions, necessitating a meticulous balance of Sino-Portuguese elements to avoid erasing colonial history.

Adaptive behavior is primarily realized through symbolic reconstruction. The community has proactively integrated Chinese imagery—for instance, the small Chinese-style lions on either side of the façade serve as guardian carvings, merging with Catholic architectural elements to demonstrate the mutual infiltration of Eastern and Western religions (**Figure 4**)^[22]. A local believer described in a 2025 interview: “When I see São Paulo Church, I feel that Catholicism is no longer foreign; it has become the faith of us Macanese.” This symbiotic relationship effectively alleviates spiritual tension and drives cultural evolution, validating the mechanisms of variation and selection.

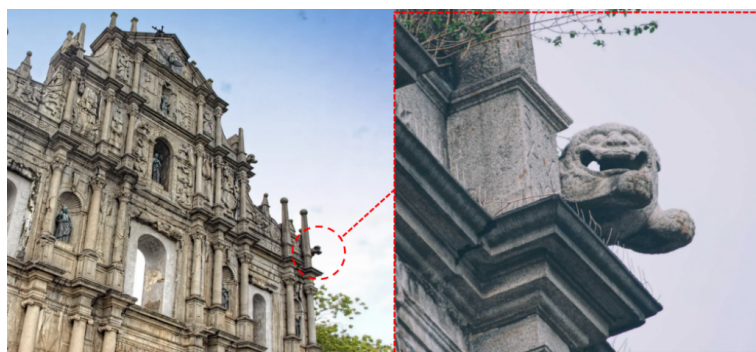


Figure 4. The Chinese lion is harmoniously embedded in the facade of St. Paul's Church^[22].

4.3. Case 3: Coexistence and Fusion of Mazu Worship and Veneration of the Virgin Mary

The most quintessential manifestation of hybridity in Macau's post-colonial folk beliefs is the coexistence of Mazu

worship and the veneration of the Virgin Mary^[23]. Mazu temples and Catholic churches stand in close proximity; devotees integrate processions during festivals and combine the practice of burning incense with the adoration of icons in personal devotion, forming an everyday belief pattern that transcends

a single tradition. Evolutionary pressures originate from post-colonial identity conflicts and globalized secularization. Following the handover, there has been a necessity to balance indigenous traditions with Catholic heritage, while the tourism economy and materialism further dilute religious purity. A devotee noted in a 2024 interview that while the coexistence of Mazu and the Virgin Mary is harmonious, the post-handover era occasionally triggers an internal inquiry regarding “which one is more indigenous.”

Adaptive behavior is achieved through individual and communal adjustments, such as Mazu processions running parallel to Catholic activities during festivals or individuals utilizing both sets of symbols in prayer. Observations indicate that believers proactively synthesize Mazu’s protective connotations with the mercy of the Virgin Mary to cope with modern pressures. Hybrid elements are reflected in the

deep integration of folk practices, such as linking Mazu’s role as a maritime guardian with the maternal veneration of the Virgin Mary to form hybrid prayer forms. A believer stated in a 2025 interview: “I pray for peace to both Mazu and the Virgin Mary; it makes my faith feel more complete.” This symbiosis alleviates spiritual tension and strengthens intergenerational transmission, embodying the mechanisms of inheritance and isolation.

The systematic analysis of these three cases validates the dynamic process of Macau’s post-colonial belief system within the framework of the evolutionary adaptation model (Table 1). This evidence demonstrates that spiritual practices effectively resolve political, economic, and cultural tensions through the mechanisms of variation, selection, inheritance, and isolation, exhibiting significant resilience and balance (Table 4)^[24].

Table 4. Summary of Key Case Findings.

Case	Primary Description	Core Conclusion
Procession of the Passion of Our Lord	Facing secular policies and economic pressures, the ritual responds through localization (Chinese prayers, local music) and fuses Mazu procession forms.	Adaptive behaviors enhance persistence and resilience, embodying variation and selection while promoting community cohesion.
Chinese Imagery in Catholic Art	Facing identity conflicts and commercialization, the system adapts through symbolic reconstruction, such as integrating Chinese aesthetics into statues of the Virgin.	Fusion mitigates tension, validates co-evolutionary mechanisms, and ensures symbolic inclusivity.
Coexistence and Fusion of Mazu & Virgin Mary	Facing identity conflicts and secularization, the community responds through personal dual-worship and parallel communal practices.	Folk fusion alleviates spiritual tension, supports inheritance and isolation mechanisms, and ensures intergenerational continuity.

Multi-level evidence from these three cases confirms that Macau’s belief system effectively resolves post-colonial tensions through Sino-Portuguese symbiosis, achieving a dynamic equilibrium. These findings support the mechanisms of variation, selection, inheritance, and isolation within the evolutionary model, highlighting resilience at public, symbolic, and folk levels through specific adaptive behaviors and hybrid elements, thereby providing a solid foundation for the model’s predictive capabilities^[25].

5. Cross-Case Analysis and Theoretical Model Construction

5.1. Cross-Case Commonalities and Patterns

Cross-case comparison reveals the core common patterns of post-colonial spiritual adaptation in Macau. These patterns demonstrate that different religious entities adopted

systemic coping strategies when faced with similar pressures. The most prominent commonality is the secularization of ritual functions: each case shifted religious practices toward social welfare or cultural tourism to reduce political sensitivity and enhance community inclusivity. This commonality stems from shared pressures within the post-colonial environment, such as secular policies and global economic transformation, which prompted belief systems to maintain survival through functional adjustments.

The secularization of ritual functions is also reflected in the broader cultural evolution of China. Relevant research indicates that cultural practices are transitioning from an economic growth-oriented focus toward a path that serves social cohesion and resilience. The shift in China’s cultural industries—from a focus on output value to the pursuit of social enrichment—exemplifies how functional socialization strengthens communal bonding. This macro-trend provides external corroboration for the cross-case patterns of Macau’s

beliefs, highlighting how economic transformation drives the secular integration of cultural practices to address the challenges of globalization. To clearly present this comparison, this study constructs a synthesis matrix (**Table 5**),

systematically comparing the evolutionary pressures, adaptive actions, and hybrid elements of each case. This matrix is induced from case data to ensure objective and rigorous argumentation.

Table 5. Cross-Case Comparison Matrix.

Sub-Case	Evolutionary Pressures	Specific Adaptive Actions	Hybrid Elements	Common Patterns
Procession of the Passion of Our Lord	Secularization policies and economic transformation	Inclusion of local music and bilingual signage; adjustment of procession scale	Combination of Chinese lanterns with the Catholic Stations of the Cross	Secularization of ritual functions: Transformation into a cultural festival to reduce political sensitivity
Chinese Imagery in Catholic Art	Identity fragmentation and commercialization/tourism pressure	Symbolic reconstruction, such as the design of Chinese-style statues of the Virgin Mary	Mutual infiltration of Catholic conquest imagery with Chinese dragon/phoenix symbols	Secularization of ritual functions: Integration of artistic symbols into tourism heritage
Coexistence of Mazu and Virgin Mary Veneration	Post-colonial identity conflicts and globalized secularization	Individual dual-worship, parallel festivals, and fusion of prayer symbols	Combination of Mazu's protective connotations with the mercy of the Virgin Mary	Secularization of ritual functions: Integration of folk practices into daily life and community inclusivity

The matrix shows that each case consistently adopted a strategy of secularizing ritual functions, such as transforming public processions into cultural events, integrating artistic symbols into tourism heritage, and incorporating folk dual-worship into everyday adjustments. This commonality confirms that the adaptation of Macau's beliefs is a systemic response to post-colonial pressures, thereby strengthening the explanatory power of the theory.

5.2. Finding

This study identifies the Principle of Intergenerational Functional Coupling Selection as the core mechanism of post-colonial spiritual evolution in Macau: only those belief elements that simultaneously satisfy the identity needs of both the younger and older generations are retained—a conclusion supported across all three cases. The Procession of the Passion of Our Lord enhances its appeal to the youth through bilingual prayers while preserving traditional routes; Chinese-style statues of the Virgin Mary synthesize contemporary aesthetics with religious authenticity; and the coexistence of Mazu worship and the veneration of the Virgin Mary reconciles traditional loyalty with modern inclusivity through individual dual-worship and parallel communal practices. Embedded within the variation-selection-inheritance framework, this principle transforms spiritual tension into an adaptive driving force, providing a predictive model for spiritual resilience that extends beyond the static character-

istics of Bhabha's "Third Space." Regulated by communal networks and unique governance, it mitigates the identity crises of globalization and foreshadows further functional secularization, such as digitalized processions. This finding complements post-colonial theoretical frameworks by maintaining cultural diversity through intergenerational dialogue, thereby enhancing the dynamic equilibrium and resilience of Macau's belief system.

5.3. Construction of the Post-Colonial Spiritual Adaptation Evolutionary Model

Based on cross-case evidence, this study constructs an Evolutionary Model of Post-Colonial Spiritual Adaptation, providing a dynamic framework to elucidate the process of spiritual adaptation in Macau, presented here in the form of a flowchart. The core structure of the model encompasses inputs, processes, and outputs. Inputs consist of post-colonial environmental factors—such as secular policies, economic transformation, and identity conflicts—which trigger spiritual tension and initiate spiritual variation. The Process centers on the principle of intergenerational functional coupling selection, driving variation, selection, inheritance, and isolation between Chinese and Portuguese elements, which alleviates tension to achieve dynamic equilibrium. Outputs are manifested as the adapted belief system, characterized by enhanced cultural resilience, identity harmony, and the continuity of faith.

Cross-case evidence validates the efficacy of this principle. Compared to Bhabha's "Third Space" theory, this model offers greater dynamism and predictive power: while the former focuses on static ambiguity and resistance without directional prediction, the latter reveals evolutionary trajectories through selection principles—for instance, demonstrating that only elements coupling old and new needs can endure. This model supports the anticipation of spiritual trends, such as the further secularization and fusion of Macau's beliefs under globalization, providing effective theoretical guidance. Case evidence further confirms this: in 2024, a veteran participant in the procession noted the necessity of integrating modern music to attract the youth while retaining traditional routes to satisfy the historical memory of the elderly, embodying functional coupling; a 1996 Catholic art restoration report emphasized that the design of Chinese-style Virgin Mary statues must balance youthful aesthetics with the religious purity of the elderly to ensure symbolic intergenerational transmission; the case of Mazu and Virgin Mary coexistence shows that devotees reconcile traditional and modern demands through personal dual-worship, ensuring the intergenerational continuity of folk practices.

6. Discussion

6.1. Theoretical and Practical Contributions

This study provides theoretical supplements and practical insights for post-colonial cultural studies and the sociology of religion. At the theoretical level, first, the Principle of Intergenerational Functional Coupling Selection reveals the inherent patterns of spiritual evolution: only those elements that simultaneously satisfy the needs of both the new and older generations are retained. This principle extends the descriptive analysis of traditional hybridity theories, providing a dynamic and predictive model capable of systematically elucidating spiritual resilience within Asian post-colonial contexts. Second, by integrating inputs, processes, and outputs, the Evolutionary Model of Post-Colonial Spiritual Adaptation introduces a biological perspective into cultural evolution research, contributing a new framework for the dynamic analysis of post-colonialism.

At the practical level, this study offers policy references for Macau and similar multicultural regions. For instance, in

the preservation of cultural heritage, governments can utilize the selection principle to promote the secularization of ritual functions—such as integrating processions into tourism frameworks—to balance political sensitivity with community identity. This facilitates the maintenance of cultural diversity and promotes social harmony. For post-colonial societies such as Hong Kong and Singapore, this model supports the formulation of policies that emphasize intergenerational coupling to prevent spiritual decline and enhance cultural resilience.

6.2. Research Limitations and Future Directions

Although this study has gained profound insights through collective case analysis, several limitations remain. First, the results are based on analytical generalization rather than statistical generalization; while the three cases are representative, they cannot be directly extrapolated to all spiritual practices in Macau or global post-colonial contexts. Second, although the data spans from the late 1980s to the present, reliance on historical archives and interviews may introduce recall bias; furthermore, the geographic limitation to Macau overlooks potential variables involving interactions with mainland China. Additionally, while the qualitatively-driven methodology provides rich detail, it lacks large-scale quantitative validation, which may constrain the model's precision.

Future research could conduct quantitative testing based on this model, such as quantifying the predictive efficacy of the selection principle through longitudinal surveys or testing variable relationships using statistical models. Furthermore, the scope could be expanded to other areas of cultural conflict, such as post-colonial beliefs in Africa or Latin America, to test the model's cross-cultural applicability. It is suggested that big data analysis be introduced to supplement micro-dynamics, further enhancing the breadth and depth of the research.

7. Conclusions

Utilizing a collective case study and an evolutionary perspective, this research elucidates the process of post-colonial spiritual adaptation in Macau, revealing how the

hybridity of Mazu worship and Catholicism achieves dynamic equilibrium through the Principle of Intergenerational Functional Coupling Selection: only those belief elements that satisfy the requirements of both the new and older generations are preserved. The three cases demonstrate that the secularization of ritual functions effectively integrates practices into tourism and community welfare, enhancing cultural resilience in response to secular policies and economic pressures.

Theoretically, this framework introduces the variation-selection-inheritance mechanism, transforming spiritual tension into an adaptive driving force, thereby extending Bhabha's static "Third Space" theory and supplementing Asian post-colonial studies. Practically, it provides a reference for policymakers to maintain cultural diversity through intergenerational dialogue. The beliefs of Macau exhibit remarkable resilience through Sino-Western syncretism, manifesting hybridity as an advanced strategy for post-colonial cultural adaptation.

Author Contributions

Conceptualization, validation, formal analysis, investigation, writing—original draft preparation, Z.L.; methodology, software, data curation, writing—review and editing, supervision, project administration, Y.Z. All authors have read and agreed to the published version of the manuscript.

Funding

This work received no external funding.

Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of City University of Macau (IRB Approval No.: EA20250166).

Informed Consent Statement

Written informed consent was obtained from all subjects involved in the study prior to their participation in interviews, focus groups, or observations.

Data Availability Statement

Not applicable.

Conflicts of Interest

The authors declare no conflict of interest.

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