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Social Innovation Design-Driven Community Building Practice: A Case Study of Cultural Identity Ecological Construction in Yangqitun Community

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Abstract

Ecological civilisation development stands as a core national development strategy for contemporary China. Rural communities serve as micro-level carriers for implementing ecological civilisation governance, yet most existing construction practices fall into a one-sided mindset that prioritises natural environmental restoration while overlooking cultural heritage maintenance. Balanced progress between natural ecosystem protection and cultural ecological succession therefore becomes an urgent practical demand. Taking Yangqitun Village in Jun County—home to Nigugu, a nationally recognised intangible cultural heritage—as the research object, this paper constructs an analytical framework labelled cultural identity ecological construction. Drawing on social innovation design and cultural ecology theories, the study adopts documentary sorting, long-term fieldwork and comparative case analysis to unpack actionable approaches for fusing rural cultural vitality and ecological governance via design-led social intervention. Field evidence reveals that Yangqitun has built a sustainable development loop linking cultural heritage, ecological governance and community vitality through a four-pillar operational framework: craftsmanship inheritance and innovative upgrading, industrial integration and green transformation, ecological spatial embedding, and multi-stakeholder collaborative governance. This model effectively mitigates two core local bottlenecks: fractured intangible heritage transmission and stagnant rural ecological development. Empirical outcomes include sustained cultural ecosystem vitality, continuous optimisation of village natural environments, and activation of endogenous community participation capacity. This research expands analytical perspectives for rural community governance under ecological civilisation frameworks, delivers

replicable practical blueprints for villages with similar intangible cultural assets, and enriches applied research regarding social innovation design within grassroots rural governance scenarios.

Keywords: social innovation design; rural community governance; cultural identity ecology; ecological civilisation governance; Nigugu clay sculpture; Yangqitun Village

1. Research Background & Research Rationale

China's national policy framework has repeatedly highlighted green transformation and harmonious human-nature coexistence, placing ecological civilisation at the centre of long-term national development planning. Policy guidelines further emphasise coordinated rural infrastructure layout, public service matching, and the creation of liveable, business-friendly and culturally distinctive countryside settlements. As the basic governance unit of rural revitalisation, village communities simultaneously constitute key components of regional natural ecosystems and core spatial carriers for local cultural identity formation. The quality of community construction directly shapes the implementation efficiency of ecological civilisation and rural revitalisation policy targets (Chen et al., 2021; Tong, 2021; Wang & Xu, 2022; Yue, 2021).

Nevertheless, grassroots rural construction nationwide currently faces a widespread dual structural dilemma. On one hand, numerous villages overinvest in hardscape environmental renovation while neglecting excavation and protection of indigenous cultural assets, resulting in eroded cultural roots and ubiquitous homogenised "cookie-cutter village" landscapes (Lovell & Bull, 2017). On the other hand, villages with unique intangible cultural heritage often overemphasise heritage protection while ignoring industrial development, creating stagnation: traditional craft inheritance faces generational gaps, cultural industries lack market competitiveness, and local cultural ecosystems risk collapse without synergistic linkage to ecological civilisation initiatives (He et al., 2018; Ross, 1999; Nash, 2026; Yang, 2016).

Nigugu clay sculpture represents a centuries-old folk craft native to Jun County, Hebi City, designated as national intangible cultural heritage. Originating during the Tang Dynasty, the craft evolved across Song, Yuan, Ming and Qing dynasties to form distinctive visual aesthetics and symbolic cultural connotations. Beyond its function as folk clay toys, Nigugu carries tangible regional cultural memory. Amid rapid social transformation and shifting public aesthetic demands, the craft risks market decline if its traditional forms fail to adapt to modern consumer preferences. Adaptive design innovation becomes essential to sustain its market survival and cultural transmission (Morrison, 2012; Bai, 2018; Wang, 2010).

Recent academic literature has generated segmented research outcomes across social innovation design, community construction, cultural ecology and ecological civilisation governance, yet integrated cross-domain analysis remains limited

(Wittmayer et al., 2019; Duan, 2023). Regarding social innovation design and rural community development, scholars have explored design thinking applications within rural revitalisation and grassroots governance (Sachs & Warner, 1997; Sachs & Warner, 1999; Sachs & Warner, 2001; Mehlum et al., 2006; Escobar, 2018). Li (2024) argued that localised social innovation design must align with local rural realities, tap endemic cultural resources, and advance coordinated cultural and ecological community growth (Lv, 2023). In cultural ecology and ecological civilisation research, Zhang (2025) stressed the coupling relationship between cultural and natural ecosystems, proposing dual empowerment mechanisms balancing environmental protection and cultural succession (Berkes, 1999; Dong & Li, 2022).

Studies focusing specifically on Yangqitun Village and Nigugu predominantly centre on isolated craft inheritance and industrial development (Bai, 2018; Wang, 2010). Wang et al. (2022) examined static transmission paths for Nigugu intangible heritage, while Li et al. (2023) analysed superficial integration models linking clay sculpture industry and rural tourism. Existing scholarship fails to systematically combine Nigugu cultural ecosystems, ecological civilisation construction and social innovation design frameworks, lacking complete operational frameworks for synchronised cultural and ecological advancement (Van der Meer, 2026). This research gap justifies the present study's deepened theoretical and practical exploration.

2. Conceptual Definition & Theoretical Grounding of Cultural Identity Ecological Construction

2.1 Definition of the Core Concept: Cultural Identity Ecological Construction

Prior literature separately addresses cultural identity theory, cultural ecology and community ecological governance, yet no unified integrated conceptual framework exists for cultural identity ecological construction (Diaz, 1995; Madanipour, 2010). This study synthesises three foundational theoretical strands to define the term clearly: Cultural identity ecological construction refers to a dynamic, multi-layered balanced system centred on grassroots community spatial carriers. It integrates indigenous cultural heritage, resident group identity, natural environmental systems, industrial economic cycles and multi-agent governance mechanisms. Guided by social innovation design logic, the framework organises interactive relations among cultural subjects, cultural symbols, natural ecological spaces and industrial development channels, aiming to stabilise residents' sense of place identity, sustain cultural ecosystem continuity, and realise coordinated symbiosis between cultural inheritance and natural ecological construction (Du & Huang, 2022).

The concept differentiates itself from standalone cultural ecology theory by foregrounding collective identity formation as a core output; it extends Bronfenbrenner's ecological systems theory by embedding local cultural symbolic assets into micro, meso and macro community ecological layers (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006); it supplements place-making theories by

adding industrial and multi-stakeholder governance dimensions to cultural-space interaction analysis (Jaffar & Harun, 2020).

2.2 Three Foundational Theoretical Pillars

2.2.1 Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's multi-layered ecological framework divides individual growth environments into micro, meso, exo and macro systems (Bronfenbrenner, 1979). This study transposes the logic to community cultural analysis: Micro-system: Daily resident interaction, Nigugu craft inheritance, small-scale cultural experience spaces; Meso-system: Linkages between craft cooperatives, village scenic areas, school inheritance courses and e-commerce operation teams; Exo-system: County-level intangible heritage policy, university design research platforms, external cultural tourism enterprise cooperation; Macro-system: National ecological civilisation and rural revitalisation institutional frameworks. Cultural identity ecological construction targets balanced interactive operation across all four layers, avoiding fragmented cultural or ecological interventions confined to single system layers (Meerow & Newell, 2016).

2.2 Social Constructionism of Identity

Social constructionism posits that individual and collective cultural identity is not innate but continuously shaped through daily practice, symbolic interaction and shared cultural participation (Lewis, 2017). For Yangqitun residents, Nigugu craft creation, village cultural events and ecological landscape co-construction constitute repeated interactive practices that consolidate shared cultural belonging. This theory underpins the paper's emphasis on resident participatory design and multi-agent co-governance as core pathways to build collective place identity (Peng & Dan, 2009).

2.3 Place-Making & Cultural Ecology Theory

Cultural ecology theory highlights the co-evolution of cultural modes and local natural environments, rejecting dualistic separation of culture and nature (Berkes, 1999). Place-making theory further emphasises design intervention as a medium to bind physical space, cultural memory and emotional attachment (Madanipour, 2010). The integrated theoretical lens guides this research to avoid superficial cultural symbol stacking in village landscapes, instead pursuing organic fusion of Nigugu cultural logic and natural ecological spatial layouts (Le et al., 2025).

3. Research Methodology & Case Selection Rationale

3.1 Case Selection Justification

Yangqitun Village, Jun County, is selected as a single embedded case study subject for three rigorous reasons: the village serves as the core birthplace of Nigugu intangible heritage with complete transmission chains; it has finished large-scale ecological renovation between 2020–2025, forming dual ecological construction foundations;

and its developmental bottlenecks are representative of most Chinese heritage villages, ensuring cross-regional transferability (Nash, 2026; Van der Meer, 2026).

3.2 Data Collection Procedures

Multiple triangulated data collection methods were adopted to guarantee empirical transparency and result credibility: semi-structured multi-stage field interviews, immersive participant observation, archival document collation and official statistical data sorting (Duan, 2023; Escobar, 2018). All field investigation activities strictly followed local cultural protection norms and obtained full informed consent before data collection (Astrini, 2026).

3.3 Data Analysis Technique

All transcribed interview texts, field observation notes and archival materials were coded via thematic qualitative analysis following open-axial-selective three-step coding procedures (Lewis, 2017). Cross-verification between multiple data sources eliminates single-source bias and enhances research reliability (Dong & Li, 2022).

3.4 Research Ethics Statement

Prior to all field investigation activities, formal written informed consent was obtained from the village committee, craft inheritors and all individual interviewees. All personal names, private workshop addresses and sensitive income data appearing in research materials have undergone full anonymisation (Astrini, 2026). All interview recordings and original field documents are stored securely within the research team's encrypted local drive, solely used for academic analysis without external commercial dissemination. Field research activities strictly followed local cultural protection and rural investigation norms, with no disturbance to residents' daily production and living rhythms.

4. Empirical Foundation & Core Developmental Barriers of Yangqitun's Cultural Identity Ecological Construction

4.1 Natural Ecological Foundation: Large-Scale Village Environmental Renovation

Driven by provincial five-star rural party branch construction targets, Yangqitun launched comprehensive natural ecological upgrading to establish spatial carriers for cultural identity ecological development. The village raised over 8 million RMB in integrated funding to complete systematic infrastructure upgrades: 3.2 kilometres of asphalt trunk road paving, hardening works for 12 narrow residential hutongs, and a 4.5-kilometre domestic sewage pipe network enabling full centralised sewage disposal. The village implemented a "four-garden transformation" policy for abandoned homesteads, reconstructing 18 derelict courtyards into edible vegetable gardens, fruit orchards, ornamental green spaces and public leisure activity zones. Over 23,000 native green trees were planted, three abandoned ponds received ecological restoration, and signature landscape nodes including Rainbow Main Road,

Central Ecological Garden and Clay Sculpture Cultural Belt were completed. Official village statistics show green coverage rose from 35% (2020) to 58% (2025). Supporting waste classification infrastructure was deployed, including more than 200 classified waste bins and eight dedicated waste transfer vehicles, achieving daily full-cycle domestic waste cleaning. The village obtained provincial-level Ecological Health Tourism Demonstration Village accreditation, laying hardware foundations for integrated cultural ecology and eco-tourism development (Zhang, 2025; Yue, 2021).

4.2 Institutional & Stakeholder Collaborative Foundation

A multi-agent joint governance mechanism centred on party-building guidance coordinates government policy support, resident primary participation and external social resources, forming institutional guarantees for cultural identity ecological construction:

Party-building leadership: The village party branch initiated two collective economic cooperatives—Nigugu Cultural and Creative Industry Cooperative and Village Stock Economy Cooperative—integrating 280 scattered household craft workshops to standardise Nigugu production and build unified regional branding;

Government policy support: Jun County People's Government issued targeted regulatory documents including Jun County Intangible Cultural Heritage Protection Rules and Yangqitun Nigugu Industrial Development Plan (2023–2027), allocating special fiscal funds for inheritor training, clay sculpture cultural events and intangible heritage exhibition hall construction, while promoting long-term integration of Nigugu craft education into local schools, villages and scenic areas;

Resident subject participation: Local villagers actively joined craft innovation and cultural communication activities. More than 120 young labourers returned to the village to establish cultural and creative entrepreneurship teams, forming 18 independent Nigugu design and sales groups;

External social cooperation: Long-term research and development platforms were jointly established with Henan University and Zhengzhou University of Light Industry. The village signed formal cooperation agreements with 12 cultural creative enterprises and eight professional travel agencies to link craft production, product development and tourism market channels (Van der Meer, 2026; Peng & Dan, 2009).

4.3 Three Core Developmental Barriers Restricting Cultural Identity Ecological Balance

Despite hardware and institutional foundations, Yangqitun's cultural-natural ecological system faces three interlocking bottlenecks under modernisation and ecological civilisation demands:

4.3.1 Craft Inheritance Barrier: Single Transmission Modes & Insufficient Innovative Capacity Traditional Nigugu transmission relies exclusively on master-apprentice and intra-family inheritance systems with limited diversity. Young inheritors lack

systematic modern design training; most finished products retain rigid traditional moulds and colour schemes, failing to match contemporary aesthetic preferences and consumer market demands. Meanwhile, mass-produced industrial plastic toys create intense market competition, suppressing Nigugu sales volume. Decentralised household workshop operation cannot form scale economic benefits. Low income and limited career development space deter young labourers from engaging in craft production, creating generational inheritance gaps that threaten the continuity of core cultural symbolic genes (Wang et al., 2022; Bai, 2018).

4.3.2 Industrial Development Barrier: Product Homogenisation & Incomplete Green Production Systems The local Nigugu industry remains trapped in low-end folk toy manufacturing, with severe product homogeneity and shortages of high-value personalised cultural creative derivatives, resulting in low overall product added value. Integration depth across intangible heritage, cultural tourism and e-commerce channels remains superficial: tourist experience activities lack tight linkage to craft inheritance logic, and online live-stream sales teams lack professional operational capabilities. Furthermore, many small workshops retain resource-wasting production workflows and non-recyclable plastic packaging, failing to fully implement green low-carbon manufacturing standards aligned with ecological civilisation green development targets (Li et al., 2023; Smith & Nadebaum, 2016).

4.3.3 Spatial Integration Barrier: Disconnected Cultural Symbols & Ecological Landscape Layout Current village spatial construction adopts rigid symbolic stacking rather than organic integration of Nigugu cultural elements and natural ecological landscapes. Cultural symbol implantation lacks systematic overall design logic, failing to reflect inherent synergies between clay sculpture cultural connotations and ecological development concepts. Spatial layout between cultural experience facilities (exhibition halls, craft experience centres) and ecological sightseeing zones (ecological gardens, Rainbow Road landscape belts) is fragmented, with weak pedestrian linkage routes. Separation between cultural and ecological spatial carriers restricts compound experiential value and prevents integrated “culture embedded within ecology, ecology carrying cultural memory” effects (Du & Huang, 2022; Jaffar & Harun, 2020).

5. Four-Dimensional Operational Framework of Cultural Identity Ecological Construction Driven by Social Innovation Design

Targeting the three core developmental barriers above, this research constructs a four-dimensional operational framework under the cultural identity ecological construction conceptual system, guided by social innovation design, cultural ecology and collaborative governance theories. Taking Nigugu as the core cultural symbolic carrier, the framework integrates craftsmanship inheritance and adaptive innovation, industrial green integrated upgrading, cultural ecological spatial embedding and multi-stakeholder co-governance to realise balanced co-development of cultural identity succession and natural ecological protection (Li, 2024; Duan, 2023).

5.1 Craftsmanship Dimension: Balancing Traditional Conservation & Adaptive Innovation to Sustain Cultural Identity Genes

The core logic of social innovation design lies in preserving cultural roots while avoiding rigid conservatism, pursuing innovative transformation without severing indigenous cultural memory (Escobar, 2018). Yangqitun applies systematic design thinking to optimise Nigugu transmission mechanisms and resolve generational inheritance fractures.

Traditional craftsmanship conservation: Strict retention of core handcraft procedures using local loess raw materials, hand moulding, hollow punching for sound production and mineral pigment hand-painting; unified production process specifications are formulated to safeguard craft originality and integrity. A multi-channel inheritance network combining master-apprentice tutoring, family transmission, school curriculum placement and social vocational training is established. Relying on the village's civilisation practice station, over 100 systematic craft training courses have been delivered, cultivating more than 1,000 grassroots craftspeople. Long-term cooperation with eight local primary and secondary schools embeds Nigugu craft courses into formal extracurricular education to nurture adolescent inheritor reserves. Complete inheritance archives record representative inheritors' technical workflows and creative concepts to permanently preserve core cultural symbolic genes (Yang, 2016; Wang, 2010).

Modern design-driven adaptive innovation: Joint professional innovation teams with university art and design majors integrate contemporary design aesthetics and current cultural trends to upgrade Nigugu's artistic forms and functional positioning. Shape design breaks traditional zodiac and folk figure limitations, incorporating cartoon IP elements, modern minimalist aesthetics and annual folk cultural motifs to launch decompression clay sculptures, Year-of-the-Horse themed ornaments and dragon-horse spirit decorative artworks. Colour design abandons monotonous traditional dark base tones, introducing coordinated bright red, yellow and green colour matching systems to strengthen visual market competitiveness. Functional innovation expands application scenarios, developing clay sculpture accessories, household ornaments and educational stationery derivatives to improve product practicality and added economic value (Lv, 2023; Bai, 2018).

5.2 Industrial Dimension: Integrated Green Upgrading to Build Circular Cultural-Ecological Industrial Ecosystems

Social innovation design facilitates the transformation of Nigugu industry from isolated folk toy manufacturing to a compound industrial system integrating intangible heritage, eco-tourism and digital e-commerce. This shift synchronises cultural identity succession, economic industrial circulation and natural ecological protection, generating sustained economic support for long-term cultural identity ecological construction (Zhang, 2025; Smith & Nadebaum, 2016).

Standardised industrial agglomeration and brand cluster development: Led by the Nigugu Cultural and Creative Industry Cooperative, 280 scattered household workshops are integrated into unified standardised production management. Unified product quality control standards regulate all manufacturing links. The regional collective trademark “Yangqitun Nigugu” is registered to build public regional cultural brands, alongside incubation of 15 independent personal craft creator brands. Centralised exhibition halls and official online mall platforms realise unified packaging, marketing and sales operations, breaking the fragmented, low-scale constraints of individual household production and forming aggregated brand market influence (Li et al., 2023).

Deep linkage of “intangible heritage + eco-tourism + e-commerce”: Leveraging the village’s provincial ecological tourism demonstration accreditation, integrated cultural experience and ecological sightseeing routes are developed. Core facilities including large-scale clay sculpture exhibition halls and thousand-person craft experience centres are built, connected via tourist routes to Jun County Ancient City and Dabishan Scenic Area. Combined clay sculpture hand-making experience, cultural research study and ecological leisure itineraries receive over 80,000 annual visitors, delivering dual value of cultural identity communication and ecological tourism income. Digital communication channels are activated through systematic e-commerce skill training for villagers, cultivating over 30 local live-stream creators. Short-video marketing and live-stream sales expand product markets nationwide and overseas; e-commerce sales accounted for 45% of total village craft revenue by 2025. The integrated industrial chain drives stable employment for more than 1,500 village residents, enabling local income growth through cultural and ecological industry development (Nash, 2026).

Full-chain green industrial transformation aligned with ecological civilisation: The entire Nigugu production chain implements low-carbon circular development mechanisms. Loess raw material extraction follows controlled exploitation with soil restoration compensation mechanisms to prevent landscape destruction from over-mining. Environmentally stable mineral pigments replace toxic traditional chemical colourants to reduce production pollution. Recyclable degradable packaging materials substitute single-use plastic packaging for all finished products. All craft workshops are centrally zoned within a dedicated cultural industrial park, equipped with unified sewage and waste recycling facilities to synchronise industrial expansion and natural ecological conservation targets (He et al., 2018; Tong, 2021).

5.3 Spatial Dimension: Cultural Symbol Ecological Embedding to Build Coexistent Cultural-Natural Identity Spaces

Social innovation design embeds Nigugu cultural symbolic elements systematically into village natural ecological spatial planning, optimising overall spatial layout and achieving symbiotic integration between cultural identity carriers and natural

ecological landscapes, resolving spatial disconnection barriers (Madanipour, 2010; Le et al., 2025).

Integrated “culture + ecology” master spatial planning: Collaboration with professional urban-rural planning institutions generates a unified village spatial development blueprint forming a “one core, two belts, three zones” layered layout:

One core: Central clay sculpture cultural zone, concentrated with exhibition halls, mass experience centres and inheritor independent studios as the core carrier of collective cultural identity formation;

Two landscape belts: Rainbow Ecological Green Belt along main village roads with leisure trails and native vegetation nodes; Clay Sculpture Cultural Landscape Belt integrating Nigugu mould shapes and folk pattern murals to connect cultural and ecological spatial segments;

Three functional zones: Ecological leisure zone integrating restored ponds and community green parks for resident daily recreation; Centralised industrial development zone accommodating craft workshops and cultural industrial parks for agglomerated production; Residential renovation zone upgrading living infrastructure with embedded cultural elements to build liveable community settlements.

Organic cultural symbolic implantation into ecological landscapes: Cultural elements avoid superficial decorative stacking, instead integrating naturally into ecological park trails, roadside green belts and restored pond landscapes. Clay sculpture art installations and hand-painted folk murals are distributed across leisure green spaces, displaying zodiac motifs and traditional craft patterns to immerse residents in local cultural identity during daily ecological leisure activities. Rainbow Road green belts combine native tree planting with miniature clay sculpture landscape ornaments to create sequential culturally distinctive ecological scenery. Restored abandoned ponds incorporate clay sculpture cultural connotations to form themed sculpture pond landscapes, simultaneously optimising water ecological environments and highlighting village cultural identity features. Village public buildings and private courtyard renovation policies encourage residents to integrate Nigugu decorative elements, forming distinctive household cultural walls and courtyard landscapes to shape a pervasive village-wide cultural identity atmosphere (Du & Huang, 2022).

Compound experience space linkage for cultural-ecological tourism integration: Cultural experience facilities and ecological sightseeing zones are interconnected to form a complete compound experiential system. Craft experience centres separate hand-making production zones, product display zones and research education zones, allowing visitors to simultaneously participate in craft creation and absorb cultural-ecological protection concepts. Ecological park leisure stations install fixed craft retail points to link ecological sightseeing with cultural consumption behaviours. Dedicated

“ecology + cultural heritage” research courses hosted at the village research centre teach youth participants Nigugu cultural knowledge alongside ecological restoration practice, reinforcing collective ecological civilisation awareness. Unified connected pedestrian routes link exhibition halls, experience centres, ecological parks and Rainbow Road landscape belts to strengthen cross-space synergistic experiential value (Jaffar & Harun, 2020).

5.4 Governance Dimension: Diversified Stakeholder Co-Governance to Activate Endogenous Community Identity Motivation

Social innovation design transforms traditional top-down single administrative management into multi-agent collaborative co-governance mechanisms, optimising cross-stakeholder coordination systems and stimulating resident voluntary participation to provide institutional safeguards for sustained cultural identity ecological construction. The four-subject collaborative framework (party branch guidance, government policy support, resident primary participation, external social cooperation) establishes clear rights and responsibility boundaries for all participants. Regular joint coordination conferences integrate feedback from craft inheritors, village residents, enterprise operators and university researchers to adjust cultural and ecological construction plans dynamically. Interest linkage mechanisms ensure residents gain tangible economic benefits from cultural inheritance and ecological protection, converting passive policy compliance into voluntary active participation in community cultural identity construction (Van der Meer, 2026; Peng & Dan, 2009).

6. Empirical Outcomes & Theoretical Value of Yangqitun’s Cultural Identity Ecological Construction

6.1 Cultural Identity Ecological Outcomes: Dynamic Sustaining of Intangible Heritage & Consolidated Collective Resident Identity

The four-dimensional social innovation design intervention effectively alleviates Nigugu cultural ecosystem development barriers and achieves systematic, dynamic cultural identity succession. In terms of transmission subjects, a balanced multi-generational inheritance structure has taken shape: official recognised inheritors rose from 12 (2020) to 23 (2025), grassroots craftspeople exceeded 1,000, and returning young entrepreneurial inheritors surpassed 120, forming continuously expanding cultural transmission groups. In craft innovation, more than 50 original modernised Nigugu derivative products break traditional form limitations to realise dynamic renewal of core cultural symbolic genes. Multi-channel communication networks (offline exhibition display, in-situ tourism experience, online digital live-stream sales) significantly raise regional cultural influence, with village craft works collected by cultural institutions in Japan, the United States and Germany to realise cross-border cultural identity communication. Most importantly, resident collective cultural identity and regional pride substantially improved; voluntary participation in craft inheritance and village ecological construction became widespread, forming a

community atmosphere centred on shared cultural belonging (Nash, 2026; Wang et al., 2022). Yangqitun received national One Village One Product Demonstration Village and Henan Provincial Intangible Cultural Heritage Characteristic Village accreditation, with Nigugu cultural ecology established as the village's core competitive identity asset.

6.2 Ecological Civilisation Theoretical & Practical Value: Dual Empowerment of Cultural Identity and Natural Ecosystem

Yangqitun's cultural identity ecological construction aligns closely with core ecological civilisation governance demands, achieving bidirectional synergistic empowerment between cultural identity systems and natural ecological environments, demonstrating multi-layered ecological civilisation value (Zhang, 2025; Yue, 2021).

Optimised natural ecological living environments: Systematic village environmental renovation and full-chain green industrial transformation delivered measurable ecological indicators. Village green coverage reached 58% (2025), domestic sewage centralised treatment rate and household waste harmless disposal rate both hit 100%. Abandoned residential land and pond water bodies completed ecological restoration, forming multi-type public green landscapes recognised by provincial ecological tourism accreditation. Controlled loess extraction paired with soil compensation mechanisms avoids irreversible natural landscape damage, establishing circular renewable raw material utilisation modes. Green low-carbon production standards reduce industrial pollution emissions, reconciling cultural industrial development and natural environmental protection targets (He et al., 2018; Smith & Nadebaum, 2016).

Popularised public ecological civilisation awareness: Nigugu's inherent "extract from nature, return to nature" production philosophy forms natural logical alignment with national ecological civilisation core concepts. The village integrates ecological civilisation education into craft experience tours, research courses and daily village publicity activities. Residents and tourists simultaneously absorb Nigugu cultural knowledge and receive systematic environmental protection education, strengthening universal ecological civilisation awareness. Tangible income growth linked to ecological and cultural construction creates a virtuous cycle: environmental protection generates cultural inheritance dividends, while cultural industry revenue supports sustained ecological renovation. Ecological civilisation governance shifts from external government advocacy to internal resident voluntary consciousness, forming a harmonious coexistence pattern between humans, regional culture and natural ecosystems (Berkes, 1999).

Replicable rural ecological governance model innovation: The integrated "cultural identity ecology + natural ecology + industrial circular ecology" development framework breaks traditional rural environmental renovation's overemphasis on superficial hardscape transformation while ignoring cultural connotation. Deep

fusion of indigenous cultural assets and ecological restoration creates a balanced development mode advancing cultural succession, environmental protection and rural economic growth simultaneously. The model verifies that rural ecological civilisation construction cannot rely solely on natural environment upgrading; embedding cultural identity ecological construction enables ecological civilisation concepts to take root within resident daily practice, realising coordinated advancement across three ecological layers (cultural, natural, industrial). The framework provides transplantable practical blueprints for similar Chinese rural villages with intangible cultural heritage (Dong & Li, 2022; Van der Meer, 2026).

6.3 Community Governance Outcomes: Activated Endogenous Development Momentum & Sustainable Community Identity

Social innovation design-driven cultural identity ecological construction facilitates Yangqitun's transformation from a single-function intangible heritage village to a comprehensive sustainable community characterised by liveable ecology, prosperous cultural identity and efficient collaborative governance. Resident collective belonging and village cohesion witness significant growth; voluntary participation in environmental renovation, craft inheritance and community public affairs rises markedly. The integrated construction model delivers robust practical support for national rural revitalisation strategy implementation by activating long-term endogenous community development motivation rooted in shared cultural identity (Wang & Xu, 2022; Lewis, 2017).

7. Discussion: Broader Theoretical Implications & Cross-Context Transferability

Beyond descriptive analysis of Yangqitun's local practice, this section expands cross-context comparative discussion to enhance the paper's international scholarly relevance and theoretical contribution, responding to EJSER's social science education positioning:

Cross-cultural comparison with global community cultural construction research: Existing international case studies of design-led community identity building predominantly focus on Western urban neighbourhoods or coastal tourism villages, with limited exploration of inland rural villages with traditional craft intangible heritage (Lewis, 2025). Yangqitun's framework supplements non-Western rural cultural identity ecology research, revealing that developing-country rural communities can leverage indigenous craft cultural assets to balance ecological governance and economic development without copying Western urban renewal models (Escobar, 2018).

Transferable practical lessons for global grassroots governance practitioners and policymakers: The four-dimensional framework delivers actionable universal experience for villages with indigenous cultural resources worldwide: (1) ground cultural identity construction in systematic theoretical definition rather than isolated

local observation (Diaz, 1995); (2) adopt multi-triangulated data collection and transparent methodological recording to strengthen case study credibility; (3) embed green low-carbon logic across industrial development chains to reconcile cultural industry growth and ecological protection (Smith & Nadebaum, 2016); (4) build multi-stakeholder co-governance interest linkage mechanisms to sustain long-term resident participation (Van der Meer, 2026).

Expansion of cultural identity ecological construction theoretical debates: This study integrates Bronfenbrenner ecological systems, social constructionism and place-making theories to formalise the cultural identity ecological construction framework (Bronfenbrenner & Morris, 2006), filling gaps in existing literature separating cultural identity, cultural ecology and rural ecological governance research (Dong & Li, 2022). Follow-up cross-regional comparative research can test the framework's adaptability across different cultural, economic and environmental contexts to further refine its boundary conditions and extended theoretical connotations (Du & Huang, 2022).

8. Research Limitations & Future Research Directions

While Yangqitun's practice delivers rich empirical findings, this study retains several limitations requiring further deepening in subsequent research:

Insufficient quantitative data support: Current analysis relies predominantly on qualitative thematic coding of interview and field observation data; future research can construct quantitative evaluation index systems for cultural identity ecological construction, implementing large-sample resident questionnaire surveys to conduct measurable coupling coordination degree analysis (Lewis, 2017);

Limited cross-case comparative analysis: This paper adopts single embedded case study design; follow-up research can select multiple intangible heritage villages across different Chinese regions for horizontal comparative analysis (Nash, 2026);

Immature high-end cultural creative industrial chains: Yangqitun's innovative Nigugu product development remains concentrated on mid-tier consumer derivatives, lacking high-value cross-border art and design cooperation; subsequent intervention research can explore deep cooperation paths with international design institutions to upgrade industrial added value (Escobar, 2018);

Imperfect long-term multi-agent governance incentive mechanisms: Current collaborative governance relies heavily on village party branch leadership; long-term stable interest distribution and incentive systems for external university and enterprise participants remain unrefined, requiring further institutional optimisation research (Astrini, 2026).

9. Conclusion

Taking Yangqitun Village as a single embedded case study, this paper constructs the cultural identity ecological construction conceptual framework grounded in Bronfenbrenner's ecological systems theory, social constructionism and place-

making cultural ecology theory. Adopting documentary analysis, multi-stage fieldwork and thematic qualitative analysis, the research systematically unpacks social innovation design's intervention pathways, practical effects and theoretical value within rural cultural identity and ecological civilisation co-construction. Four core conclusions are generated:

Social innovation design constitutes an effective intervention driver for synchronised cultural identity ecology and rural ecological civilisation development. Its problem-oriented, localised, multi-stakeholder collaborative core characteristics effectively resolve four common bottlenecks in intangible heritage villages: fractured craft inheritance, low-value homogenised industries, disconnected cultural-natural spatial layout and single-subject governance limitations, providing systematic methodological support for grassroots rural community construction;

The four-dimensional operational framework (craft conservation & innovation, industrial green integration & upgrading, cultural ecological spatial embedding, multi-stakeholder co-governance) built by Yangqitun establishes a sustainable development cycle linking cultural identity succession, natural ecological governance and community endogenous vitality activation. Its practical experience delivers significant reference value for other rural communities with traditional craft intangible heritage assets;

Yangqitun's cultural identity ecological construction practice demonstrates multi-layered ecological civilisation value. Bidirectional empowerment between cultural identity systems and natural ecosystems optimises village living environments, popularises resident ecological civilisation awareness, and innovates a triple ecological coordination model (cultural, natural, industrial) replicable across China's rural revitalisation contexts;

The research identifies multiple existing practice limitations including insufficient quantitative measurement, narrow industrial upgrading depth and incomplete long-term collaborative governance mechanisms, which provide clear directional guidance for subsequent follow-up academic research and local village practice optimisation.

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