

Critical Humanistic Social Theory

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Chasing the Ghost: An Autoethnography of Scarcity, Fandom, and Value-Making in the Hunt for Labubu

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Abstract: The global rise of the “blind box” art toy phenomenon, led by brands like Pop Mart, has sparked intense consumer frenzies. This autoethnography offers a close analysis of one such craze: the hunt for the highly sought-after Labubu V3 collectible in Kuala Lumpur. The study explores how a mass-produced object gains extraordinary cultural and economic value through collective consumer practices, moving beyond corporate marketing to frame value as socially co-produced. Drawing on several weeks of immersive fieldwork, the researcher’s personal journey—from curious consumer to committed “hunter”—serves as the core analytical lens. Findings reveal that value emerges through three mechanisms: 1) the formation of insider knowledge systems to navigate scarcity; 2) the performance of affective labor, where emotional and temporal investments generate the object’s “aura”; and 3) the ritualization of the restock event, which sacralizes the object and fosters intense, temporary community. The study concludes that the Labubu craze is not just consumption but cultural production. It contributes to cultural and consumer studies by showing how the “aura” of mass-produced goods is re-enchanted through embodied practices and emotional labor, asserting that what consumers feel is central to value-creation in contemporary hype culture.

Keywords: Autoethnography; Consumer Ritual; Affective Labor; Hype Culture; Cultural Value; Art Toys

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1.Introduction

On a sweltering Tuesday afternoon at one of Kuala Lumpur’s newest malls, the air buzzed with the quiet tension of collective anticipation. A silent crowd fixated not on the colorful Pop Mart displays, but on a plain stockroom door. For many, including myself, this was merely the latest episode in a multi-day vigil. We were a diverse group—students, professionals, tourists, and resellers—united by one obsessive aim: to catch the unannounced restock of Labubu V3, a series of vinyl art toys. This scene from my fieldwork was not an isolated case. From Beijing to Singapore, this ritual is fervently re-enacted by Millennial and Gen Z consumers. Pop Mart’s global rise and its “blind box” (盲盒) craze signal a shift in consumer culture, turning toy purchases into high-stakes acts of chance, collection, and community. These are not just toys—they are “hype culture” artifacts, their value amplified by social media and manufactured scarcity. Labubu, a mischievous monster with oversized ears, now stands at the pinnacle of this craze, rivaling luxury sneaker or streetwear fandom.

This research dives into the heart of this frenzy. It asks: How does a \$15 mass-produced toy become an icon worthy of such intense emotional and temporal investment? What social and affective mechanisms in the Pop Mart store enable this

transformation of value? Rather than broad market analysis, this study offers an on-the-ground ethnographic account, showing Labubu's value is neither inherent nor dictated solely by corporate strategy. Instead, it is co-produced by consumers, fans, and speculators through embodied practice, emotion, and ritual.

To develop this argument, this research employs an autoethnographic methodology. I analyze this process through my journey from curious consumer to active Labubu hunter. This method explores the affective experience of hype culture—its anxiety, thrill, shared anticipation, and resale-market ambiguity. I argue Labubu V3's value emerges from three key forces. First, consumers develop an insider knowledge system to counter the brand's strategy of randomized scarcity. Second, fans perform affective labor, their emotional and temporal investment binding to the object's aura. Third, the restock becomes a consumer ritual, a moment that sanctifies the object and builds an intense, temporary community. This research contributes to cultural, visual, and consumer studies. It presents a timely case of hype culture in the growing art toy market, a relatively under-analyzed sector. Focusing on Kuala Lumpur, it offers a Global South perspective on how global trends are locally reinterpreted. Through autoethnography, the study foregrounds how emotion and lived experience are as vital as thought or purchase in modern consumption.

The research unfolds as follows. Section 2 reviews key literature on consumer culture, fan studies, and autoethnography. It engages concepts like Benjamin's "aura," Baudrillard's "sign value," and Durkheim's "collective effervescence." Section 3 outlines the research methodology, including rationale, site, data collection, and analysis. Section 4 presents the core findings. It narrates fieldwork around four themes: decoding the hunt, affective labor, scalper economy, and restock ritual. Section 5 places these findings in dialogue with the theories from Section 2. It analyzes how the Labubu case confirms and extends understandings of value, community, and ritual. Section 6 concludes by summarizing findings, limitations, and future research directions.

2. Literature Review

This study requires a framework that bridges macro consumer dynamics with micro-level embodied experience. This section weaves together two distinct but complementary strands of scholarly inquiry. The first section explores seminal theories in consumer culture that address the enigmatic nature of value, scarcity, and the cultural life of objects themselves. The second section turns inward, examining the methodological and theoretical tools that allow us to access and analyze the subjective, emotional, and performative dimensions of human experience that lie at the heart of this research. Together, these two perspectives provide the necessary lens through which to analyze the findings of this autoethnographic study.

2.1 The Object's Aura: Value, Scarcity, and the Social Life of Things

At the center of this study is a fundamental paradox: how does a mass-produced plastic toy acquire a value that wildly exceeds its material and production costs? To address this, we must first turn to Walter Benjamin's foundational concept of the "aura" (Benjamin, 2018). For Benjamin, the aura of a pre-modern art object stemmed from its authenticity, its unique existence in time and space, and its embeddedness in ritual and tradition. He argued that mechanical reproduction shatters this aura, creating identical copies that lack a unique history. The Labubu figure is a textbook case of such a reproduced object. However, this study contends that Benjamin's framework also provides the tools to understand its re-enchantment. The collective «hunt,» the queues, and the high-stakes unboxing are nothing less than modern, commercial rituals. These rituals wrench the object out of its anonymous, mass-produced context and bestow upon it a new kind of cult value, one based not on its creation but on the unique, unreplaceable story of its acquisition. My own weeks-long stakeout was a process of manually re-inscribing a unique history onto an object, thereby laboriously recreating its aura.

While Benjamin helps us understand the object's quasi-sacred status, Jean Baudrillard (Baudrillard et al., 1976) provides the language to dissect its social value. Baudrillard argues that in consumer society, objects are consumed less for their use-value (what they do) or exchange-value (their price) and more for their sign-value (what they signify). The Labubu V3 is a potent signifier. To possess it is to signal one's status as being "in the know," fashionable, and a dedicated member of a discerning subculture. The astronomical prices on the secondary market—such as the 800 MYR offer I received—are not merely inflated exchange-values; they are the monetary quantification of this immense, sought-after sign-value. People are not just buying a toy; they are purchasing a tangible piece of cultural capital.

Building on these ideas, Arjun Appadurai's concept of "the social life of things" offers a dynamic framework for tracing the object's journey through these value systems (Appadurai, 1986). Appadurai argues that commodities, like people, have social lives and that their value is not inherent but is produced and contested as they move through different hands, contexts, and "regimes of value." A Labubu V3 figure is not one single thing; its meaning and value are radically transformed along its path. In the factory, it is a mere commodity. On the Pop Mart shelf, it becomes a prize. In the hands of a dedicated fan, it is a cherished trophy imbued with affective history. In the hands of a scalper, it reverts to a pure financial instrument, its "aura" converted back into exchange-value. This study traces this very social life, demonstrating how the object's value is constantly in flux, actively shaped by the intentions and interactions of the human actors who desire it.

2.2 The Subject's Experience: Autoethnography, Affect, and Performativity

While the above theories explain the object's journey, they miss the human experience behind it. To access this subjective realm, this study embraces autoethnography as its core methodology. Scholars such as Carolyn Ellis (Ellis, 2004) and Tony E. Adams (Adams et al., 2015) have championed autoethnography as a powerful research method that purposefully uses the researcher's personal experience to understand a broader culture. It tells evocative stories that connect the personal to the cultural, showing how social forces are lived and negotiated. By placing my own embodied experience of the hunt at the center of the analysis, I can move beyond a detached description of events to explore the rich emotional and sensory tapestry of the phenomenon—the very data that traditional "objective" methods often exclude.

A key dimension of this subjective experience is emotion, which can be analyzed through the concept of affective labor. Originally developed by scholars like Arlie Hochschild in the context of service work (Hochschild, 2007), and later expanded by political theorists like Michael Hardt and Antonio Negri (Hardt & Negri, 2001), affective labor refers to the work of producing or managing emotions. My findings show that the Labubu hunt is saturated with such labor. The management of anxiety during the long waits, the performance of excitement upon a successful purchase, the cultivation of community through shared feelings—these are not passive emotional states but are a form of unpaid, yet highly productive, work. This emotional investment by consumers is not a byproduct of their consumption; it is a vital input that directly generates the product's cultural buzz and, consequently, its economic value.

Finally, the actions of the hunters can be understood through the lens of performativity. Drawing on the work of Judith Butler (Butler, 2005), who argued that gender identity is constituted through repeated, stylized acts, we can see how consumer identity is similarly performed. "Being a fan" is not an internal state of being but an identity that is actively and publicly constructed through a series of performances. The act of queuing for hours, the ritualized unboxing videos posted on social media, and the careful curation of a collection on a display shelf are all performative acts. They are how individuals signal their identity and affiliation to both themselves and to the broader fan community. These performances are what give the Labubu's sign-value its social power and visibility, completing the circuit between the object's cultural meaning and the individual's lived identity.

3. Methodology

This section outlines the rationale for this methodological choice, details the research setting and timeline, clarifies my dual role as both researcher and participant, and describes the specific methods used for data collection and analysis.

3.1 A Rationale for Autoethnography

In this study, we adopted an autoethnographic framework. While the first author conducted the fieldwork and wrote from a personal perspective, the study reflects collaborative conceptual framing, supervision, and methodological refinement by the co-authors. This study is, at its heart, an exploration of how cultural value and personal meaning are created through collective consumer practices. To access this process, it was necessary to move beyond detached observation. We chose autoethnography as the primary research framework because it uniquely positions the researcher's personal experience as a primary lens for interpreting the cultural context. As articulated by Ellis (Ellis, 2004) and Adams (Adams et al., 2015), autoethnography intentionally blurs the lines between the personal and the academic, using a researcher's own feelings, actions, and reflections as legitimate data to illuminate broader social phenomena.

My desire to buy Labubu V3 was not a bias but the gateway to this culture. It granted me authentic access to the emotional

highs and lows of the “hunt”—the frustration, the anticipation, the community, and the ultimate satisfaction—that a mere observer could never fully grasp. Embracing subjectivity enabled me to analyze the experience from within. This approach allows for a “thick description,” in the Geertzian sense (Geertz, 2017), that is rich with the details, emotions, and embodied knowledge that give the Labubu craze its texture and significance. It answers the call to produce research that is not only analytically sound but also evocative, accessible, and resonant with human experience.

3.2 Field Site and Duration of Observation

The primary field site for this study was the official Pop Mart retail store located within The Exchange TRX, a large, modern shopping mall in the heart of Kuala Lumpur, Malaysia. This site was strategically chosen for several reasons. Firstly, as a newly opened and prominent mall, it attracted a diverse, international clientele, making it a microcosm of global consumer trends. Secondly, according to informal fan networks on social media platforms like Xiaohongshu, this specific branch had a reputation for being one of the most frequently restocked locations for Labubu V3 in the city, making it a natural epicenter for the “hunting” activity.

My fieldwork was conducted over a concentrated period of approximately three weeks during the peak of the Labubu V3 craze in 2025. This short-term immersion was intentional. It allowed me to observe the full cycle of the phenomenon, from periods of scarcity and rumor to the climactic restock events and their aftermath, all while the subculture’s practices and norms were at their most visible and potent. I visited the site almost daily, with visit durations ranging from brief check-ins of thirty minutes to extended stakeouts lasting over five hours.

3.3 My Dual Role: Navigating as a Participant-Observer

Throughout this research, I occupied the classic ethnographic role of the participant-observer. However, the autoethnographic approach requires a transparent reflection on the nature of this dual role. I was both researcher and consumer. My initial motivation was personal: I wanted to own a set of Labubu V3. This “participant” status was my passport into the community. It allowed me to authentically engage in conversations, share in the collective anticipation, and experience the frustration of a missed restock on a personal level. I asked questions from shared interest, not clinical distance.

Simultaneously, my “observer” role, guided by my training as a cultural researcher, was always active. I carried a small notebook at all times, discreetly jotting down key observations, snippets of dialogue, and sensory details. Immediately following each visit to the field site, I would retreat to a nearby café or my home to write extensive, detailed field notes. This process involved “writing up” my shorthand notes into a full narrative, but also engaging in initial, reflexive analysis. I made a conscious effort to document my own feelings and biases—my growing impatience, my excitement upon seeing a signal, my internal conflict when confronted by a scalper. Acknowledging and documenting this subjectivity was not a weakness of the method, but a core analytical strength, allowing me to understand how my own positionality shaped my interpretation of the events unfolding around me.

3.4 Methods of Data Collection and Analysis

To build a holistic picture of the Labubu subculture, I employed a multi-modal approach to data collection, consistent with contemporary ethnographic practice.

- 1) Field Notes: This was the primary corpus of my data. My notes captured a wide range of observations, including detailed descriptions of how the physical space was modified, such as the setup of the queue system; chronicles of key events, such as the power outage and specific restock moments; and profiles of key actors, including the scalpers, a mother, and several tourists. Most importantly, they documented the verbal and non-verbal interactions between participants.
- 2) Informal and Unstructured Conversations: I did not conduct formal interviews. Instead, I engaged in dozens of informal, spontaneous conversations with other people in the store. These naturalistic dialogues, emerging from the shared context of waiting, provided rich insights into the motivations, strategies, and feelings of other participants. I recorded key quotes and paraphrased conversations in my field notes as accurately as possible immediately after they occurred.
- 3) Material Culture Analysis: My analysis extended to the non-human elements of the scene. I took notes on the design of the Labubu toys themselves, their packaging, the assertive font on the «Out of Stock» sign, and the cold metal of the queue stanchions. These artifacts were active agents in shaping meaning and behavior.

4) Supplementary Digital Ethnography: Recognizing that the on-site experience was deeply intertwined with online discourse, I passively monitored the Chinese-language social media platform Xiaohongshu. I tracked hashtags related to «#Labubu» and «#PopMartKL» to understand how information was disseminated, how fans coordinated their efforts, and how they showcased their successful “hunts” online. This digital dimension provided crucial context for the physical events I was observing.

My process of data analysis was ongoing and inductive, beginning from the very first day of fieldwork. Grounded theory guided me to avoid fixed hypotheses (Glaser & Strauss, 2017). Instead, I allowed themes and concepts to emerge directly from the data. Each evening, as I wrote my field notes, I would jot down emerging ideas and potential patterns in the margins. After the fieldwork period concluded, I read through my entire set of notes multiple times, engaging in a process of thematic coding. I highlighted passages related to recurring ideas—“strategies for prediction,” “emotional responses to waiting,” “interactions with scalpers,” “rituals of restock”—which ultimately solidified into the four analytical themes that structure section 4 of this research.

4. Findings & Analysis

This section presents the core findings of my autoethnographic immersion into the Labubu subculture. Moving beyond a simple description of events, it chronicles my own transformation from a curious outsider to an informed participant-observer within the unique ecosystem of the Pop Mart store at Kuala Lumpur’s The Exchange TRX mall. Through a narrative reconstruction of my multi-week fieldwork, I analyze the intricate social dynamics that transmute a mass-produced plastic toy, the Labubu The Monsters-Exciting Macaron series (Labubu V3), into an object of intense desire and a catalyst for complex value-making practices. The findings unfold across four interconnected themes: the gradual decoding of a hunt, the profound affective labor of waiting, the symbiotic shadow of a scalper economy, and the climactic ritual of the restock day.

4.1 Decoding the Hunt: The Production and Practice of Insider Knowledge

Figure 1. The Object of the Hunt: The Labubu The Monsters Collectible Series. Pictured from left to right are figures from the Zimomo (V1), Forest Concert (V2), and the highly coveted Exciting Macaron (V3) series. (Source: Author’s photograph).



As shown in Figure 1, the Labubu series consists of multiple collectible versions, with V3 emerging as the most coveted among fans and speculators alike. My first forays into the world of Labubu V3 were marked by a profound sense of powerlessness. I would arrive at the store guided by hope, only to be met with the same placid, non-committal response from the staff: “It’s uncertain, the restock is random.” This official narrative of strategic randomization was, I now understand, a key corporate tactic. It fostered a climate of constant, low-level anxiety and cultivated an aura of scarcity that made the product seem all the more unattainable and thus, desirable. For days, I was adrift in this sea of uncertainty, my time and energy yielding nothing but frustration. It was in this state of initial failure that my methodology was forced to evolve from passive inquiry to active, systematic observation.

My breakthrough came not from a single revelation, but from a gradual accumulation of seemingly disparate details. I

started noticing patterns, subtle shifts in the store's atmosphere and operations that seemed to correlate with the rumored appearance of the coveted toy. This was the genesis of my understanding that a shared, yet largely unspoken, insider knowledge system was at play, a vernacular language of cues and signals used by seasoned players to navigate the official fog of uncertainty. Mastering this language was the first step in moving from a state of being hunted by FOMO (Fear of Missing Out) to becoming a hunter myself.

The code, as I came to understand it, consisted of four critical environmental cues that, when appearing in concert, signaled an imminent restock with near certainty. The first and most simple was the disappearance of the "Out of Stock" sign. A large, prominent signifier of lack, its removal was the store's first, subtle admission that the situation had changed. My accidental conversation with a friendly staff member—"If the sign is gone, it means a restock is imminent"—was a foundational piece of the puzzle, transforming a mundane object into a key analytical clue. The second signal was more theatrical: the establishment of the "S-shaped" queue area. On normal days, the store's metallic stanchions were neatly tucked away. Their reappearance, meticulously arranged into a long, serpentine path that snaked through the store and sometimes spilled outside, was a dramatic restructuring of the physical space. It was a clear performative signal, a piece of stagecraft that publicly announced the management's anticipation of a crowd. It was a preparation for what I can only describe as an impending, yet highly organized, chaos. More subtle was the third cue: the shift in cashier staffing. I trained myself to count the black-clad figures behind the counter. Two was the norm, even during the busiest weekend hours. But the appearance of a third cashier, often moving with a quiet urgency, was an unmistakable tell. This seemingly minor adjustment in human resources was, in fact, a crucial provision for the anticipated transactional peak that would last no more than thirty minutes. It was a detail invisible to the casual tourist but a blaring siren to the initiated.

The final and most definitive signal was the convergence of "scalpers." As I will detail later, I soon learned to distinguish these professional resellers from the genuine fans. They moved with a different kind of energy—less wonder, more focused intent. They rarely browsed, instead fixing their gaze on the stockroom door. When three or four of these individuals, who I had come to recognize, began to materialize in the store simultaneously, often exchanging terse nods before taking up strategic positions near the checkout, the hunt was on. Their collective presence, informed by channels of information I was not privy to, was the final confirmation. To master this code was to gain a sense of control, a feeling of empowerment that stood in stark contrast to my initial helplessness. It was a powerful reminder that within even the most top-down consumer cultures, participants actively generate their own knowledge and tactics, embodying the proactive spirit of a "participatory culture" (Jenkins, 2006).

4.2 The Waiting Game: Affective Labor and Bodily Performance in the Stakeout

Figure 2. The Ritual Begins: Participants engaged in the "waiting game," queuing outside The Exchange TRX mall before opening hours. (Source: Author's photograph).



If decoding the hunt was an intellectual exercise, the physical act of waiting was its deeply emotional and embodied counterpart. The long hours spent on-site were not a passive void in time; they were a rich tapestry of affective labor (Hardt & Negri, 2001) and bodily performance (Butler, 2005). Figure 2 captures the early stages of this ritual, with participants forming queues before the mall opens, embodying the bodily commitment required by the hunt. The investment of my own time, my physical comfort, and my emotional energy was not merely a cost of acquisition; it became an integral part of the product's perceived value.

The emotional landscape of the stakeout was volatile. In the beginning, the dominant feeling was the sharp sting of frustration. On at least two occasions, I left the store for a brief meal only to learn minutes later via a flurry of social media posts that I had missed the restock. This wasn't just disappointment; it was a form of self-recrimination that fueled a desperate "Fear of Missing Out" (FOMO) (Przybylski et al., 2013). This fear drove me to extremes, compelling me to spend entire afternoons and evenings loitering, my body aching with fatigue, my mind caught in a draining loop of boredom and hyper-vigilance.

Yet, this grueling ordeal was punctuated by unexpected moments of connection. The waiting, I discovered, was a social crucible. It was during these long lulls that I struck up conversations with my fellow hunters. I met a mother who was on her fourth attempt to find a specific character for her seven-year-old son, her stories painting a picture of a city-wide network of Labubu enthusiasts. I fell into easy camaraderie with several Chinese international students, our shared language and common goal instantly forging a bond. We would pool our intelligence, share snacks, and collectively lament the brazen tactics of the scalpers. This formation of a temporary community, a tribe defined by a singular, immediate purpose, was a powerful antidote to the alienation of the wait. The act of waiting transformed from a solitary burden into a shared struggle, a quest for belonging.

Our physical presence was itself a form of performance. I recall one particularly dramatic afternoon when the entire mall suffered a power outage. In the dim, emergency-lit corridors, a queue began to form outside the darkened Pop Mart. We waited for hours, speculating that the restoration of power would trigger a compensatory restock. It did not. The most poignant image from that day was of two tourists I had been chatting with, their large suitcases beside them. It was their last day in Kuala Lumpur, and they had dedicated it to this final, fruitless hunt. As they departed for the airport, their shoulders slumped in defeat, their story underscored the immense sunk costs—not just financial, but temporal and emotional—that this game demanded. Their visible disappointment, in a strange way, made my own subsequent success feel all the more significant.

The ultimate emotional dividend was perfectly encapsulated by my student friend after we had both, finally, succeeded. Clutching her box, she beamed and said, "I haven't eaten all day, but I'm so happy and satisfied." At that moment, physiological needs were rendered secondary to the intense psychological fulfillment of the successful hunt. It became clear to me that the emotional labor we had invested—the anxiety, the boredom, the shared hope—was not a byproduct of the experience; it was a central part of the value-creation process, mystically reinvested back into the plastic object itself, imbuing it with a renewed, hard-won "aura" (Benjamin, 2018).

4.3 The Co-existing Shadow: Encountering the Scalper Economy

Within the confines of the Pop Mart store, a parallel universe existed. This was the world of the scalpers, a ruthlessly efficient shadow economy operating in plain sight. They were the symbiotic, darker twin of the fan community, sharing the same space but driven by a starkly different logic. My encounters with this world, and my own brief temptation by it, provided a jarringly clear lesson in how an object's cultural and symbolic value can be instantaneously and coldly converted into pure exchange value (Baudrillard et al., 1976).

My initial identification of the scalpers was ethnographic in its purest form—based on observing patterns of behavior. They didn't browse; they scanned. They didn't marvel; they calculated. The revelation that a separate collectibles booth on an upper floor was run by the very same men I saw daily at Pop Mart cemented my understanding. This was not freelance opportunism; it was an organized, multi-layered business network. There, on their shelf, sat an opened Labubu V3, its box discarded, priced at 199 MYR—nearly three times its retail price. It was a museum-like display of their entire business model.

The true impact of this shadow economy became personal when I finally acquired my own set. Walking out of the store, heart still pounding with the thrill of success, I was approached by one of the regulars. “800,” he said, gesturing to my bag. The offer—a nearly 100% markup on the 420 MYR I had just paid—triggered a moment of profound cognitive dissonance. I found myself caught in a sudden, dizzying internal debate. Was the exhaustion, the hours of my life, the emotional rollercoaster I had just endured, worth precisely 380 MYR? The scalper’s offer had stripped the object of its narrative, of my story, and presented it back to me as a naked commodity. It was a forced confrontation between my identity as a collector, driven by passion and personal meaning, and the logic of a speculator, driven by detached profit.

This clash of logics was thrown into its sharpest relief by the rare appearance of a “chase” or “secret” figure. I witnessed a young woman’s unadulterated joy as she unboxed one, her squeals drawing a small, admiring crowd. A scalper swiftly made a generous offer, which she dismissed with a wave of her hand, clutching the figure to her chest. She was a true collector; for her, its value lay in its rarity and the story of its discovery. The scalper, unfazed by the rejection, simply turned and, within minutes, successfully negotiated the purchase of three regular, full sets from other customers. Their interaction perfectly illustrated the divergent paths these objects could take in their “social life” (Appadurai, 1986).

The line between these two worlds, however, was not impermeable. My student friend, having used a second purchase slot, also found a chase figure. Overwhelmed by the moment, she sold it to a scalper for an astonishing 2000 MYR. The cash in her hand was tangible proof of the hype, but her subsequent attempts to replicate the success were fruitless. She confessed that the “fun” felt different now, tinged with a new pressure. Her story was a powerful vignette of how the intrusion of high-stakes financial logic can fundamentally alter the nature of participation, transforming playful consumption into something far more precarious.

4.4 The Peak Moment: Collective Effervescence and Ritual on Restock Day

Figure 3. Collective Effervescence in Action: The serpentine queue forming inside and outside the Pop Mart store on a restock day. (Source: Author’s photograph).



When the disparate signals finally coalesced and a staff member wheeled a trolley laden with brown cartons out from the stockroom, the atmosphere inside the Pop Mart store underwent a phase transition. The air, thick with anticipation, crackled and then ignited. This climactic moment was far more than a simple retail transaction. It was a highly structured, emotionally charged, and socially significant event that can only be understood as a modern consumer ritual (Rook, 1985).

A low murmur swelled into a collective gasp. Bodies surged towards the checkout counter, not in a chaotic mob, but into the pre-ordained serpentine queue. The gravitational pull was so strong that it drew in curious onlookers, their casual shopping abruptly forgotten as they were swept up in the unfolding drama. In these moments, the store ceased to be a mere retail space. As Figure 3 illustrates, the serpentine queues at the Pop Mart store visually encode the ritual structure of the restock event,

transforming physical space into ceremonial order. It became a temporary temple, and the boxes of Labubu V3, stacked behind the counter like offerings, were its sacred objects. Everything else in the store—the shelves of other colorful characters, the elaborate displays—faded into irrelevance, serving only as the backdrop for this singular, unifying ceremony.

What was most striking about this ritual was its astonishing ability to create a temporary, yet powerful, sense of unity out of diversity. Looking down the long queue, I saw a cross-section of globalized Kuala Lumpur: local Malay youth, Chinese tourists, Western expatriates, and fellow international students, all speaking different languages, all temporarily bonded by a single, overriding desire. Social distinctions of race, class, and nationality seemed to dissolve, replaced by the shared, unifying identity of “Labubu V3 hunter.” This intense feeling of shared emotion and purpose, this sensation of being part of something larger than oneself, is a perfect illustration of what sociologist Émile Durkheim famously described as collective effervescence (Durkheim, 2016). It is a social energy that creates solidarity and reaffirms the values of the group—in this case, the value of the hunted object.

The ritual’s climax was the transaction itself—the moment of finally taking possession of the box. This was not a purchase; it was a coronation. It was the tangible evidence of a successful hunt. For the young woman who had unboxed the chase figure, the ritual extended beyond the sale; she was surrounded, asked for photos, her “win” celebrated by the community. In that moment, she was endowed with a huge amount of social capital (Bourdieu, 2018), a status recognized and valued by everyone present. The proof of this entire ritualistic structure came with its abrupt dismantlement. Weeks later, after the company changed its policy to require online registration with a local ID, the frenzy vanished. I walked into the store one day to see stacks of Labubu V3 boxes sitting calmly on the shelves, available to anyone. The magic was gone. The object was the same, but the social conditions that had made it sacred had been removed. This stark contrast provided the final, irrefutable evidence that the value of Labubu V3 was never inherent in the plastic itself. It was forged in the fires of the hunt, consecrated by the collective emotional investment of the wait, and ultimately realized in the high drama of the consumer ritual. We were not just buying a toy; we were buying a ticket to an extraordinary, ephemeral, and intensely social performance.

5. Discussion

The preceding chapter offered a narrative chronicle of the hunt for Labubu V3, detailing the intricate practices, social dynamics, and emotional currents that defined the experience. This chapter moves from description to theoretical interpretation, placing these ethnographic findings into a direct and critical dialogue with the scholarly concepts outlined in section 2. The central task here is to answer the crucial question: “So what?” What do the frantic queues, the secret codes, and the shadowy scalper economy at a Kuala Lumpur Pop Mart tell us about the nature of value, community, and ritual in our hyper-commodified, digitally mediated world? I will argue that the Labubu phenomenon is not simply a case of clever marketing but a vivid illustration of how consumers actively participate in the re-enchantment of the mass-produced object. This process is achieved through three interconnected mechanisms: the re-creation of “aura” through ritualized labor, the negotiation of identity within a participatory fan culture, and the complex interplay between affective and economic value systems.

5.1 The Re-enchantment of the Plastic Object: Aura, Ritual, and Affective Labor

Walter Benjamin (Benjamin, 2018), in his seminal essay, famously argued that the age of mechanical reproduction leads to a decay of the art object’s “aura”—its unique presence in time and space, its history, its authenticity. The Labubu V3, a factory-made vinyl toy produced in the tens of thousands, is the quintessential mechanically reproduced object. Yet, my findings demonstrate that “aura” is not irrevocably lost; rather, it can be powerfully reconstituted through modern consumer rituals (Rook, 1985). The entire “hunt” for Labubu was, in essence, a prolonged and elaborate ritual designed to strip the toy of its mass-produced anonymity and imbue it with a unique, personal history.

My multi-day stakeouts, the shared anxieties, the physical exhaustion—these were not mere transactional costs. They constituted a form of pilgrimage. The “high drama” of the restock day, with its organized queues and palpable tension, functioned as the ritual’s climax. This was not a simple purchase; it was, as described in my findings, a “coronation.” In this context, the ritual serves the precise function Benjamin identified for pre-modern art: it embeds the object in a tradition, even if that tradition is brand new and centered around a vinyl figurine. The Labubu I finally acquired was no longer identical

to the thousands of others in the production run; it was my Labubu, a trophy whose value was sanctified by the labor, both physical and emotional, I had invested. This confirms that the aura of an object in the 21st century is less about its production history and more about the narrative of its acquisition.

This process is fueled by what can be understood as affective labor (Hardt & Negri, 2001; Hochschild, 2007). The intense feelings experienced during the hunt—the FOMO, the camaraderie, the elation—are not side effects; they are the very substance of the value-creation process. Consumers are no longer passive; they are active co-producers, laboring to create the feelings that make the product desirable. The declaration of my friend, that she was “so happy and satisfied” despite not having eaten, is a testament to this logic. The emotional reward derived from the arduous process supplanted basic physiological needs, demonstrating that the product’s ultimate value was affective, not material. The company sells the plastic toy, but the community, through its collective emotional investment, sells the “experience” and the “meaning.”

Furthermore, the climactic restock scenes align powerfully with Durkheim’s concept of collective effervescence (Durkheim, 2016). The convergence of a diverse crowd into a single, focused entity, pulsating with shared emotion, created a moment of intense social energy. In this state, the Labubu V3 figure was elevated from a mere commodity to a sacred object—a totem for the temporary tribe of hunters. The sudden disappearance of this frenzy once the purchasing mechanism was changed to a sterile online lottery proves Durkheim’s point: it was the ritual assembly of the “clan” itself that generated the sacred energy, which was then projected onto the object. Without the public ritual, the object’s sacred aura deflated.

5.2 Hacking the Hype: Agency and Identity in a Participatory Culture

While it is easy to view participants in such crazes as victims of manipulative marketing, my findings suggest a more complex dynamic of agency and resistance. The development of the “insider knowledge system” was a direct response to the company’s strategy of randomized scarcity. It was a bottom-up attempt to impose order on a deliberately chaotic system. This practice of “decoding the hunt” is a perfect example of what Jenkins identifies as a key trait of participatory culture (Jenkins, 2006). Fans were not just consuming a product; they were actively pooling knowledge, sharing intelligence (via Xiaohongshu), and developing collective strategies. They were transforming consumption into a collaborative problem-solving game.

This act of “hacking the hype” is a form of consumer agency. It challenges the top-down power of the corporation and creates a space for participants to feel skilled, knowledgeable, and in control. To know the four signals was to possess cultural capital within the micro-community of the stakeout, distinguishing the “insider” from the “tourist.” This resonates with Michel de Certeau’s notion of “tactics”—the clever ways in which ordinary people navigate and appropriate the systems of power (“strategies”) that structure their daily lives (Certeau, 2005). The fans’ intricate system of observation was a tactic to reclaim a degree of predictability and power from Pop Mart’s overarching strategy of scarcity.

My own journey from novice to “expert” hunter was also a process of identity negotiation. Successfully acquiring the Labubu V3 was not just about owning the object; it was about validating my identity as a competent and dedicated member of the subculture. The object itself functioned as a proof-of-participation, a physical token of the knowledge and perseverance I had demonstrated. This highlights how, in contemporary consumer culture, identity is often performed and solidified through the acquisition of culturally significant goods.

5.3 The Two Logics: Navigating Affective and Economic Value

The constant presence of the scalpers introduced a second, competing value system into the ecosystem, creating a space of profound tension. This tension can be understood through the lens of Jean Baudrillard’s hierarchy of value (Baudrillard et al., 1976). For the devoted fan, the Labubu’s primary worth was its symbolic value—it signified taste, dedication, community belonging, and cultural timeliness. My internal conflict upon being offered 800 MYR for my set was a clash between its newly acquired personal symbolism and the scalper’s aggressive assertion of its exchange value (its price on the open market).

The scalpers functioned as ruthless agents of commodification, stripping the object of the affective narrative that the fans had so painstakingly woven around it. Their logic was purely economic, as seen when one was unfazed by being rejected for a chase figure but immediately pivoted to acquiring fungible regular sets. They treated the toys not as elements of a collection

but as assets in a portfolio, their social life defined by rapid circulation and profit maximization (Appadurai, 1986).

My student friend's decision to sell her chase figure for 2000 MYR represents a fascinating and complex moment where these two logics collided within a single individual. In that transaction, she momentarily adopted the scalper's logic, converting the immense symbolic and affective value of "luck" and "rarity" into cold, hard cash. Her subsequent feeling that the "fun" had changed suggests that participating in both value systems simultaneously can be problematic. It can corrupt the perceived innocence of fandom, replacing the joy of participation with the pressure of financial optimization. This reveals that hype-driven markets are not simply composed of "fans" and "scalpers" as distinct groups but are complex spaces where individuals may fluidly and ambivalently navigate between these two competing logics, constantly weighing the affective rewards of belonging against the economic temptations of the market. This internal negotiation is, perhaps, one of the defining characteristics of being a consumer in late-stage capitalism.

6. Conclusion

This study began with a simple scene: a crowd waiting for a toy. It concludes by arguing that this seemingly trivial event is, in fact, a rich and complex microcosm of contemporary cultural and economic life. Through an autoethnographic immersion into the hunt for the Labubu V3 collectible, this study has sought to unravel the intricate processes by which a mass-produced object is imbued with extraordinary value. The core argument posited and defended throughout this work is that the "aura" of a modern collectible is not a pre-existing quality but is actively and collaboratively produced through the ritualized labor, collective intelligence, and affective investment of the consumer community itself.

The key findings of this research demonstrate that consumers are not passive pawns in a corporate game of manufactured scarcity. Instead, they are active agents who develop sophisticated systems of insider knowledge to "hack the hype," creating their own pockets of predictability and control. The study underscores the centrality of affective labor, revealing that the emotional journey—the anxiety, the community, the thrill—is a primary ingredient in the object's value. Furthermore, this work has identified the modern consumer ritual as a powerful mechanism for generating collective effervescence, a social energy that transforms a mundane retail space into a temporary sacred site and an ordinary product into a coveted totem. Finally, by examining the tense coexistence of dedicated fans and profit-driven scalpers, this study has illuminated the constant, often-uncomfortable negotiation between symbolic and economic value systems that defines participation in hype culture today.

The contribution of this research is threefold. Firstly, it provides a timely and deep empirical analysis of the burgeoning art toy market, extending theories of hype consumption beyond the well-trodden grounds of sneaker and streetwear culture. Secondly, by grounding the study in Kuala Lumpur, it offers a vital perspective from the Global South, demonstrating how global cultural phenomena are localized and given unique texture. Most significantly, its autoethnographic approach champions the value of lived, embodied experience in understanding consumption, arguing that the rich tapestry of human feeling is central, not peripheral, to the logic of contemporary capitalism.

Of course, this study has its limitations. As a personal, site-specific autoethnography, its findings are not intended to be universally generalizable. The conclusions drawn are intimately tied to a specific product, a specific location, and my own specific subject position. A different researcher in a different city might have witnessed and interpreted events differently. This specificity, however, is also the study's primary strength, offering depth and texture where broader surveys might offer only abstraction. The avenues for future research stemming from this work are plentiful. Comparative ethnographic studies could explore how the Labubu craze manifests differently across various cultural contexts, for instance, comparing the community dynamics in Kuala Lumpur with those in Shanghai or Tokyo. Quantitative research could survey the demographics of blind box consumers to better understand their motivations and spending habits on a larger scale. Furthermore, a deeper digital ethnography could trace the "social life" of a Labubu toy as it travels from an unboxing video on TikTok to a resale platform and finally to a collector's shelf, analyzing how its value is narrated and transformed at each stage of its journey.

In the end, the small vinyl figure of Labubu, with its enigmatic smile, serves as a powerful symbol. It reflects back at us a profound, and very human, paradox. In an age of seemingly infinite mechanical reproduction and digital alienation, we are working harder than ever to make our objects unique, to embed them with stories, and to find, in the shared quest for them,

a fleeting but powerful sense of community and meaning. The hunt for Labubu, ultimately, is a hunt for a connection—to a tribe, to a moment, and to ourselves.

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Research on the Practical Dilemmas and Countermeasures of Artificial Intelligence Applications in Education

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Abstract: In recent years, artificial intelligence (AI) has rapidly evolved, triggering substantial transformations across various sectors. However, it has also spawned multiple dilemmas within the realm of education. These include technical challenges such as ambiguous division of labor between humans and machines and adaptation barriers for intelligent technologies, practical issues like disorder in smart educational spaces and the sense of alienation and detachment engendered by these technologies, and ethical quandaries such as the risk of information leakage for teachers and students, biased models leading to unfairness in intelligent education, among others. Consequently, at the technical level, there is an urgent need for top-down guidance from policy documents and a clearer demarcation of roles between humans and machines in the process of smart education. Practically, established teaching methodologies and technologies of the information age should not be discarded, and a conscious effort must be made to cultivate talent specialized in AI-assisted education. Ethically, the design of ethical guidelines for AI technologies is imperative, accompanied by rigorous verification of tool safety measures, to ensure that the integration of AI in education is not only innovative but also responsible and equitable.

Keywords: Artificial Intelligence; AI Applications In Education; Real Challenges; Response Strategies

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1.Introduction

Since the conference on How to Simulate Human Intelligence with Machines held at Dartmouth University in the 1960s, artificial intelligence has entered people's field of vision. After nearly 70 years of development, humanity has experienced several significant historical events. In 1997, the supercomputer "Deep Blue" defeated the world chess champion Garry Kasparov. In 2016, the artificial intelligence robot AlphaGo successively defeated Go champions Lee Sedol and Ke Jie. In October 2017, the intelligent robot Sophia was granted citizenship by Saudi Arabia. At the end of November 2022, the emergence of the generative artificial intelligence (ChatGPT) attracted worldwide attention, and its ability to automatically generate content exceeded people's expectations. Subsequently, Baidu's Wenyi, iFlytek's Xinghuo Cognition, Alibaba Cloud's Tongyi Qianwen, and Tencent's Hunyuan large model were launched one after another, triggering the "Battle of a Hundred Models". In September 2023, Ke Jie lost in the final to Xu Haorui, a Go player who specialized in playing against artificial intelligence to improve his skills. Netizens exclaimed in the comment section: "Human Go is dead, and artificial intelligence is about to dominate human society." In May 2024, OpenAI launched its new flagship model "GPT-4o". The "o" in GPT-4o stands for "omniscient", taking another step towards more natural human-computer interaction. The new

model enables ChatGPT to handle 50 different languages while improving speed and quality. Now, artificial intelligence has gradually become an all-purpose teacher for teaching human learning, and its identity role has been defined by multiple educational roles, such as tutor, teaching assistant, analyst, head teacher, and career planner^[1]. However, there are still many problems in the process of applying artificial intelligence in education, such as technology, practice, and ethics, and effective strategies and suggestions are urgently needed.

2. Technical Dilemmas and Responses in the Educational Application of Artificial Intelligence

2.1 Technical Dilemmas Faced in the Educational Application of Artificial Intelligence

Firstly, the technical issue caused by unclear division of labor between humans and machines. In the traditional education system, teachers, as the leaders of all teaching and learning activities, hold an absolutely central position in the educational process. However, with the introduction of artificial intelligence into teaching, although its original intention was only to assist teaching, improve efficiency, and enhance personalized learning experiences, it has gradually led to significant conflicts between teachers and machines. For a time, whether teachers would be replaced by artificial intelligence became the focus of media attention. Some scholars have publicly predicted that “95% of teachers will be unemployed and there will be no need for teachers to conduct ordinary and worthless lectures and courses.” Anthony Seldon, the headmaster of Wellington College, a famous British public school, also predicted that by 2027, machine teachers would replace human teachers^[2]. However, some reports also point out that although the future elimination rate of personnel, customer service, government employees, accountants, and bank staff is all above 89%, the possibility of teachers being replaced by robots is only 0.4%^[3]. Forbes, through a survey of 2,000 jobs, found that the most difficult jobs to automate are design management and talent development (with an automation potential of 9%), followed by jobs that require professional knowledge for decision-making, planning, and creativity (with an automation potential of 18%), and jobs that involve communication with customers, suppliers, and other stakeholders (with an automation potential of 20%)^[4]. As possessors of in-depth professional knowledge, communicators who need to engage in complex interpersonal interactions, and leaders who carry out innovative talent development activities, teachers have a key spirit that is difficult to replace. Starting from whether intelligent robots can replace teachers, it further leads to the dispute over the teaching division of labor between machines and teachers. Some researchers believe that machines can free teachers from tedious, mechanical, and repetitive mental work, replace teachers to complete daily work such as grading homework, and empower teachers to become part of their work, with human-machine collaboration completing intelligent work that could not be done before. However, if teachers do not participate in homework grading at all, there will be a serious absence of teaching evaluation. They will not be able to pay attention to the learning status, needs, and individuality of each student from real homework, and it may also lead to students encountering the situation where the system may continuously generate errors but cannot be corrected in time during the process of autonomous dialogue with the machine, resulting in an aversion to the algorithm^[5]. Therefore, the ambiguity of the division of labor between humans and machines has led to negative emotions such as hesitation, doubt, and even resistance among a large number of teachers in real educational fields. It is precisely because of this that teachers cannot trust artificial intelligence and have to regard it as a forbidden area, a mere decoration. At the same time, it is also because of the unclear division of labor between humans and machines, and the designers, developers, promoters, and maintainers of intelligent technology are limited by their own knowledge structure, way of thinking, and main life. They cannot promote the healthy development of intelligent education and build a complete structure^[6].

Secondly, there is an adaptability barrier to intelligent technology. Education is a complex existence. The complexity of educators is reflected in the individual differences of ordinary individuals in terms of personality traits, character traits, emotional expression, thinking level, and other aspects, as well as differences in general knowledge, academic knowledge, ability, quality, methods, and other aspects. The complexity of the educated is reflected in talents such as language, music, painting, and self-acquired differences such as personality, thinking, interest, and motivation^[7]. The introduction of artificial intelligence has once again extended the dimensions of the complexity of education in both horizontal and vertical directions. Horizontally, due to the uneven distribution of technological infrastructure, remote and resource-poor areas are prone to new

“island” phenomena. The “digital divide” between urban and remote rural areas has widened. Under the realistic constraints of relatively lagging infrastructure, teacher resources, and educational concepts, it is more difficult to effectively deploy and use intelligent tools^[8]. Vertically, although intelligent technology has indeed developed rapidly in recent years, intelligent education often cannot and should not naturally follow the pace of intelligent technology development. On the one hand, the application of intelligent technology in the educational field needs to redeploy and plan its functions and roles. Survey data frequently confirms this view. Abroad, scholars have found that over the past 10 years, adaptive learning technology is still not mature enough in improving classroom education and other aspects^[9]. In China, scholars have found through surveys in 28 cities (districts) of 12 provinces and 2,505 primary and secondary schools that their intelligent learning environment is still in its infancy. On the other hand, education should not drift with the development of intelligent technology. Humans have their own uses. The main reason why humans are different from other living beings is that they have activities such as morality, personality, soul, and spirit. So, how should humans enhance the adaptability of intelligent technology? The key is to improve the intelligent literacy of teachers and students, find relevant influencing factors, and establish an effective intelligent literacy and digital literacy framework to form a literacy development model that can be promoted, learned, and improved. For example, some scholars have found that positive attitudes, interest, and other factors are positively correlated with intelligent literacy^[10]. However, there is still a lack of widely recognized intelligent literacy frameworks. Although the “Citizens’ Digital Competence Framework” launched by the European Union is widely used in academia and industry, its content related to intelligent literacy still has problems of being vague and ambiguous^[11].

2.2 Technical Design of Artificial Intelligence Educational Application

Firstly, seeking top-level design guidance from policy documents. In 2018, the Ministry of Education issued the “Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively Deepening the Reform of Teacher Team Building in the New Era”^[12], which proposed that “teachers should actively adapt to the new technological changes of informatization and artificial intelligence, and effectively carry out educational teaching.” The “Education Informatization 2.0 Action Plan”^[13] also proposed to launch the “Artificial Intelligence + Teacher Team Building Action” and emphasized the need to greatly improve teachers’ information literacy. The “China Education Modernization 2035” proposes to “accelerate the training of new teachers who are proficient in applying information technology to adapt to the new technological changes of informatization and artificial intelligence”^[14]. The “Guiding Opinions on Promoting the Construction of New Educational Infrastructure and Building a High-quality Education Support System” issued by six ministries and commissions clearly pointed out that “developing intelligent teaching applications based on artificial intelligence, such as intelligent teaching assistants and intelligent learning companions, to achieve ‘co-teaching and co-education of humans and machines’ and improve the quality of educational teaching”^[15]. Now, with the emergence of generative artificial intelligence, there is an urgent need for relevant educators to formulate effective policy documents to support the application of generative artificial intelligence in educational teaching to achieve top-level leadership.

Secondly, refining the positioning of humans and machines in the process of intelligent education. In June 2023, the well-known global management consulting firm McKinsey & Company released its latest report “The Economic Potential of Generative Artificial Intelligence: The Next Frontier for Productivity”^[16]. It provides a detailed analysis and prediction of the impact of generative AI on the economy and its disruption of future work. Between 2030 and 2060, 50% of current work activities may be replaced. The OECD’s report shows that more than a quarter of jobs can be optimized by AI to improve work efficiency and easily achieve automation. Many people have begun to worry that they may lose their jobs due to artificial intelligence. The common predictions of many institutions indicate that some human jobs can be replaced by machines to a large extent. However, despite this, in the teacher-led classroom, the introduction of artificial intelligence should still be mainly designed to assist teachers in teaching and students in learning. It is not acceptable to leave the classroom empty, abandon teachers, and let machines run wild. On three levels, intelligent devices can be introduced in a limited way. First, batch grading of homework, based on the existing rapid grading of objective questions such as multiple-choice questions, strengthen the use of intelligent machines for evaluative activities in oral dialogue and text discussion. Second, provide a large number of intelligent teaching resources for learners to choose from. Through generative artificial

intelligence, achieve high-level human-machine dialogue and stay away from the new “information islands” of the artificial intelligence era. Third, realize large-scale personalized learning. Education stakeholders can easily access generative artificial intelligence to solve unique teaching problems.

3. Practical Dilemmas and Responses in the Educational Application of Artificial Intelligence

3.1 Practical Dilemmas Faced in the Educational Application of Artificial Intelligence

Firstly, there is a disorder in the space of intelligent education. The existence of space makes the development of things changeable. Artificial intelligence, through its functions of generating content and personalized recommendations, makes the logic of the development of things in the space of intelligent education more complex, diverse, and changeable. It can generate various types of multimodal educational resources and design various personalized intelligent learning paths. However, with the large-scale generation of content by artificial intelligence, there has also emerged technology based on machine learning, deep learning, and other algorithms that synthesizes human appearances and voices, creating a variety of highly realistic fake video content. This has caused confusion in the judgment and evaluation abilities of teachers and students, as well as a strong sense of concern for information security. At the same time, various educational information resource websites based on personalized recommendations will induce users to click on videos that already have a high number of clicks, creating a unique resource trap of the intelligent era. That is, are videos with a large number of clicks and views necessarily high-quality teaching resources? Perhaps teaching content that can better mobilize emotions, stimulate the five senses, and meet entertainment needs is more favored by algorithms^[17]. Teaching resources based on personalized recommendations are not necessarily what students should learn, need to learn, or have to learn. They are more likely to be resources that make students feel more relaxed. In this way, students will find it even more difficult to step out of their “comfort zone” and move towards the “zone of proximal development.” Therefore, although various intelligent platforms and tools are becoming more and more popular and can provide students with flexible and diverse learning paths, they also lead to problems such as fragmented learning environments, resource overload, information disorientation, and cognitive overload^[18]. Secondly, teachers and students experience a sense of separation and alienation from intelligent technology^[19]. Although intelligent tools can provide students with timely feedback and 24/7 learning support, and expand interaction channels^[20], at the same time, intelligent tools may have problems such as insufficient teaching, poor feedback, and lack of perception^[21]. Even worse, since intelligent interaction usually lacks knowledge depth and emotional warmth, the trust and understanding between teachers and students may be deeply weakened, leading to a sense of alienation from technology. Therefore, teachers are trying hard to adapt to new teaching methods with technology, but they lack sufficient training and support. It is difficult to ensure that in intelligent-assisted teaching activities, both the enthusiasm of students for autonomous intelligent exploration and the necessary teaching order can be maintained^[22].

3.2 Practical Design of Artificial Intelligence Educational Application

At present, there are a large number of intelligent education-related conferences, activities, courses, and competitions. However, when we look closely at their specific content, there is often a lack of practical content about artificial intelligence. In the intelligent era, people are eager to use new technologies and tools to solve educational problems. However, they often lack practical methods. During the teaching practice process, a strange phenomenon has emerged: those who understand technology are afraid of teaching, and those who understand teaching are afraid of technology^[23]. Therefore, it is urgent to design an effective path for intelligent education practice.

Firstly, we should not abandon the mature teaching methods and technologies of the information age. For example, teaching models such as STEM and BOPPPS, and educational means such as virtual reality and augmented reality. For example, STEM education is an educational approach that integrates science (Science), technology (Technology), engineering (Engineering), and mathematics (Mathematics). Science helps learners understand the world and explore the laws of nature. Technology and engineering, based on understanding the world, further use tools or methods to solve problems encountered in social development. Mathematics can serve as a basic subject tool for technology and engineering, helping people to abstract complex real-life problems. In the intelligent era, it is still necessary to be down-to-earth and focus on application.

It is not necessary to follow intelligent tools blindly, but to take solving real-life problems as the goal and comprehensively cultivate students' ability to solve problems.

Secondly, consciously cultivate talents in artificial intelligence teaching. In the "Notice of the State Council on Issuing the New Generation of Artificial Intelligence Development Plan," the keyword "talent" appears 34 times^[24]. Although it is not possible or necessary for all teachers to become artificial intelligence experts, they can strive to become experts in artificial intelligence education, understand the basic concepts and logic of artificial intelligence, and be able to use artificial intelligence to design teaching. At least, the following three aspects of content can be learned: (1) Basic concepts of artificial intelligence, including what artificial intelligence is and an introduction to concepts such as machine learning, deep learning, and intelligent algorithms; (2) Implementation technologies of artificial intelligence, including concepts and implementations related to knowledge graphs, search technology, swarm intelligence algorithms, machine learning, artificial neural networks and deep learning, expert systems, computer vision, natural language processing, speech processing, planning, and multi-agent systems; (3) Ethical considerations of artificial intelligence, exploring the relationship between humans and machines from a technological philosophy perspective.

4. Ethical Dilemmas and Responses in the Educational Application of Artificial Intelligence

4.1 Ethical Dilemmas Faced in the Educational Application of Artificial Intelligence

Firstly, there is a risk of information leakage among teachers and students. News such as "Over a thousand university websites at risk of information leakage^[25]" and "170 million student information records leaked?^[26]" has directly caused widespread panic among teachers and students. With the wide application of various intelligent platforms, the basic personal information of teachers and students, as well as data related to teaching and learning, are collected and analyzed. Teachers and students may unknowingly and unconsciously have their privacy information, such as facial expressions and physiological signals, stolen. For example, information leakage can occur due to unencrypted storage, security vulnerabilities in data transmission, and non-strict third-party sharing agreements. Scholars have conducted a systematic review, analyzing 73 sample documents and 23 related national policy documents, and found that in the process of intelligent education, data types are complex, privacy protection levels vary, and there are difficulties in multi-platform data interaction and risks of leakage during centralized training^[27]. Since the data of teachers and students is stolen, it is easy to encounter major problems such as information fraud and malicious tampering with learning records.

Secondly, model bias leads to unfairness in intelligent education. Since intelligent algorithms need to be "fed" with historical data for learning, any social bias embedded in the data may be infinitely amplified by the algorithm. For example, learning recommendation systems based on historical data may inadvertently exacerbate stereotypes of certain groups and limit their learning opportunities. This bias may stem from incomplete available databases, lack of widely accepted "data standards," inability to disclose or access certain sensitive or confidential information due to privacy regulations or ethical issues, institutional barriers to data sharing or publication, and unbalanced datasets^[28]. It is this algorithmic bias that further affects key decisions such as student assessment and resource allocation. For example, if the performance records of a certain type of student are insufficient in the training set, the intelligent system may incorrectly underestimate the capabilities of that group, leading to unequal learning opportunities. Scholars have conducted a systematic review of 57 articles related to algorithmic bias in educational artificial intelligence from 2013 to 2023 and found a variety of issues such as algorithmic bias, algorithmic discrimination, algorithmic black box, and information cocoons^[29]. Therefore, it is necessary to strictly consider and examine the awareness, understanding, and behavior of relevant educators regarding algorithmic fairness to avoid exacerbating unfairness in intelligent education. For example, scholars have found that different types of algorithms have varying degrees of gender bias, such as collaborative filtering algorithms and ranking algorithms. Designers, decision-makers, users, and maintainers of intelligent technology may consciously or unconsciously embed their biases into intelligent systems^[30]. For example, elite robots managing businesses are often depicted as male, while submissive service robots are often depicted as female.

4.2 Ethical Design of Artificial Intelligence Educational Application

To promote the goodness of technology and humanity, ethical issues in artificial intelligence education must be given importance in the field of education. In fact, the development of artificial intelligence originates from human development, and artificial intelligence stems from human intelligence. During the training of artificial intelligence, it is inevitable that human thoughts, concepts, and even biases and discrimination will be implanted. Therefore, it is essential to pay attention to intelligent ethics.

Firstly, design the ethics of artificial intelligence technology. Norbert Wiener^[31], the father of cybernetics, mentioned in “The Human Use of Human Beings” that the trend of machine development is to surpass and replace humans in all aspects, not just in energy and strength. The famous theoretical physicist Stephen Hawking, in an interview with the BBC in 2014, proposed that “the development of full artificial intelligence could spell the end of the human race.” After nearly 70 years of development, artificial intelligence has gone through several stages, including initial development, reflective development, application development, low development, steady development, and rapid development. It is now in an exponential development phase. Therefore, while humans can still control artificial intelligence, how to design the ethics of artificial intelligence technology is at a critical historical juncture^{[32][33]}. The futurist Ray Kurzweil mentioned in “The Singularity Is Near” that once a certain singularity is exceeded, humans may be completely overwhelmed by artificial intelligence. Against this backdrop, it is possible to draw on and follow the ethical design model of artificial intelligence proposed by Wallach and Allen: (1) Top-down, by imposing clear rule constraints on machines; (2) Bottom-up, by requiring machines to learn morality on their own and achieve self-evolution; (3) Hybrid, by allowing machines to acquire some rules while also permitting them to make modifications. At the same time, accelerating the development of the human brain is an important way for humans to enhance themselves and flexibly design the ethics of artificial intelligence technology. According to research, the brain of the famous physicist Albert Einstein was only developed by 10%, and most ordinary people’s brain utilization is only 3%. The left hemisphere of the human brain is responsible for logical and orderly thinking, while the right hemisphere is engaged in imaginative thinking and is the source of creativity, also inspiring artistic thought.

Secondly, ensure the safety of tools. One of the most significant concerns humans have about artificial intelligence currently is its uncertain safety. Many existing technologies serve as “extensions” for humans and are within human control. For example, refrigerators can preserve food, high-speed trains facilitate travel, and elevators assist in moving between floors. However, the development of artificial intelligence exhibits a degree of uncertainty that is somewhat similar to “cloning organisms,” both of which may pose risks beyond human control. Elon Musk, the creator of Tesla, once said, “Developing artificial intelligence is like summoning the devil; every wizard who claims to be able to control the devil will fail.” During the development of artificial intelligence, potential changes in the technology itself, hacker intrusions, and viral infections could all cause significant disruptions. Therefore, humans should always maintain the ability to constrain machines, resolve their internal contradictions, establish moral standards for machines, control whether machines take actions, and manage the biases of artificial intelligence. Based on these capabilities, adjust intelligent ethics according to actual circumstances.

5. Conclusion

Upon reflection on the application of artificial intelligence in education, it is evident that there still exist technical dilemmas such as unclear division of labor between humans and machines and adaptability barriers to intelligent technology. There are also practical challenges like disorder in the space of intelligent education and a sense of separation and alienation from intelligent technology. Additionally, ethical issues such as the risk of information leakage among teachers and students and model bias leading to unfairness in intelligent education persist. Therefore, in the future, there is an urgent need to design strategies for the application of artificial intelligence in education from three aspects: technology, practice, and ethics. In terms of technology, there is an urgent need to seek top-level design guidance from policy documents and to refine the positioning of humans and machines in the process of intelligent education. In terms of practice, it is essential not to abandon the mature teaching methods and technologies of the information age and to consciously cultivate talents in artificial intelligence teaching. In terms of ethics, it is necessary to design the ethics of artificial intelligence technology and ensure the safety of tools.

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Comprehending the Culture Picture Scroll of China: A Case Study of Linguistic Elements in the Popular Song “Luochahai City”

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Abstract: This paper provides an in-depth analysis of the lyrics of the Chinese pop song Luochahai City, exploring how they reflect social phenomena and cultural values. The study emphasizes the integral connection between language and culture, asserting that analyzing song lyrics can offer valuable insights into different aspects of Chinese culture. A mixed-methods approach is employed, combining both qualitative and quantitative data analysis through the lens of narrative theory to identify cultural markers within the lyrics. These markers include Chinese characters, idiomatic phrases, distinctive expressions, and societal values.

Quantitative analysis is used to examine individual characters and idioms, investigating their contextual meanings and cultural significance. Meanwhile, qualitative analysis involves reviewing media commentary and insights from music industry professionals, which provide a broader perspective on the song's impact.

The findings demonstrate that the lyrics function like a Chinese picture scroll, intertwining cultural and linguistic elements into a cohesive narrative that encourages deeper reflection on societal issues. In conclusion, the paper underscores the role of cultural elements in enriching the song's meaning and fostering critical engagement with Chinese society, while suggesting future research directions that highlight the importance of lyric analysis in understanding culture.

Keywords: Luochahai City; Chinese Culture; Linguistic Elements; Chinese Society

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1.Introduction

Generally speaking, a Chinese popular song called Luochahai City has attracted many people pay attention to its lyrics. Not only do the lyrics convey emotion and story but also reflect social phenomenon, history and culture. Chinese lyrics take a variety of shapes depending on the language to show how closely tied language and culture are. Empirically supporting the inseparability of language and culture.^[1] In contrast, few attentions to lyrics that call for exploring the fundamental element of Chinese culture.

Chinese culture has several facets that are founded on language and are reflected in the context. Many readers can understand the content between lines of Chinese. Therefore, it is undeniable that Chinese culture is rich, and the deeper the culture, the more vibrant. Studying Chinese culture is important because it demonstrates Chinese soft power and has ramifications beyond just the language and the country's borders. Each case below is connected by how they exemplify what I have come to call

the optimization of culture: the strategic preparation and readying of cultural goods to orient them toward and ready them circulation, discovery, and use on particular platforms.^[2] The song “Luochahai City” originated from a story in the ancient classical novel “Strange Tales of Liao-zhai.” The novel, with its ironic style, reveals the darkness of society and includes various characters, such as a few kind-hearted ghosts and some morally ugly men. Therefore, the novel, with its literary merit and irony, has been passed down to the present day. Dao Lang, the writer of the song “Luochahai City,” released it in 2023, and it quickly broke records in the world of popular music. The song’s lyrics not only showcase its literary qualities but are also full of irony. Moreover, it is said that Ma Ji is a main character who has a strange experience, witnessing a world that is entirely different from normal society. The most crucial point is that we should clearly understand the forms, patterns, and metaphors of Chinese characters. And a role how Chinese lyric plays in the society of China, particularly the Luochahai City. It is necessary to study the Chinese song based on text analysis step-by-step using a number of tables with statistical data. The Chinese culture is illustrated on the tables, covering a variety of topics worth researching in practice and producing some insightful reflections of contemporary society.

A few papers on culture studies which are relevant to song lyrics. It is entirely divided into two sections: one discusses the music itself, reflecting its subject matter directly while the other discusses how profound idea leads to abstract subject matter. No matter how simple or complex the subject matter, Chinese culture needs to be expanded so that it covers many levels and not just one component. Chinese culture exhibits a variety of components, such as language, literature, and so on. Song as a material and discursive artifact and literacy practice of remembrance resulted in an indelible creation.^[3] Previous research on the lyrical culture of songs is limited, but it should explore the deep connotations in Chinese culture. Therefore, Chinese culture will be thoroughly explored based on the song’s lyrics.

Chinese culture is expressed through song lyrics, which require linguistic study. Culture is connected to language which the basic element is worth studying. Various culture is based on the Chinese, including words, sentences, text, and context. The claim that similarity in word use can be used to measure similarity in concepts is motivated by the distributional hypothesis of word meaning, according to which words that occur in similar linguistic contexts have similar meanings.^[4] In terms of words, it is an interesting to analyze the Chinese character because Chinese with a long history and deep culture connotation. Nonetheless, it remains the case that some Chinese characters have visual features that provide an indication of their meaning.^[5] The abstract part of Chinese reflecting the situation and containing some stories should be analyzed. As a result, it combines with narrative theory, which is a framework for analyzing texts to determine how to construct stories and convey meaning, and it improves the overall impression of the story. It is here where we see a clear example of analysis that focuses on the structural aspects of narrative, in this case small stories.^[6]

The culture that is reflected in the song, Luochai City, is rooted in literature as well as language. A language has an association with stories in literature. Several approaches will be used to address the key issue, which is how to examine the song’s lyrics step by step. The song will use quantity research with the use of a lot of data. Utilizing a large dataset helps to enhance the model’s ability to learn and identify patterns, while diversity in the dataset ensures that the model can generalize to new and unseen instances.^[7] Chinese characters will be used to investigate the data because they can be separated or combined to produce words with various meaning. Additionally, it examines objective data in a narrative framework, particularly when it comes to characters who appear in vivid scenarios. vivid visual imagery has characteristics resembling the real scenario in that it is generally clear, bright, sharp, detailed, and lively.^[8] The intricate Chinese characters that are woven into the captivating tales expand a rich culture that is worthwhile of study using various approaches. In order to demonstrate a Chinese picture scroll of Luochahai City, three questions should be listed below:

1. What are the features of Chinese characters in Luochahai City’s lyrics?
2. How do idioms and distinctive phrases in the song’s lyrics encapsulate cultural narratives?
3. What the society phenomenon is reflected by the lyrics of Luochahai City?

2. Cultural elements in the lyrics of “Luochahai City”

Luochahai City is a popular Chinese song which lyrics refer to wonderful tales and have a huge influence on society. The song was written in 2023 by a singer named Dao Lang, and it was filled with deep cultural references including Chinese

characters, idioms, and sardonic meaning. A number of song lyrics are based on the analysis of context.^{[9][10][11]} Some previous studies related to culture^{[12][13][14]} and Culture-related studies have been done in the past. The context of song lyrics includes a variety of cultural elements, such as local culture, distinctive culture, cross-cultural element, and more. The pop song, Luochahai City contains rich culture based on the context, and it will be list below:

The lyrics, which comprise individual Chinese characters and have a semantic context, are extremely interesting to study, especially from a linguistics perspective. It was underlined that Pu Songling's Strange Tales of LiaoZhai, a classical masterwork from the Qing dynasty, served as the inspiration for the story narration of lyrics. The most common aspects of language learning measured were story comprehension and vocabulary or word leaning.^[15] Therefore, it is essential to study the lyrics language or story. Additionally, it makes a explore to the rich Chinese culture through Chinese characters, idioms, and even a story in the lyrics.

The language objective of context will concentrate in threefold. First, it makes analysis on a series of Chinese characters in construction rule instead of the recognition of sing one. Second, the context will reflect a special Chinese culture, related to history in the lyrics. Third, the context in which Chinese characters formed metaphor can apply in society.

In terms of culture context, the lyrics of Luochahai City will demonstrate in multi-aspects. Chinese characters have a few unique characters, when combined with others, can create new characters with different meaning in lyrics. It follows that investigating pragmatic phenomena requires a careful consideration of the context in which such phenomena take place; and that, by the same token, embracing the dynamics of pragmatic variation—and the social meaning that it takes on—entails situating pragmatic variables in the scenarios in which they are deployed, and in the expectations and constraints that such scenarios generate.^[16] On the other hand, the narrative that is intended to resemble a picture includes characters, settings, and plots that are all related to the culture.

There are certain Chinese characters used in the lyrics, and a few stories will be shown below: Evidently, in Chinese culture, the devalued Chinese are represented by animals like the chicken and the donkey, which are both represented by the Chinese characters 鸡 and 马 respectively. Moreover, songs are often meant to be contextualized into broader narratives that unfold in entire albums rather than single sets of lyrics.^[17] In the lyrics' narration, there is a major character named Ma ji who is a lovely young man, when he arrived in Luochahai, there were other men who are odd and unattractive and they fascinated about Ma ji. In terms of narration of story, it could be described as a Chinese painting which is one part of culture.

The data is based on different parts of lyrics, including morphology, lexis, semantics, sentence, narration, text, and context. Song lyrics are rich in meaning. In recent years, the lyrical content of popular songs has been used as an index of culture's shifting norms, affect, and values.^[18] The analysis will be covered the whole lyrics, from lexis to context which are not only the language but also the culture. It also extends the scope to deep conception in history, society and rhetoric.

It is clear that the study—whether it is language or story—evolved inside a cultural framework. This procedure performance framework is consonant with the Cultural Dimension found in this study.^[19] All of these components—along with a set of numbers that represent the scientific hypothesis—will be thoroughly used by the mix studies approach.

3.Approaches to data generation and processing

3.1 Quantitative research procedures in lyric analysis

The analysis will be reflected in the quantitative method based on the song's text. This approach makes it possible to identify a wide range of components, such as a single word or a group of words, that are connected to certain Chinese characters. The approach's objective is to gradually demonstrate the different aspects of Chinese culture.

The research process will begin with a word and proceed to include phrases, sentences, and context in order to clarify any misunderstandings of Chinese culture. Naturally, there have been miscommunications and misunderstandings because people judge others based on their cultural values.^[20] Next, many analytical facets will mostly focus on quantitative methods under narrative theory. Thus, narratives encompass a broad spectrum of representational accounts, and the field of narratology encompasses a diverse set of theoretical lenses for analyzing them.^[21] To improve the effectiveness of the applied approach, several results will be deduced from the analysis.

3.1.1 About the Special Chinese Characters of Song Lyrics

Luochahai's song lyrics are enriched with Chinese patterns and connotations. Connotation is intimately involved with notions of appropriateness in language use; i.e. with pragmatic effect.^[22] In terms of 437 Chinese characters, some of their meanings alter from new characters when combined with existing characters, as shown in table 1. In addition, there is no one-to-one mapping between phonology and orthography in Chinese.^[23]

Table1. Special Chinese characters from Luochahai City

Special Chinese characters	number	meaning
马	8	horse
户	7	household
又	6	again
鸟	6	bird
驴	9	donkey
鸡	12	chicken
Percentage: 1%	11%	

The percentage is calculated by ratio.

3.1.2 About the special Chinese phrases of song lyrics

This section pertains to both special Chinese phrases and Chinese idioms. As for the scarcity of these idioms, it should be noted that idioms are metaphors, and adjectives, being purely descriptive, do not typically take on metaphorical meanings themselves, but only in combination with nouns.^[24] Some Chinese characters are long or short, as listed below.

Table2. Special Chinese phrases (idioms) from Luochahai City

Special Chinese phrases (idioms)	number	Meaning
一丘河 (一丘之貉)	1	jackals of the same lair
苟苟营 (蝇营狗苟)	2	shameless trick
十里花场	1	entertainment places
公公	1	eunuch
美丰姿少倜傥	1	handsome and elegant bearing
华夏	1	an ancient name for China
司晨	1	the cock crows the dawn
如意	1	A traditional artifact
Percentage: 1%	2%	

Although some specific Chinese phrases occupy for a small percentage, they are associated with diverse aspects of profound Chinese culture.

3.1.3 About the special Chinese sentences of song lyrics

In the song lyrics some sentences with the ironic meaning that are worth investigating, particularly the implicit sense. This ingredient can be contextually or linguistically added. When that happens, this figure easily supports an ironic interpretation.^[25]

Table3. Special Chinese sentences from Luochahai City

Special Chinese sentences with ironic sense	number	Meaning
只为那有一条一丘河	1	There is a river are called yi qiu river
河水流过苟苟营	1	and it flows the gou gou campground
苟苟营当家的叉杆儿换作马户	1	The place's host is Ma hu
十里花场有浑名	1	He is famous in entertainment place
她两耳傍肩三孔鼻	1	She looks ugly
那马户不知道他是一头驴	2	Ma hu don't know he is a donkey
那又鸟不知道她是一只鸡	2	while You niao don't know she is a chicken
岂有画堂登猪狗	1	how can pig and dog ascend to the hall
哪来鞋拔作如意	1	why do they take shoehorn as a traditional artifact
Percentage: 2%	2%	

Table 3 contains certain sentences excerpted from the lyrics, and they serve as context in a sarcastic sense. Based on the Chinese with deep culture, the sentence meaning is slightly different from the phrase.

3.2 Applied qualitative method on Luochahai City

This section presents a few musicians' and media entities' viewpoints on Luochahai City via web search which is the quality method to collect information, creating a deep ponder on society.

3.2.1 Perceptions of renowned musicians

According to a renowned musician Li Shuangjiang, Dao Lang's song is unique. A unique purity and sincerity without excessive ornamentation and garishness. His musical inspiration originates from his profound feelings about life and surroundings.

Taiwan's famed singer Li Zongsheng revealed that he has developed a habit of listening to Luochahai City on every day. He also stated that the song revitalizes Chinese music.

Andy Lau, a well-known Hong Kong singer, stated that he felt the rhythm and melody were excellent, and that he purchased the book *Strange Tales of Liao Zhai* to better understand the lyrics. Finally, he found that Dao Lang is so talented that all literary quotations are used appropriately.

Han Hong, a Chinese popular singer, commented that this isn't just one song, but everything that I think and that it represents a cold society with enough severity to stir up painful memory.

A famous music reviewer Ding Taisheng regarded that the song take Luochaguo as the background, revealing a false society that reverses beauty and ugliness, pursuing the attractive appearance while ignoring the inner value. The irony isn't just a critical viewpoint, but also an attack on the entire phenomenon, demonstrating Dao Lang's profound thought on the entertainment industry and society.

3.2.2 Perspectives of Influential Media Entities

People Daily Overseas edition appraised that Dao Lang's music played a deep influence on media, culture and commerce. Both CCTV and Bei jing News speak highly of it, and point out that the song reflect the public's actual emotional demand. It is the perfect blend of national culture and popular components.

According to Taiwan's United Daily News, the lyrics of Luochahai City reflect Taiwan's current status as Luochaguo, which is characterized by pseudomorphism and chaos. It also pointed out birds and horses are covered from politics to all kinds of industry.

According to Hong Kong's Ta Kung Pao, it originates on *Strange Tales of Liao Zhai* but is not the same as the original. It is filled of folklore, influenced by ancient classical literature, and contains thoughtful reflections on social reality.

From the musician's personal perceptions to media's perspectives on the lyrics of Luochahai City which are all reflect not only a viewpoint to culture experience but also multi views to the society's deep thinking. By the quality method, it can analyzed that all different kinds of industries are reflect unfair social phenomena and worth pondering. As a result, the lyrics of Luochahai City represent a society that is unfair and chaotic, thus solving research question 3.

4.A data-driven account of Chinese culture

The lyrics of Luochahai city are made up of Chinese characters, phrases, and sentences, all of which contribute to the plot. Furthermore, narratives often include emotional appeals resulting from the modulation of the dramatic intensity in the plot.^[26]

This section will step by step assess the data from the above tables and certify the song lyrics' compatibility with Chinese culture in several ways.

The smallest unit of song lyrics is Special Chinese character. Table1 generalizes them linguistically, and there are six special Chinese characters listed below: 马, 户, 驴, 又, 鸟, 鸡. All Chinese characters are nouns except 又, which signifies again and is an adverb. The words 马 and 户 represent donkey while 又 and 鸟 represent chicken, respectively. The shape of each Chinese character conforms roughly to a square frame, each standing on its own.^[27] According to narrative theory, narrative roles are classified as narrative elements. For example, a deep involvement with characters inhibits the development of reactance by creating a sense of connectedness and trust.^[28] In additions, these features of Chinese characters can respond to the research question 1. They occur 11% in the repetition of lyrics, creating a lasting effect on the audience. One striking

feature of popular music is the use of repetition in lyrics as a rhetorical device.^[29] It not only represents a group of animals, but these animals are biased in Chinese culture.

Some Chinese phrases occupy 2% of the song lyrics, and two of them are idioms. Chinese idioms can have positive or negative connotations. The idioms 一丘之貉 and 蝇营狗苟 have a negative connotation, referring to a group of nasty guys doing a shameful act. Conversely, where collocates and concordance lines predominantly indicate negative attitudes, they are labelled as ‘unfavourable’.^[30] The other Chinese phrases appear only once in the lyrics while some have a positive meaning, such as 美丰姿少倜傥, which describes Ma ji as a handsome and attractive youth. All of the idioms and phrases described above convey an impression of narrative, which is the answer to research question 2. The narrative theory has a beginning that reflects surroundings and characters in lyrics. Stories are a specific type of narrative. Within narratives stories are distinguished from other types of narrative, such as expositions and news. Stories must provoke emotional responses, and have a clear beginning, setting and ending, a primary goal of entertainment and a sequence of causally related events which includes a challenge or unexpected incident, the reaction of characters to that challenge or incident, the consequences of those reactions and some sort of resolution.^[31] While terms like “differences,” “traits” and “characteristics” may be appropriate to describe some individuals in certain contexts.^[32] 华夏, 晨司, and 如意 are good expressions, but 公公 and 十里花场 have a negative connotation. The sense of these sentences can be examined in the table 2.

Not only there are Chinese characters and phrases with cultural significance, but the excerpt sentences that make up the story will demonstrate literary. At the same time, literary appreciation is also a cognitive activity, an aesthetic activity, and a re-creation activity.^[33] In terms of literary, it is derived from *Liaozhai*, an ancient classic work written by Pu Songlin during China’s Qing dynasty. It becomes strong when learners must combine and apply new and known words in a novel context (e.g., sentence creation and composition writing).^[34] Based on the function of narrative theory, some sentences even context of lyrics are full of satire sense. Ansgar Nunning, in “Surveying Contextualist and Cultural Narratologies,” argues that “in the age of interdisciplinary narrative research, narratology would stand to gain a lot by taking various contexts into account, and that cultural analyses and context-sensitive interpretations of narratives would stand equally to gain by actually applying and refining the categories provided by narratology”.^[35] Some sentences in the lyrics, such as 只为那有一条一丘河, 河水流过 苟苟营, and 苟苟营当家的叉杆儿换作马户 constitute the scenery and person. The river 一丘河 rhymes with the Chinese idiom 一丘之貉 whereas 苟苟营 rhymes with 蝇营狗苟. Other sentences, such as 十里花场有浑名, 她两耳傍肩三孔鼻, 那马户不知道他是一头驴, 那又鸟不知道她是一只鸡, 岂有画堂登猪狗, 哪来鞋拔做如意. All of the sentences are not isolated but constitute a picture in context that can better explain culture, and it corresponds to the response to research question 3. Table 3 refers to these above sentences as a part of the lyrics, which illustrate not only the sardonic sense but also Chinese culture will arouse people’s meditation.

5. Conclusion and Implication

The essay has been merged with a mixed way to analyze the lyrics, including Chinese characters, phrases, sentences, narration, and their Chinese culture. It contributes to Chinese culture, as seen by the implication of the lyrics, which are based on a set of data in the pop song *Luochahai City*. While critical linguistic stylistic accounts for the linguistic choices and styles in the lyrics and accommodates the underlying ideological implications of the linguistic frames in the lyric.^[36] It expands the plot to a more vibrant painting with literacy and an ironic twist in the context. The report presented three findings that will open up new sights for future investigation.

First, scholars should pay attention to a wider range of lyrics, particularly those associated with Chinese culture. What’s more, because culture operates in the mind, different cultural notions can be activated in memory by the context.^[37] It is logical to conclude from the essay that Chinese culture can be conveyed not only via nouns but also through phrases and sentences with ironic or positive connotations. These connotations—along with the experiences that accompany them— influence how easily the word is learned, recognized, recalled and retained in memory.^[38] As can be found, a picture feeling of lyrics is consist of numerous components, including descriptions of animals, men, and women, as well as rich Chinese culture.

In addition, an image appeared in mind when the Chinese characters, phrase, and sentences constitute in the context of lyrics. Each line was carefully examined together with the preceding and the following line to understand the contextual meaning.^[39]

For narration, a series of pilots that present the tale in various ways of language, including cultural background. The function of narration, which focuses on how to effectively convey information, is presented in the lyrics of Luochahai City. Narratives are essential building blocks of all cultures, and they seem to have a constitutive relationship to the culture from which they are narrated; that is, they both shape the culture and are shaped by it.^[40] The lyrics conveyed Chinese culture with different ways. In literary, they are relate to metaphor, rhyme, satire and other rhetorical devices.

The third finding demonstrates that the entire lyrics of Luochahai City are full of sardonic sense, so that the vivid picture of Chinese culture does not only occur between lines but more important reveals a society that reflects a series of realities inspire people's deep thinking.

There are certain similarities among Chinese characters, phrases, and sentences in the lyrics. Some Chinese characters must be repeated several times in order to leave a lasting impression. The single Chinese characters that appear twice or more times in lyrics will play an important role. All of these parts offer numerous advantages, but they will also impose limitations on future research, which will be listed below.

According to the passage, an understanding of Chinese culture through lyrics is limited. On the one hand, future research should include additional song lyrics and identify similarities and differences. There are many song lyrics associated with Chinese culture, and further inquiry into more songs will reveal various pictures. On the other hand, if conditions permit, the study should be combined with interdisciplinary approaches.

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A Study on the Mechanism of Macao Youth's Employment and Entrepreneurship in Mainland China from the Perspective of Civil Society Empowerment — An Analysis Based on Grounded Theory

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Abstract: This study investigates the mechanism of Macao youth's employment and entrepreneurship in Mainland China through the lens of civil society empowerment. Utilizing Strauss and Corbin's grounded theory approach, we conducted 15 in-depth interviews with Macao youth who have settled in various sectors across the Greater Bay Area. The analysis reveals a dynamic interplay of policy opportunity, social capital mobilization, and civic motivation. A theoretical model of youth transregional mobility and civic engagement is developed, emphasizing institutional mediation and nonprofit pathways. The findings contribute to understanding youth participation in Chinese-style civil society construction and provide implications for policymaking in cross-border youth development.

Keywords: Macao Youth; Employment And Entrepreneurship; Civil Society Theory; Non-Profit Motivation; Social Capital; Guangdong–Hong Kong–Macao Greater Bay Area

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1.Introduction

1.1 Research Background and Importance

In February 2019, the Outline Development Plan for the Guangdong–Hong Kong–Macao Greater Bay Area, issued by the Central Committee of the Communist Party of China and the State Council, explicitly proposed to “support Hong Kong and Macao youth in employment and entrepreneurship in the Greater Bay Area and provide more opportunities and better conditions for innovation and entrepreneurship.” At the same time, Macao's limited geographical space, small population base, and reliance on the gaming and entertainment industry—where gambling contributes over 70% of the region's GDP (Wei, 2019)—have long restricted youth employment choices (Zeng, 2021; Han et al., 2024; Mao et al., 2024). The practices of Macao youth working and starting businesses in mainland China exemplify an emerging form of civil society within the process of regional integration (Zhengkun et al., 2025; Wang & Pan, 2022).

Existing scholarship has explored the policy frameworks, developmental pathways, and practical challenges facing Macao

youth in mainland employment and entrepreneurship (Fang, 2019; Ge, Bai & Wu, 2021; Xie & Hu, 2019). Scholars generally agree that under the “One Country, Two Systems” framework, Macao youth benefit from broader developmental space and stronger policy support. A multi-tiered and diversified policy system for youth entrepreneurship has already emerged in the Greater Bay Area (Yao et al., 2020; Yin & Liu, 2022). There is limited sociological research on Macao youth’s employment and entrepreneurship in the mainland, especially from the perspective of civil society theory. Existing studies have insufficiently addressed the factors influencing youth’s intentions, and rarely explore their public-mindedness, sense of social responsibility, or nonprofit motivations in depth (Dai et al., 2023; Feng et al., 2024; Gu & Liang, 2023). There is a lack of integrated analysis combining macro-structural and micro-action perspectives to reveal the processual mechanisms of civil society participation among Macao youth (Jiang et al., 2024; Zhu et al., 2023; Liu et al., 2023). These gaps not only hinder theoretical advancement in regional integration and youth-driven social innovation but also limit our understanding of youth agency in the nonprofit sector (Zhao et al., 2024; Wang & Liang, 2022).

1.2 Research Objectives

In response to these shortcomings, this study selects 15 Macao youth who have engaged in employment or entrepreneurship in mainland China as research participants. Employing Strauss and Corbin’s grounded theory, the study conducts open coding, axial coding, and selective coding to explore the behavioral mechanisms of these youth as civil society actors. The research aims are threefold: (1) To identify sociological and civil society factors influencing the intentions and behaviors of Macao youth in seeking employment or entrepreneurship in the mainland; (2) To examine their nonprofit motivations and paths of public participation during their professional engagement; (3) To construct a behavior mechanism model grounded in civil society theory and analyze the role of youth agency in regional integration and social innovation. Accordingly, the study addresses the following research questions: (1) What civil society factors influence the intentions and actions of Macao youth in pursuing employment and entrepreneurship in mainland China? (2) How do these youth express nonprofit motivation and civil society participation in practice? (3) What structural challenges do they face, and how do they convert intentions into actions? By generating theory from the bottom up, this study contributes both conceptually and empirically to the application of civil society theory in nonprofit research and the integration of youth within regional development.

2. Method

2.1 Grounded Theory

This study adopts civil society theory as the core analytical framework, emphasizing the agency and social participation paths of Macao youth as “civil society actors” in their employment and entrepreneurship activities in mainland China.

In terms of research methodology, this study applies Strauss and Corbin’s systematic grounded theory. Civil society theory serves as the guiding perspective for data analysis and theory generation, providing a theoretical foundation for systematically revealing the social mechanisms behind the cross-border mobility of Macao youth (Glaser & Strauss, 1967; Wu & Li, 2020; Wu, 2013; Jia & Heng, 2016). The main procedures of grounded theory include phenomenon definition, data collection, open coding, axial coding, selective coding, and saturation testing (see Figure 1).

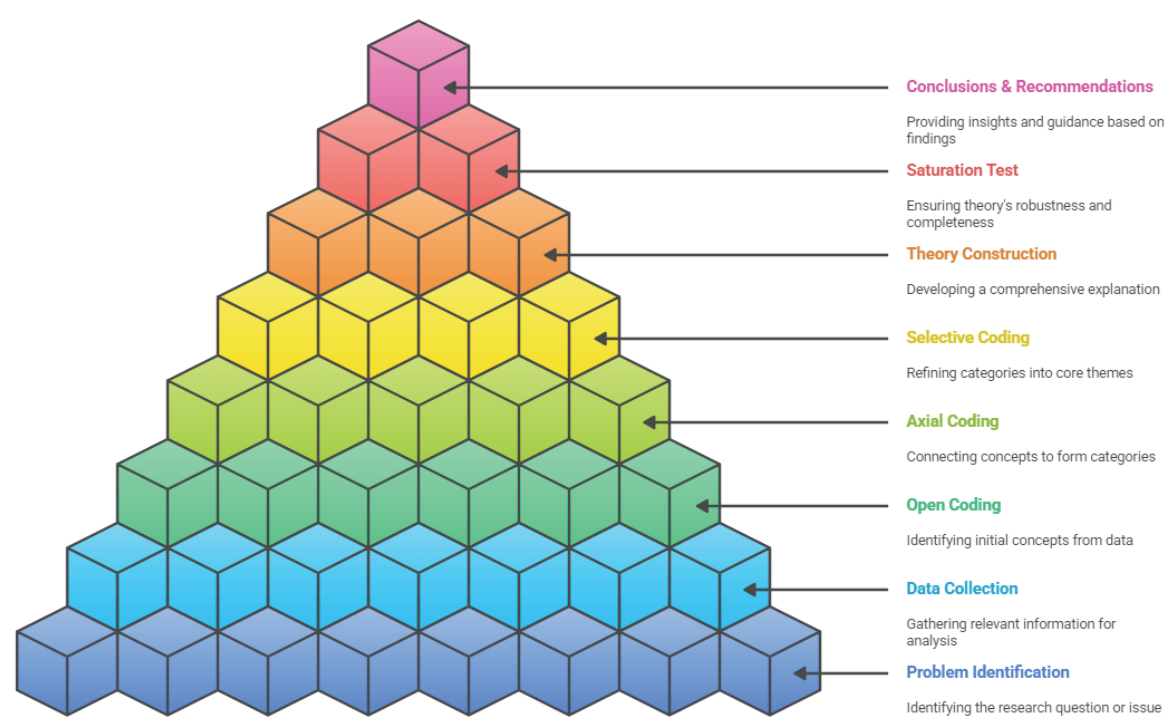
This study adopts the systematic grounded theory approach proposed by Strauss and Corbin (Strauss & Corbin, 1997). The main reason for this choice is that systematic grounded theory allows researchers to conduct data analysis and theoretical refinement step by step. It offers important guidance for qualitative research (Kenny & Fourie, 2015).

This highly inductive methodology offers both a conceptual framework and practical method for analyzing the behavioral mechanisms of Macao youth entering employment and entrepreneurship in mainland China. Therefore, this study starts from the textual data collected from interviews, using grounded theory to systematically refine the theoretical mechanisms and behavioral logic of Macao youth’s entrepreneurship in the mainland, aiming to contribute to their integration into national development and the Greater Bay Area.

Therefore, in the open coding phase, all first-hand interview data must be analyzed and categorized one by one (Yu & Yi et al., 2022). This includes classifying the motivations, contents, and changes of Macao youth’s employment and entrepreneurship in the mainland to clarify similarities and differences in the interviews, and to derive coding dimensions and categories. In the axial coding stage, the researcher further elevates these categories and dimensions to a higher level

of theoretical abstraction. Finally, in the selective coding stage, the entire process is compared in depth to identify the core categories and supporting attributes.

Figure 1. Research Procedures of Grounded Theory



2.2 Data Sources

The sample selection in this study followed several criteria. First, to ensure richness and diversity, the selected interviewees were Macao youth aged 18 to 35, working in various fields such as education, healthcare, technology, real estate, catering, and the internet. Second, to reflect the typical characteristics of Macao youth’s entrepreneurship in the mainland, preference was given to participants who had worked or started a business in the mainland for a longer period, whose industries were well-known, and who had high personal reputations. Third, this study also included a few cases of failed entrepreneurship in the mainland for comparative analysis. In total, 15 Macao youth were selected as the main sample (see Figure 2). Their interview data were used for coding analysis and model construction, with one additional interview used for theoretical saturation testing.

3.Data Analysis

3.1 Open Coding

Open coding was conducted line-by-line to identify key motivations and behavioral patterns. The aim is to extract primary concepts directly from the original data, classify and integrate similar concepts, and thereby form more abstract conceptual categories (often called “categories” in grounded theory). First, sentences and phrases that best reflect the reasons, motivations, and processes of Macao youth seeking employment or entrepreneurship in mainland China were identified and marked. Second, the extracted phrases were further

Figure2: Sample Information Tables

Macao Entrepreneurs in Mainland China				
Name	Year	Industry	Field Employment	Entrepreneurship Content
Mr. Li	2019	Internet	No specific employment mentioned	Built startup platform
Mr. Chen	2016	Education	No specific employment mentioned	K-12 education/training
Mr. Lü	2018	Research	Worked at research institute	No specific content mentioned
Mr. Qi	2020	Incubator	No specific employment mentioned	Tech incubation project
Mr. Shi	2018	Catering	No specific employment mentioned	Opened Macau-style restaurant
Mr. Jiang	2021	Internet	No specific employment mentioned	Developed Macau internet industry
Mr. Wang	2016	Social Welfare	Employed people with disabilities	Internet-related work
Ms. Chen	2017	Medical	Worked at equipment company	No specific content mentioned
Mr. Yang	2013	Real Estate	Worked in development company	No specific content mentioned
Mr. Liu	2018	Technology	No specific employment mentioned	Started business in incubator
Ms. Liang	2019	International Trade	Co-founded trade company	No specific content mentioned
Mr. Wu	2011	Business Management	Worked at trading company	No specific content mentioned
Mr. Long	2019	Internet	No specific employment mentioned	Started internet tech company
Mr. Huang	2013	Catering	Ran catering business	Created Macau-style brands
Mr. Cui	2021	Internet	No specific employment mentioned	Developed e-commerce platform

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summarized and categorized with an open mind, seeking to identify conceptual categories wherever possible (Shown in Table 1).

Table 1. Example of the Open Coding Process

Conceptual Category	Code (From opening coding)
Civic Identity Experience	Influence of Past History on Migration to Mainland
Human Capital	Educational/Social Capital
Motivation for Action	Reasons for Moving to Mainland
Social Network Support	Influence of Relatives' Networks
Resource Mobilization	Source of Funds
Institutional Convenience	Source of Information
Policy Dividend	Rare Policy Incentives
Social Environment	Better Mainland Development, Greater Attraction
Action Obstruction	Encountering Setbacks
Future Outlook	Enhanced Social Mobility
Sustained Action	Business Expansion / Industry Upgrade / Success
Entrepreneurial Spirit	Innovation and Risk-taking
Individual Traits	Social Personality
Contingent Events	Sudden Events Affecting Employment/Entrepreneurship
Technology Flow	Mutual Filling of Technology Gaps between Mainland and Macau
Structural Safeguards	Drawbacks of Employment/Entrepreneurship
External Social Capital	Help from Personal Networks

The advantage of open coding is that it maintains openness to various possible theories emerging from the original data. This allows for higher-level theoretical extraction from the identified open concepts (categories), providing a solid foundation for the subsequent axial coding.

3.2 Axial Coding

Axial coding further enhances the connections between these concepts and supports theoretical refinement. Based on open coding, axial coding for the topic of Macao youth's employment and entrepreneurship in mainland China led to the development of a condition-action-outcome model. In this process, civil society theory serves as the main analytical thread. It emphasizes the logic of social capital, social participation, and public responsibility at different stages, revealing the social mechanisms and collective attributes underlying youth action (Shown in Table 2).

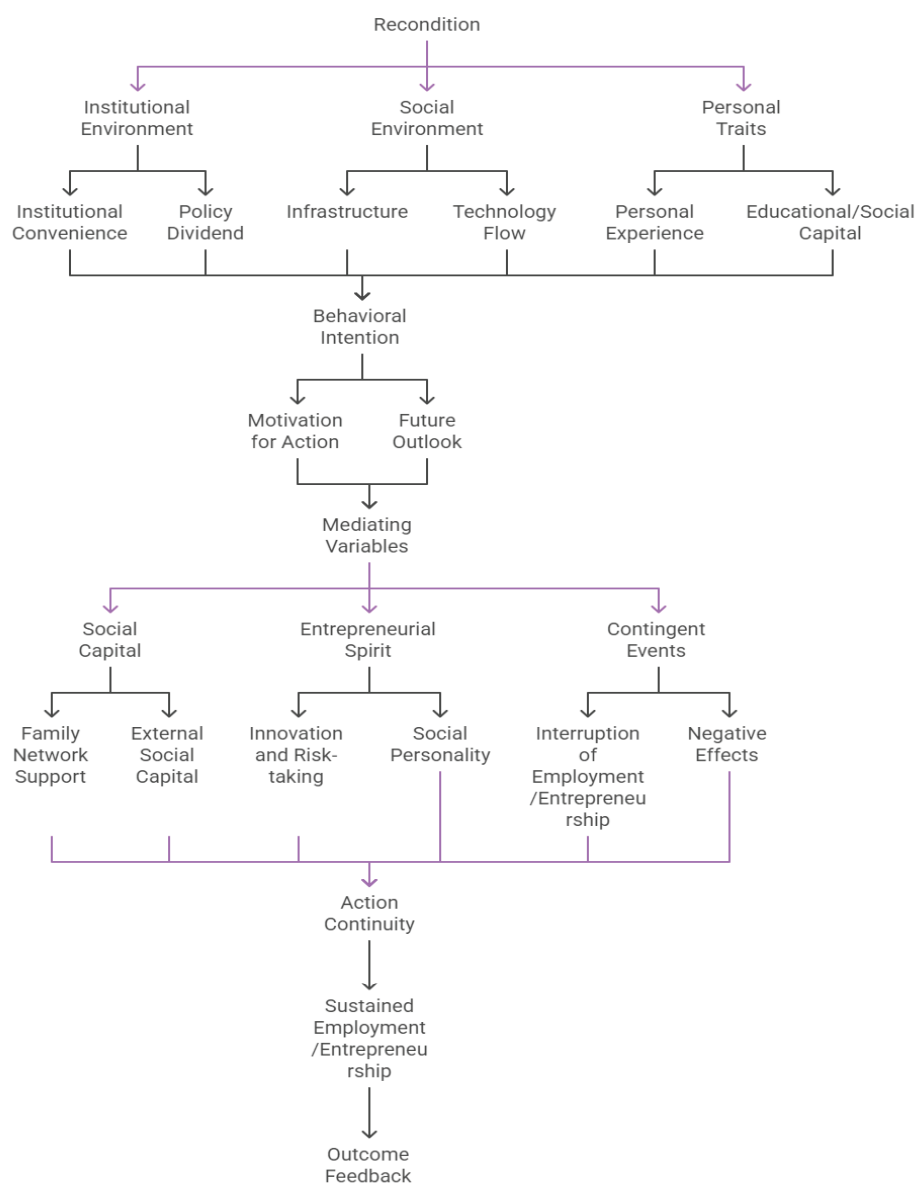
Table 2 Theoretical categories formed by the main axis coding

Main Category	Supporting Subcategory	Logical Relationship/Explanation
Institutional Environment	Institutional Convenience Policy Dividend	Talent flow, policy coordination, and people-to-people connectivity in the Guangdong-Hong Kong-Macau Greater Bay Area
Social Environment	Infrastructure Technology Flow	Convenient transportation and connected networks between the mainland and Macau, mutual strengths and complementarities
Behavioral Intention	Motivation for Action Future Outlook	Desire to earn more money in the mainland, perception of huge future profits, rapid development in the mainland

Main Category	Supporting Subcategory	Logical Relationship/Explanation
Personal Traits	Personal ExperienceEduca- tional Background	Personal growth is closely tied to the mainland; individual development is closely linked to the country's future and destiny
Social Capital	Family Network Support External Support	Introductions and assistance from relatives and friends play an important role in Macau youth's employment and entrepreneurship in the mainland
Action Continuity	Sustained Employment/En- trepreneurship	Economic profit returns, improvement of social status, motivating Macau youth to make further efforts
Entrepreneurial Spir- it	Risk-takingPersonality Traits	Using property as collateral, being pioneering and unyielding in the face of chal- lenges
Contingent Events	Interruption of Employ- ment/EntrepreneurshipNeg- ative Effects	Disruptions caused by the COVID-19 pandemic, separation from family and friends

3.3 Selective Coding

Figure 3: Storyline diagram of young people from Macao seeking employment and starting businesses in mainland China



Made with Napkin

At this stage, the behavioral chain is mapped and interpreted through the lens of civil society theory. This further reveals how Macao youth, through social participation and non-profit practice, achieve a dual embedding of the individual and society, as well as the self and the public sphere. The main storyline follows the logic from intention to action. Along this storyline, four core categories with logical connections are derived: preconditions, behavioral intention, mediating variables, and outcome feedback (Shown in Figure 3). There are also many mediating variables between behavioral intention and entrepreneurial outcomes, which can either facilitate or hinder their employment and entrepreneurship. At this stage, by analyzing the behavioral chain and drawing on civil society theory, the study further uncovers how Macao youth achieve mutual embedding between individuals and society, as well as between the self and the public sphere, through social participation and non-profit practices.

A supplementary interview confirmed theoretical saturation. Through repeated comparison, no new categories were found, and the data fit well with the storyline established in Figure 2. This indicates that the selective coding reached strong theoretical explanatory power, achieving theoretical saturation in grounded theory.

4. Discussion

4.1 Civil Society Factors and Employment and Entrepreneurial Intention

This study finds that the employment and entrepreneurship of Macao youth in mainland China are influenced by institutional environment, personal characteristics, and social networks.

First, the institutional environment is one of the main factors affecting Macao youth's employment and entrepreneurship in the mainland. In recent years, both the central government and Guangdong local authorities have issued policies to attract Hong Kong and Macao youth to work and start businesses in mainland China. The interview data also show that policy advantages and a favorable policy environment in the mainland are important factors attracting Macao youth to seek employment and entrepreneurship. For example, Mr. Huang, who began operating a restaurant in Guangzhou in 2013, felt that policies for Hong Kong and Macao youth in the mainland were improving, which enabled him to obtain a bank loan quickly in 2018 and open branches in Zhuhai and Shenzhen. The institutional environment not only provides policy support and legal guarantees, but also reflects the institutional embeddedness of civil society and the state's guidance of youth mobility. Civil society theory emphasizes that, with institutional facilitation and policy benefits, youth can participate more actively in public affairs and social innovation.

Second, the personal characteristics of Macao youth are also key factors influencing their willingness to work or start businesses in the mainland. Prior experience with the mainland has a positive effect on their willingness to work or start a business there. For example, some respondents' parents are originally from mainland China, so they visited frequently in childhood. This allowed them to witness the pace of development firsthand, generating a sense of identification with the mainland and leading them to seek opportunities there as soon as possible. Many respondents also stated that limited education restricted their upward mobility in Macao, while the mainland offered greater prospects. However, the study finds that Macao youth with very limited educational backgrounds (high school or below) have difficulty developing in the mainland. Thus, appropriate educational background is also a condition influencing their consideration of employment and entrepreneurship in the mainland. Their rich social experience and educational capital not only enhance their agency, but also represent a typical path of self-development as members of civil society.

Third, social networks also play an important role in promoting Macao youth's employment and entrepreneurship in mainland China. This study finds that Macao youth who have relatives or friends living and working in the mainland are more inclined to seek opportunities there. Information about employment and entrepreneurship obtained through social networks is of high quality, making them more willing to move. As noted, many Macao youth interviewed benefited from recommendations by relatives. The act of obtaining resources through social networks is referred to as individual social capital in the literature (Portes & Sensenbrenner, 1993). Thus, Macao youth with sufficient social capital are more likely to pursue employment and entrepreneurship in mainland China.

Civil society theory stresses that social networks and external social capital are the basis for aligning individual and collective interests and help youth shift from individual actions to collective social participation.

4.2 Non-Profit Motivation and Civil Society Participation Mechanism

As shown in Figure 3, the behavioral process of Macao youth pursuing employment and entrepreneurship in mainland China is influenced by several mediating variables. These mediators mainly include social capital, spiritual qualities, and contingent events.

First, the social capital of Macao youth plays a facilitating role in their employment and entrepreneurship in mainland China. Under favorable policy incentives, Macao youth can quickly gain institutional legitimacy, helping them overcome the initial difficulties of working or starting a business. Those with denser and more connected social networks in the mainland are more likely to succeed and to overcome challenges. Conversely, youth with weaker social networks are more likely to face setbacks or failure. For example, although government policy offers many conveniences for Macao youth, those who lack access to this information may miss out on opportunities, while information shared through social networks helps eligible youth to benefit. Thus, accessing employment and entrepreneurship resources through social networks enables Macao youth to obtain critical information, financial support, and credit more efficiently, which is crucial for integrating into national development and improving outcomes. Interview data show that many respondents actively help others and participate in voluntary work, reflecting the practical role of non-profit motivation in employment and entrepreneurship.

Second, spiritual qualities also play a positive role in the sustained employment and entrepreneurship of Macao youth in the mainland (Huang, 2003). Interview data reveal that Macao youth's aspirations and perseverance are crucial factors in their decision to work or start businesses in cities like Zhuhai and Guangzhou. Many interviewees showed a strong sense of adventure when launching or expanding businesses, sometimes even mortgaging family property or moving to the mainland against family wishes. Most Macao youth also display a willingness to endure hardship, living in less favorable conditions compared to Macao and working in remote areas or innovation parks, yet persisting toward their goals. Many respondents emphasize not only economic benefits but also social value and public good, such as supporting disadvantaged groups and leading social initiatives, indicating a strong non-profit motivation.

Third, contingent events also present challenges for Macao youth working and starting businesses in mainland China. Such events are characterized by unpredictability and structural impact. For instance, the outbreak of COVID-19 posed significant obstacles for Macao youth moving between Macao and the mainland. Although epidemic prevention policies are increasingly aligned between Macao and the mainland, as a special administrative region under "One Country, Two Systems," there are still barriers to mobility. Some respondents noted difficulties in quickly integrating into local networks due to their Macao identity, despite making friends nationwide. Other contingent events—such as personal relationship issues, family separation, or sudden financial crises—can disrupt or even terminate employment and entrepreneurial activities, which poses a challenge to national development strategies in the Greater Bay Area.

Faced with such events and uncertainties, Macao youth display strong social resilience and self-regulation. Civil society theory posits that crisis and uncertainty are opportunities for spontaneous mutual aid and enhanced public participation. In addressing structural shocks, individuals use social capital and collective support to achieve psychological and behavioral adjustment, which embodies the essence of non-profit motivation and civil society spirit.

4.3 Structural Dilemmas and the Intention-Action Transformation

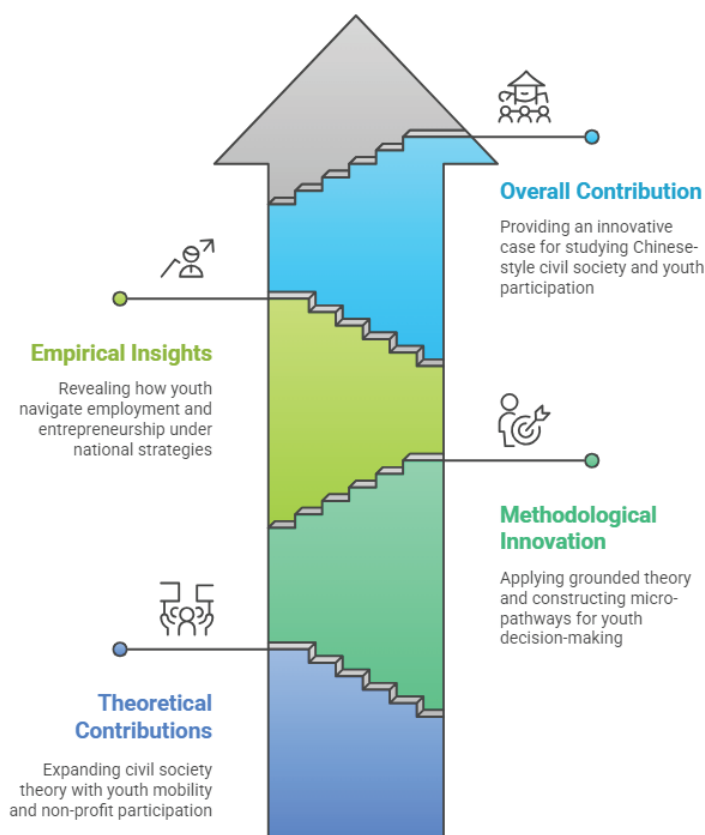
Research shows that Macao youth face structural barriers during employment and entrepreneurship in mainland China (Fang, 2019). However, this study finds that most of these issues are effectively resolved in practice. Yet, Macao youth still experience difficulties adapting to local work and living environments, lack of national treatment, and misunderstandings from local communities, all of which impact their employment and entrepreneurship in the mainland.

First, adaptation to the local work and living environment is a major challenge for Macao youth in the mainland. Differences in educational systems and political structures between Macao and mainland China often create problems. For example, when a Macao youth-founded company in the mainland reached the required number of party members, they were asked to establish a Party branch. The Macao youth founder lacked experience in handling such matters. In addition, some Macao youth speak only Cantonese and are not fluent in Mandarin. While this is manageable with Guangdong locals, communication with most Mandarin-speaking employees and clients remains problematic. Structural obstacles arise not only from imperfect

policies and institutions but also from deeper challenges of cultural identity, social integration, and language adaptation. Second, the lack of national treatment brings many challenges to Macao youth working and living in the mainland. Many interviewees expressed concerns about policy discontinuity and the risks it poses to their entrepreneurial activities. Despite progress in granting Macao residents equal treatment in the mainland, issues with social security, healthcare, and related systems persist. Civil society theory posits that only with equal rights and treatment can members fully realize self-value and actively participate in public affairs. Identity and social integration issues encountered by Macao youth in the mainland are key variables affecting their transformation from intention to action.

Third, generous policy incentives for Macao youth in the mainland may generate dissatisfaction among local youth. The construction of the Greater Bay Area has widespread public support and mobilizes diverse resources. However, a series of favorable policies for Hong Kong and Macao youth may be misunderstood by some local residents. The distribution of policy resources among youth groups reflects the reality of pluralistic interaction and interest competition in civil society. Achieving sustainable cross-regional youth mobility requires policy coordination and social dialogue to alleviate structural tensions and promote integration and cooperation.

Figure 4. Diagram of Research Significance Process



5. Conclusion

This study, grounded in civil society theory and using systematic grounded theory, investigates the employment and entrepreneurship of 15 Macao youth in mainland China. Findings reveal that institutional environment, social capital, and personal characteristics jointly shape their cross-border mobility. Beyond economic goals, many youth demonstrate civic responsibility through public welfare and social innovation. The study constructs a behavioral mechanism model showing how preconditions influence intention, and mediating factors—such as social networks and contingent events—affect outcomes. Challenges such as adaptation barriers, lack of national treatment, and identity misunderstandings hinder full integration. Compared with transnational migration, Macao youth benefit from unique policy support under the “One Country, Two Systems” framework, enabling legal recognition and resource access. This research supplements prior policy-centered studies by offering a sociological, process-oriented analysis of how Macao youth navigate cross-border work and entrepreneurial paths. It expands the application of civil society theory to the Chinese context and provides practical insight

into youth integration within the Greater Bay Area. Ultimately, the sustainability of youth participation depends not only on human capital but also on institutional facilitation and social embeddedness.

6. Significance

As shown in Figure 4, this study expands the intersection of civil society theory, youth mobility, and non-profit participation in academic research. It proposes a cross-regional employment and entrepreneurship mechanism model for Macao youth, with civil society factors at its core. Methodologically, the study employs systematic grounded theory to clarify the micro-level pathways from intention to action among youth. Empirically, it reveals how Macao youth integrate institutional advantages, social capital, and personal resources under national strategies, balancing both economic and non-profit goals. This provides an innovative example for research on Chinese-style civil society and youth participation.

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no

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Research on Promoting Grassroots Governance through Red Legal Culture: A Case Study of the Memorial Hall of the New Fourth Army in Southern Jiangsu and Zhejiang, Changxing County

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Abstract: This paper examines the pathways and significance of leveraging red legal culture to advance grassroots governance, using the Memorial Hall of the New Fourth Army in Southern Jiangsu and Zhejiang in Changxing County as a case study. It highlights that the red legal culture of the New Fourth Army embodies the principles of upholding the Party's leadership, centering on the people, and governing according to law—values critical for enhancing practical experiences in rule-of-law construction, deepening the practice of law-based governance, and strengthening the mission of cultivating legal talent. Specific approaches include adhering to correct directional guidance and inheriting red legal culture. The paper emphasizes that building red legal culture requires persistent, long-term efforts, and calls for collective societal participation in protecting and passing on red resources to modernize grassroots governance systems and capabilities.

Keywords: Red Legal Culture; Grassroots Governance; Rule-of-Law Construction

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1. The connotation and inheritance significance of the red rule of law culture

At the Third Plenary Session of the 20th Central Committee of the Communist Party of China, the exposition of the rule of law occupied an important position. The plenum clearly pointed out that the rule of law constitutes the core support of Chinese-style modernization, highlighting the need to deepen various reforms along the path of the rule of law and accelerate the promotion of Chinese-style modernization. The red rule of law culture is to combine red resources with rule of law literacy, and integrate red genes into the process of modern rule of law, which is not only an important part of the excellent culture of the Chinese nation, but also an excellent red culture gradually formed by the people under the leadership of the Communist Party of China after long-term revolution and development construction.

The revolutionary practice of the Communist Party of China in Zhejiang has created a glorious red history and left a rich red heritage. There are more than 2,400 revolutionary sites in Zhejiang, which have witnessed the course of the Party leading the people of Zhejiang to make unremitting efforts for national independence and people's freedom, and demonstrated the tenacity and courage of the Zhejiang people. As the Red Army guerrillas who remained in the south after the Long March, the

main force of the Red Army in the Central Soviet Region, the establishment and activities of the New Fourth Army Jiangsu and Zhejiang Military Region are the continuation and development of the New Fourth Army during the War of Resistance Against Japanese Aggression, and the inheritance and development of the revolutionary spirit of the Central Soviet Region. Understanding the development process and historical characteristics of the Red Rule of Law culture of the New Fourth Army will help us better understand the revolutionary spirit and carry it forward.

1.1 The emergence and development of the Red Rule of Law culture of the New Fourth Army

The Red Rule of Law Culture of the New Fourth Army was a continuation of the revolutionary spirit of the Central Soviet Region, and in 1930, the Third Plenary Session of the Sixth Central Committee of the Communist Party of China decided to set up a Central Bureau in the base areas. The southern Jiangxi and western Fujian regions led by Mao Zedong and Zhu De were selected as the seat of the Central Bureau of the Soviet District and the Central Government of the Soviet Union. Since then, the region has been officially known as the Central Revolutionary Base Area, also known as the Central Soviet District. During this period, the red culture of rule of law came into being, and in order to consolidate the political power in the Soviet areas, promote the in-depth development of the revolution, and maintain the internal order in the Soviet areas, the government under the leadership of the Party began to try to establish a legal system to achieve rule over the Soviet areas.

The red rule of law culture embodies the spirit and red blood of the rule of law during the red revolution, and in terms of its value extension, it is the value condensation of the combination of the world proletarian revolution and the Marxist-Leninist theory of the rule of law. In the course of building the rule of law in the Soviet areas, the party tried to break with the old feudal legal tradition and establish a new legal system that met the needs of socialist revolution and construction. This system emphasizes the orientation of class struggle, the practice of the mass line, and the value of social justice. During the Soviet period, the rule of law was regarded as a key element of national governance and was established as the basic model of national governance. In response to the actual needs of the governance of the Soviet region, the Party innovatively constructed a legal system with the outline of the Constitution as the core and covering more than 130 laws and regulations, laying a solid foundation for the orderly implementation of the governance of the Soviet region. In the course of the rule of law in the Soviet region, it adhered to the principle of embodying the will of the people, conforming to the needs of the revolution, and ensuring the stability of the political power, and achieved a leap from blank to complete, from preliminary to strengthened. The Outline of the Constitution promulgated by the First National Congress of the Chinese Soviet Republic clearly defined the essence of political power as “the dictatorship of workers and peasants.” It is the first constitutional document in the history of China to be formally adopted and promulgated for implementation by a people’s representative organ, and it is the source of the constitutional practice of the Communist Party of China.

The construction of the rule of law in the Central Soviet Region is of great historical and practical significance, and it is not only an attempt by the democratic regime under the leadership of the Communist Party of China to establish a new type of rule of law system and mechanism, but also a direct source of the construction of the rule of law system and mechanism after the founding of New China. At present, the Communist Party of China is committed to integrating the values of the red rule of law culture into the rule of law education, and the values and principles of the red rule of law culture in the Central Soviet Region are still of great practical significance in contemporary China.

1.2 The connotation and characteristics of the red rule of law culture of the New Fourth Army

1.2.1 Always adhere to the party’s leadership

The New Fourth Army strictly implemented the orders and instructions of the party Central Committee and the Central Military Commission, upheld the party’s absolute leadership over the army, and ensured the unity and efficiency of the war command. In 1938, Xiang Ying proposed in “The Battle of Consolidating the Troops, Improving Combat Effectiveness, and Preparing for Victory”: “All Party members of the New Fourth Army will unite under the leadership of the Party Central Committee to accomplish the great task of national liberation in the spirit of the Bolsheviks. “All party members and commanders and fighters of the New Fourth Army are required to: in action, they can best obey orders and abide by discipline; In learning, the most humble and strive for progress; The best way to care for the masses and care about the interests of the masses; In ordinary life, he is the most able to bear hardships and stand hard work; On the battlefield, he is the most resolute

and brave, charging in front and retreating in the rear, not afraid of bloodshed and sacrifice. Upholding the party's absolute leadership over the armed forces is the most fundamental principle in the building of the New Fourth Army. The important achievements in the building of the New Fourth Army were made under the leadership of the Communist Party of China.

1.2.2 Always adhere to the people-centered

Mao Zedong emphasized in the report of the Seventh National Congress of the Communist Party of China: "The people, only the people, can create history (Mao, Z. D. 1991)." "The War of Resistance Against Japanese Aggression in 1945 After the victory, Mao Zedong proposed: "We communists are like seeds, and the people are like land." When we arrive at a place, we must unite with the people there, take root and blossom among the people. "In the practice of building a culture of rule of law, the New Fourth Army attaches great importance to the development of mass activities. In order to raise the level of rule of law culture among the military and civilians in the base areas, the New Fourth Army has run literacy classes, winter schools, newspapers, and periodicals. These measures have not only satisfied the needs of building a culture of rule of law in the base areas, but also educated and inspired the troops and the people, promoted the unity of the army and the people, and effectively coordinated the armed struggle and the central work of the base areas. Adhering to the mass line and persisting in the direction of serving the people in the building of a culture of rule of law is an important experience in the construction of a culture of rule of law in the New Fourth Army. Today, in order to promote the great development of the socialist culture of rule of law, we must adhere to the "people-centered" construction orientation. To build a socialist culture of rule of law with Chinese characteristics and develop a culture of socialist rule of law, it is necessary to persist in putting people first and give full play to the people's dominant position in the establishment of a culture of rule of law. Xi Jinping Thought on the Rule of Law is a major theoretical innovation spawned by China to achieve national rejuvenation, and it is also the latest development of Marxist rule of law theory in China. General Secretary Xi Jinping pointed out that "comprehensive rule of law needs to be people-centered, and its most solid foundation lies in the people, and we must adhere to the people-oriented and rely on the people." It is necessary to integrate the protection of the people's rights and interests, responding to the people's expectations, safeguarding the people's rights and interests, and improving the people's well-being into all aspects and the entire process of comprehensively governing the country according to law (Xi, J. P. 2020).

1.2.3 Always adhere to governance by law

Governing by law is the core manifestation of the Communist Party of China's unwavering commitment to the basic strategy of governing the country by law. General Secretary Xi Jinping pointed out profoundly: "Governing by law, governing by law, and governing by law in administration are closely linked and form an inseparable organic whole. In this system, the Party's governance by law plays a key role, while all levels of government need to govern by law and jointly uphold the authority and fairness of the law." This concept not only reflects the Party's high regard for legal construction, but also demonstrates the Party's legal thinking in leading the country and social affairs.

Looking back at history, the New Fourth Army and the democratic government of the Huaihai Anti-Japanese Base Area attached great importance to the establishment of integrity regulations and systems under extremely difficult conditions. To punish and prevent corruption, they successively issued a series of strict and specific regulations, which not only regulated the behavior of public officials but also greatly enhanced the credibility of the government and the satisfaction of the people.

Issued provisional regulations for punishing corruption. To eliminate corruption and establish a clean atmosphere, the various anti-Japanese bases of the New Fourth Army formulated corresponding anti-corruption regulations according to specific circumstances. For example, the "Provisional Measures for Punishing Corruption by Public Officials in Yanchou District" issued in July 1942 clearly stated: Those with a corruption amount exceeding 500 yuan will face the death penalty, while those with a smaller amount will be sentenced to imprisonment or labor according to the size of the corruption amount. For acts of embezzlement of military funds and theft of military supplies, they were all severely punished without leniency, demonstrating their firm determination to crack down on corruption and bribery.

Formulated behavioral guidelines and reward and punishment mechanisms for administrative personnel to shape a clean atmosphere. In 1942, the "Convention of Administrative Personnel in the Suzhong Area" required all levels of personnel to be honest and upright, impartial and unselfish, avoid using public funds for personal use, not appoint relatives and friends, be

loyal to the execution of orders, save expenses, and treat superiors and subordinates fairly (Chen, W. 2024).

1.3 The Significance and Value of Inheriting Red Legal Culture

Inheriting and promoting the legal spirit of the New Fourth Army is conducive to enhancing the practical experience of legal construction. For a long time, various departments in our country have attached great importance to the construction of legal culture, and have regarded this work as an important part of effectively promoting the integrated construction of “a legal country, a legal government, and a legal society” and an important part of socialist advanced cultural construction (Li, L. Y. 2024). Therefore, in order to make socialist legal culture more deeply rooted in people’s hearts, it is necessary to carry out legal culture construction in forms that the people enjoy and appreciate, and inheriting and promoting red legal culture is an effective means. This not only can strengthen the cultural color of legal construction in our country, highlight the characteristics of Chinese law, but also provides rich practical experience for implementing legal construction.

Inheriting and promoting the legal spirit of the New Fourth Army is conducive to deepening the practice of governing the country by law. Red legal culture originates from the historical experience of revolutionary bases and contains a unique theme of the times, which has an important guiding role in the practice of governing the country by law. Promoting this culture is of great significance for enhancing cultural confidence and demonstrating the characteristics of Chinese law. Therefore, we should actively accept red legal education, join the ranks of inheriting the red spirit, and enhance one’s legal ability, thereby promoting the overall improvement of the legal quality of the entire society.

Inheriting and promoting the legal spirit of the New Fourth Army is conducive to enhancing the mission and responsibility of legal talent cultivation. “Learning from history can help understand the changes.” Revisiting the classic stories of red legal culture not only has great historical educational significance, but also has distinct characteristics of the times. Here, the “times significance” mainly considers three aspects: First, based on the historical conditions of the centenary of the founding of the Party, it is necessary to adhere to and develop Chinese socialism in the new era; second, it is necessary to ensure that the entire Party moves forward in unison; third, it is necessary to maintain the vitality of the Party and realize the Chinese Dream of the great rejuvenation of the Chinese nation. Among these “three needs”, the most crucial carrier is red legal culture, which is of great benefit for enhancing the sense of mission and responsibility of legal talents in the context of the new era. Drawing on the legal construction and judicial practice experiences of the Central Soviet Area is not only necessary for inheriting the red legal genes and continuing the red legal lineage, but also for promoting judicial work in the new era and building a legal power. The red legal culture of the Central Soviet Area not only provides theoretical and practical foundations for China’s modern legal construction, but is also an indispensable part of national cultural construction. It is an important reform strategy to meet the growing legal service demands of the people. In the context of the new era, continuing to inherit and promote the red legal culture of the Central Soviet Area can help deepen the people’s understanding of the spirit of the rule of law, strengthen national legal construction, and meet the people’s expectations for fairness, justice and legal guarantees.

2. Practice of Protecting and Preserving Red Legal Culture

The red genes are well-preserved. The report of the 20th National Congress of the Communist Party of China stated that we should “promote the spiritual spectrum of Chinese Communists, which originates from the great founding spirit, and make good use of red resources.”

2.1 Protect the roots and establish laws for red resources

Only when red legal culture is well protected can it be effectively utilized. To fully leverage the educational function of red resources, efforts must be made in protection.

The “Law of the People’s Republic of China on Patriotism Education” that came into effect on January 1st this year provides a basis and direction for the protection and inheritance of red resources. In addition, places like Jiangxi, Fujian, and Guizhou have successively introduced local regulations based on their own practices, incorporating the protection and inheritance of red legal culture resources into the legal framework.

Zhejiang, as the starting point of the revolutionary red boat and the cradle of Chinese civilization, has rich red resources that urgently require higher-standard protection and inheritance. On March 29, 2024, the 9th meeting of the Standing Committee of the 14th People’s Congress of Zhejiang Province passed the “Regulations on the Protection and Inheritance of Red

Resources” (hereinafter referred to as the “Regulations”), which came into effect on July 1, 2024. The Regulations are the first comprehensive local law in Zhejiang for the red resources sector, demonstrating the deep application and inheritance of red resources. The promulgation of these regulations is a key measure for Zhejiang to safeguard its red traditions, establish red landmarks, and promote the inheritance of red genes to contribute to high-quality development.

Before the promulgation of the Regulations, China had already implemented laws such as the Cultural Relics Protection Law, the Protection Law for Heroes and Martyrs, and the Regulations on the Protection of Historical and Cultural Cities, Towns, and Villages. “Although these laws have made contributions to the protection of red resources, they still have limitations.” As a fundamental and comprehensive local law in the field of red resources, the Regulations propose specific provisions from multiple dimensions such as management, investigation, and protection, providing new ideas and measures to solve key and difficult problems in the inheritance, protection, and utilization of red resources.

2.2 Base on reality and promote legal education on red resources

How to rejuvenate the red legal culture in the new era is a new challenge currently faced by legal education and publicity. In recent years, various regions have integrated the red legal culture into the entire process of legal construction, striving to explore the mechanism for the deep integration of legal concepts and red culture, and constantly polishing the brand of red legal education and publicity, fully presenting the rich legal spirit contained in the red history.

Zhejiang has explored the “Party History + Law” legal education model to make legal education lively and practical. The Zhejiang Law Society actively inherits the red legal culture and mobilizes legal professionals to discover and promote this culture, in order to activate and sustain the red legal resources. After conducting a provincial survey of legal culture resources and collaborating with provincial direct units to formulate management policies for cultural inheritance bases. The first batch of bases cover the “May 4th Constitution” Museum in Hangzhou, Shen Junru Memorial Hall, He Sijing Museum, Liang Baotai Education Site, Zhang Renya Party Constitution School, Flag Education Museum, and Huang Jingzhi Law Firm’s Old Site. They showcase the achievements of the Party’s leadership in the legal process and stimulate the enthusiasm of the entire province for the exploration, protection, research, and publicity of legal resources.

On this land with profound cultural heritage in Changxing County, the Changxing County Court actively practices proactive judicial practice, fully utilizes the rich traditional cultural resources of the area, and adopts diverse measures to comprehensively strengthen the protection of historical and cultural heritage. The New Fourth Army-Suzhou-Zhejiang Military Region Memorial Hall, known as the “Little Yan’an of the South”, undoubtedly is a shining brand of Changxing’s red culture. It not only carries heavy historical memories but also witnessed the heroic deeds of countless revolutionary martyrs. On the occasion of the 19th Cultural and Natural Heritage Day, a milestone moment quietly arrived in Wen Tang Village, Mianshan Town, Changxing County - the Historical and Cultural Judicial Protection Base of the New Fourth Army-Suzhou-Zhejiang Military Region Memorial Hall was officially inaugurated. The establishment of this base is an innovative attempt by Changxing Court and the cultural department to actively respond to the urgent need for judicial protection of red cultural resources in the new era, aiming to build a comprehensive protection mechanism that conforms to the characteristics and development laws of red cultural resources.

2.3 Dreaming of a Bright Future, Ensuring the Inheritance of Red Resources

How to activate red resources? Under the premise of proper protection, the inheritance work is of vital importance. One of the highlights of the “Regulations” lies in its forward-looking planning for the inheritance and promotion of red resources. From the Red Boat Spirit, the “Eight-Eight Strategy” to the Zhejiang Spirit, these red resources have always been the spiritual cornerstone and theoretical guidance for Zhejiang’s development, creating a unique competitive advantage. Only when red resources are “activated” can they be better “inherited”.

2.3.1 Protect and explore, making red resources “abundant”

Strengthening theoretical research on red resources is the key to activating their vitality. The “Regulations” specifically point out that the departments responsible for protecting and inheriting red resources should cooperate with cadre training, social science and higher education institutions, and coordinate the planning of red theory research, integrating various resources, extracting red stories and the essence of the revolution, and deeply exploring the historical background and contemporary

value of Zhejiang's red resources. To uncover the profound heritage of Zhejiang's legal culture resources, the Zhejiang Law Society has jointly worked with several key departments of the provincial committee to promote the establishment of legal culture inheritance and education bases. After detailed assessment, the first batch of 9 units were selected as pilot models for Zhejiang's legal culture inheritance and education bases.

2.3.2 Technological empowerment, making red resources “come alive”

Digitalization is a distinctive feature of Zhejiang and a key path for the future development of red resources. The “Regulations” clearly require the establishment of a unified red resource database, using digital means to record, organize and archive red resources, and providing online information sharing services to promote the wide sharing of digital achievements. In addition, it encourages the owners and users of red resources to utilize cutting-edge technologies such as the Internet and big data to create online exhibition halls, launch cloud exhibitions, cloud live broadcasts and other diversified display activities to enhance the knowledgeability, interactivity and immersion of red resource displays.

In Huzhou City, Zhejiang Province, the protection and inheritance of red resources are being revitalized through the power of technology. Huzhou City actively uses modern technological means to make red resources “come alive”, becoming an important carrier for inheriting red genes and promoting revolutionary spirit. Through digital means, Huzhou City has effectively protected and disseminated red resources. For example, the Huzhou Archives has established a thematic database, collecting a large number of pictures, videos and documents related to Huzhou's red history, laying a solid resource foundation for the utilization of red archives. At the same time, through a combination of online and offline methods, the Huzhou Archives has promoted the coverage of red exhibitions, allowing more people to come into contact with and understand Huzhou's red history and culture.

In addition, Huzhou City also pays attention to the innovation and development of red resources, using technological empowerment to promote the integration and development of red tourism and local economy. For example, through digital display means such as virtual reality (VR) technology, red resources can be presented in a three-dimensional and vivid manner to the public, providing an immersive experience, making red cultural education more lively and interesting. By establishing a red tourism electronic map and database, promoting the convenient experience of “one mobile phone red tour”, red tourism has become more intelligent and convenient.

2.3.3 With creativity as the driving force, red resources have become “hot”

The Zhejiang Law Society is committed to enhancing the legal experience of the public, deeply exploring red legal culture resources, and innovatively launching the “base study tour” and “cultural creation integration” models, integrating legal culture into daily life. Its meticulously planned short video “The Birth of the New China Constitution in West Lake” shone brightly at the national history and literature exhibition, stimulating the public's strong interest in legal culture. In addition, the Law Society also held activities such as “Shen Junru's Life Exhibition”, “Party Constitution Study Tour”, and “Wu Si Jing's Legal Thought Seminar”, attracting extensive participation from legal experts and scholars, and promoting the inheritance and development of red legal culture. Particularly outstanding is the National Flag Education Museum, which, as a new landmark for legal culture dissemination, innovatively uses digital technology to create an interactive space for education, exhibition, and experience, making legal publicity more accessible to the public.

On the path of making red resources shine with boundless vitality, Changxing County has demonstrated extraordinary determination and creativity. Through the implementation of a deep integration of culture and tourism strategy, it has meticulously created a series of demonstration projects for the activation and utilization of tea culture, red culture, and ancient culture, and has incubated numerous innovative cases of cultural gene decoding and utilization. This has effectively promoted the integration and symbiosis of culture and tourism at a broader, deeper, and higher level. Through carefully planned red study tours, such as the red base study tour of the New Fourth Army Suzhou-Zhejiang Military Region Memorial Hall, centered on the old site group of the New Fourth Army Suzhou-Zhejiang Military Region (referred to as the “Jiangnan Red Village”), a renowned red tourism destination has been constructed. To further optimize the visitor experience, Changxing County innovatively launched the city's first “red” bus line, seamlessly connecting the urban area with the New Fourth Army Memorial Hall, not only significantly increasing the number of trips but also providing great convenience for tourists and

local residents to visit red tourism attractions. In addition, Changxing County has meticulously planned a series of red story sharing events, using forms such as short plays, theme lectures, and musical dramas to vividly tell red stories and deeply inherit red spirit, allowing red memories to take root and sprout in everyone's heart. The New Fourth Army Memorial Hall has created six influential artistic works such as "Jiangnan Little Yan'an" and "Ying Feng", not only enriching the connotation of red culture but also providing a window for the general public to understand history. The memorial hall fully fulfills its educational mission of "learning from the past to know the future, and reviewing the past to gain new insights", innovatively holding distinctive brand activities such as "Be a New Fourth Army Little Soldier" and "Be a Little Guide", and integrating more than ten educationally significant red experience teaching activities such as "Simulation of Supporting the Army" and "Making Straw Shoes", which not only enhance the participants' sense of experience and immersion but also enable them to deeply understand the heroic deeds and great spirit of the revolutionary martyrs in practice.

3.Paths for Promoting Grassroots Governance through Red Legal Culture

The Third Plenary Session of the 20th Central Committee of the Communist Party of China made a far-sighted strategic deployment, stating that "We should uphold and develop the 'Fengqiao Experience' in the new era, improve the urban and rural grassroots governance system that combines self-governance, rule of law, and moral governance under the leadership of the Party, and perfect the social governance system of joint construction, co-governance, and shared benefits." The comprehensive promotion of "three forms of governance integration" means prioritizing moral governance, laying a foundation with self-governance, and establishing a base with rule of law, which has become an important goal of the construction of grassroots governance systems in the new era (Tian, Y., & Wang, Y. Z. 2024). In this system, law is not only the prerequisite and core of moral governance and self-governance, but also the key to ensuring the stability, efficiency, and fairness of grassroots governance. Leveraging red legal culture to promote innovation in grassroots governance is an important mission bestowed upon us in the new era. Red legal culture, as a precious spiritual wealth of the Chinese nation, embodies profound legal concepts and revolutionary spirit, providing rich ideological resources and practical guidelines for grassroots governance in the new era. By deeply exploring the connotations and values of red legal culture, we can better integrate it into the practice of grassroots governance, promoting the in-depth development of "three forms of governance integration" and contributing to the construction of a harmonious society and the modernization of the national governance system and governance capacity.

3.1 Upholding the Correct Direction and Enhancing the Color of Red Legal Culture at the Grassroots Level

In the journey of promoting legal civilization through red legal culture, ensuring the correctness of the political orientation is the primary task, as it concerns the correct direction of legal construction and modernization of legal education. The first step is to be guided by the Party's strong leadership, adhering to the concept of "Party building leading, rule of law advancing", integrating the Party's original aspiration and mission into the "Eighth Five-Year Plan" legal education practice in Zhejiang Province, and at the same time, exploring the essence of local culture to create characteristic red legal culture works, adding local legal culture color. Therefore, it is necessary to adhere to this ideological orientation and achieve the reform and innovation of the legal education work. Finally, we should efficiently promote the inheritance activities of the "red legal culture", through the education of the history of the Communist Party of China and the development of socialism, as well as the utilization of red resources such as revolutionary memorial halls and old sites, to deepen the inheritance of red cultural resources such as the revolutionary spirit of the New Fourth Army and the August 1st Spirit. In addition, we can establish a "red legal park" based on these resources, set up distinctive signs, and create a characteristic cultural district. By shaping Zhejiang Province into a unique and charming "red + legal" education highland.

3.2 Deepen red legal culture and lay a political leadership foundation for grassroots governance

Red legal culture is the brilliant crystallization of the glorious history and valuable experience of the Communist Party of China in leading the broad masses of people to carry out legal practice during the magnificent revolutionary years (Li, M. L., & Zhou, G. Z. 2023). It not only witnessed the arduous process of the Party leading the people towards the path of law, but also contains profound legal wisdom and spiritual strength. The Xinzeng County New Fourth Army Zhejiang-Sichuan

Military Region Memorial Hall, as a brilliant pearl embedded in the vast land of China, has been honored with the title of a national patriotic education base. It contains rich and precious red legal cultural resources, like an inexhaustible and inexhaustible spiritual treasure house.

By deeply exploring these red legal cultural resources, we can see the heroic struggles and wisdom crystallization of the revolutionary predecessors in the construction of law, and feel their unrelenting pursuit of fairness and justice and their firm belief. And spreading these resources widely is like lighting a lamp, illuminating the path of grassroots governance, providing continuous cultural power and spiritual nourishment for the governance of the new era. This not only helps to stimulate the faith and respect of the vast number of cadres and the masses for law, but also can, in an imperceptible way, strengthen the political leadership of grassroots governance, ensuring that grassroots governance always moves forward along the correct direction.

3.3 Continuously inherit red legal spirit and create a new height of legalization in grassroots governance

Red legal spirit is the precious legal treasure born from the leadership of the Communist Party of China and the people in the revolutionary practice. It profoundly interprets the harmonious unity of the leadership of the Party, the people's rule as the masters, and law-based governance. On the broad stage of grassroots governance, this spirit is like a bright lamp, illuminating our path forward.

To create a new height of legalization in grassroots governance, we must fully exert the leading core role of the Party organization, like the helmsman of a huge ship, leading the grassroots governance ship to break through the waves. At the same time, we must unswervingly follow the people's line, ensuring that every link of the governance process is open, fair, and transparent, so that the people can feel the sunshine of fairness and justice in every governance link, and truly make the people the main body of governance, making their voices resound loudly in grassroots governance.

On this basis, we must also actively guide Party members and the general public to explore and roam in the ocean of red legal culture, allowing the legal awareness to take root and grow like seeds in their hearts. Through the nourishment of red legal culture, Party members can become more firmly convinced of the legal faith, and the people can better understand how to use legal weapons to safeguard their own rights, jointly promoting grassroots governance to a higher level of legalization.

3.4 Integrate the essence of red resources and open up a new path for grassroots governance innovation

Red sacred places such as the Xinzeng County New Fourth Army Zhejiang-Sichuan Military Region Memorial Hall are not only witnesses of revolutionary spirit, but also important sources and vivid carriers of grassroots governance innovation. Relying on these red resources, we can explore a unique new path for grassroots governance.

By building a red legal education base as a platform, integrating the profound essence of red culture with legal spirit, and carrying out a series of educational activities with red legal culture as the theme. These activities not only can awaken the legal awareness in the hearts of the masses, stimulate their enthusiasm for participating in social governance, but also can gradually enhance the socialization, legalization, intelligence and professionalization levels of grassroots governance, making it more scientific, efficient and harmonious. At the same time, red resources can be combined with grid-based governance to form a red grid governance system. Party members can serve as grid officers, exerting their leading and exemplary roles, and promoting the refinement and precision of grassroots governance. Through red grid governance, problems in grassroots governance can be promptly discovered and resolved, improving governance efficiency and quality.

3.5 Relying on red legal culture, cultivate high-quality legal talents in the new era

In the context of the new era, relying on red legal culture to cultivate high-quality legal talents requires innovation as the driving force and the deep integration of red legal culture resources in Zhejiang Province. The first task is to recognize the intrinsic connection between the revolutionary spirit of the Fourth Army and other red cultural resources and the spirit of founding the Party, and clarify their status as a practical guide for Zhejiang's legal culture construction. Legal culture construction requires theoretical support, so it is necessary to strengthen the integration of red legal culture resources, collaborate with legal education units and cultural institutions, and jointly cultivate modern legal talents. At the same time, pay attention to the transformation of theoretical research results, establish a legal education incentive mechanism, stimulate the enthusiasm of the public and legal professionals for the research of Zhejiang's red legal culture, deepen the refinement

of cultural connotations. In addition, fully utilize the resource advantages of Zhejiang's red culture, undertake the mission of "promoting the spirit of founding the Party and inheriting the red genes", cooperate with educational institutions and research institutions, explore red legal culture research results, expand the influence of legal culture construction, and enhance the effectiveness of legal education.

4. Conclusion

Red legal culture is a crucial component of the socialist legal system with Chinese characteristics and is of great significance for the modernization of grassroots governance. The New Fourth Army-Su-Zhe Military Region Memorial Hall in Changxing County, as a landmark site of red legal culture, contains rich historical and spiritual wealth. Through in-depth analysis of its cases, we have witnessed the practice and innovation of red legal culture in grassroots governance. The memorial hall not only preserves revolutionary historical materials but also combines red legal culture with grassroots governance through red tourism and study tours, significantly enhancing governance efficiency. In the new era, inheriting and developing red legal culture has become a key aspect of grassroots governance innovation. Looking to the future, we should continue to rely on red legal culture and explore new paths for grassroots governance. By strengthening education and publicity of red legal culture, enhancing the legal capabilities of grassroots officials and the public, and jointly building a new ecological system of shared governance, participation and collaboration, we can create a new model of grassroots governance. "Carrying forward red legal culture and continuing the red legal tradition" is the key path for current legal culture construction and also a key part of the overall strategy of law-based governance. Zhejiang has a rich variety of red resources, distributed across urban and rural areas, with diverse ownership. Therefore, the Party committee, the government and all sectors of society need to work together, and every citizen should consciously become a guardian and disseminator of red resources.

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Explore the Vlog News Narratology Perspective of Mainstream Media in the Social Liquid Environment

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Abstract: Since the beginning of the new century, the development of mobile Internet and digital media technologies has become increasingly rapid, and the liquefaction of society has become increasingly prominent. And the mainstream media standing in the liquid society is also undergoing changes in the flowing modern field - a profound transformation from traditional TV discourse to personalized communication. Against this backdrop, Video Blogging (Vlog), as an emerging form of video communication, has gained widespread attention among the younger generation thanks to its first-person perspective, life-like scenarios, and emotional storytelling. As a result, it has been embraced by China's news media as an innovative practice in news reporting. In recent years, it has become increasingly common for mainstream news media to adopt vlog-style storytelling in news communication. This approach can expand the communication channels of authoritative media and further reshape the influence advantages of mainstream media. Taking vlog news distributed by domestic mainstream media on new media platforms such as Weibo and Bilibili as examples, this paper analyzes the narrative characteristics of vlog news reporting and explores the innovative aspects of mainstream media's vlog news narration in the context of a liquid society.

Keywords: News Narrative; Mainstream Media; Video Blog; Social Liquefaction

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1. Introduction

Vlog originated from YouTube and is a new form of communication that uses images to record life and thoughts. As a new form of video communication, vlog is loved and popular by young people in the new era of social liquefaction, who not only watch vlogs on various platforms, actively interact with bloggers and up owners, but also many young people also publish their own vlogs to show their lives as the vloggers of the protagonists of the video. Vlog's content presentation is easier to achieve completeness, breaking the limitations of short videos characterized by fragmented narratives, and presenting the audience with a complete story or presentation system concept. The editing process of the vlog video is also smooth and flexible, coupled with lively and vivid subtitles, and trendy background music, giving the audience a strong viewing experience.

Vlog is a kind of narrative and even emotional expression from the first perspective, which mainly shows the producer's own personal aesthetic quality and personal three views. Its value lies in catering to the pursuit of personalized IP by audiences with different characteristics. This trendy narrative method of focusing on me caters to the preferences of young people living in a liquid society, so it has become a new trend for many young people to record their daily lives.

For a long time, the mainstream media has shouldered the propaganda responsibility of the party and the state, is the mouthpiece of the party and the government, and represents the voice of authority. However, the discourse of “the height of the temple” is difficult to penetrate into all circles, especially young people (Zhan & Li, 2020). The emerging vlog news model breaks the narrative mode of traditional news in people’s perception, enhances social attributes, and makes up for the shortcomings of traditional news.

The mainstream media began to create “vlog news”, a form of news dissemination, in 2019. At that time, the “Kanghui Vlog” and “Two Sessions Vlog” with the theme of “the front line of major country diplomacy” became popular. In recent years, various mainstream media have continued to make efforts on the Vlog of the two sessions, and national authoritative media such as People’s Daily, Xinhua News Agency and CCTV have taken the initiative to deploy “Vlog+News”, focusing on integrating the national image and serious political information they want to express into the daily vlogs of hosts and reporters. For example, during the two sessions in 2025, the vlog “Zi Shuo: Why the Private Economy Has Great Potential” interviewed Liu Yonghao, Liu Shangxi, Jiang Ying and other members of the National Committee of the Chinese People’s Political Consultative Conference, showing the good prospects for the development of the private economy. vlog “UBM: Can the Suggestions of Deputies and Members Be Adopted” and “Hui Qen: How Grassroots Voices Move from Alleys to the Great Hall”, following the footsteps of reporters inside and outside the venue, showing how the public opinion and public opinion of China’s grassroots frontline entered the Great Hall of the People.

2. Literature Review and Theoretical Basis at Home and Abroad

2.1 A review of the literature at home and abroad

In China, most scholars use classical narrative theory to analyze the structural characteristics of video news. It is generally believed that the narrative innovation of vlog is reflected in three dimensions: perspective transformation, symbol fusion, and emotional connection. For example, Luo (2022) used 177 vlogs such as CCTV News and People’s Daily as samples in his master’s thesis to construct an analytical framework from the three dimensions of narrative stories, discourse, and behavior. He believes that the identity of the storyteller of vlog news has shifted “from hidden authority” to “open guide”, and reporters appear as vloggers to convey “backstage truth” through “frontstage performances”. Zhou (2022) of South China University of Technology found in 2022 that the communication effect of CCTV vlogs is actually affected by multiple factors, among which the personal charm of vloggers, such as the affinity of reporters Wang Bingbing and Zou Yun, is a key variable.

In the global context, foreign research does not directly focus on the concept of mainstream media Vlog news with Chinese characteristics, but it provides rich reference in cross-media narrative theory, digital journalism innovation and practical case analysis. For example, Transmedial Narratology proposed by Austrian scholar Werner Wolf provides core support for vlog research. This theory believes that narrative is a cognitive framework that can cross media. This theory believes that narrative is a cognitive framework that can cross media. As a multimodal text, Vlog is a medium with high narrative potential that integrates spoken language, video, music and text, and its success depends on the depth of symbol synergy and audience participation (Li, 2019).

To sum up, the research on vlog journalism from the perspective of narrative reveals the innovative path of mainstream media to reconstruct the right to speak in the era of media integration. Domestic research focuses on the localization of narrative strategies, from perspective transformation, symbol fusion to emotional connection, and explores a characteristic path of hard news soft communication, while foreign research provides reference in cross-media narrative theory and digital technology innovation. Although there are many types of research now, in the dual context of rapid technological iteration and mutual learning among civilizations, how to promote Vlog journalism from form innovation to narrative paradigm revolution is still an academic bonanza full of potential.

2.2 Theoretical basis

The famous British sociologist Zygmunt Bauman believes that the original strong, heavy, and clearly shaped pyramidal society is changing into a turbulent and fluid liquid society, and the mobility of the mode of production, the fragmentation of the way of thinking, and the sharpening of the way of behavior are the main characteristics of the liquid society. Liquid society becomes a new symbol of power by shaking a single, solid central authority, time and speed, ending the meaning

of geography and space (Luo, 2014). Nowadays, the communication mode has changed rapidly, network technology has developed rapidly, the world has entered a liquefied state, and people's original ideological concepts and organizational models have dissolved and reconstructed. Thus, the term "liquid journalism" appeared. The term was proposed by the Dutch scholar Duz by drawing on the sociologist Baumann's view on fluid modernity, showing the changes in journalism in postmodern society. However, in the supplementary discussions of later scholars such as Cantura, Koyoning, and others, this interpretation deviated from the earlier relevant discussions. They emphasize that the change from solid to liquid news is not a linear evolution, nor does it represent the demise of the original solid-state journalism (Guo, 2023). In our country, the emerging vlog relying on network technology, as a relatively advanced media technology and communication platform, is becoming a kind of social solvent in contemporary journalism.

Classical narrative often focuses on the internal structure of the text and provides a basic analysis model for Vlog journalism. Story in narrative refers to the original time sequence, that is, the thing itself, and discourse refers to the way the narrative is presented. In vlog news, reporters reconstruct the timing of events from a first-person perspective, such as flashbacks to the two sessions to prepare for the venue, forming a discursive narrative.

3.Current Situation

3.1 The narrative characteristics of Vlog news

3.1.1 "I" is the main thing

In vlogs, viewers follow the creators of the Vlogs for a first-person immersive experience. CCTV's hosts and reporters are outstanding with their professional quality and personality charm, and they mainly focus on "me" in the narrative, pay attention to personal expression and emotions, show "people-oriented", and drive users to bring into it (Hu & Xia, 2020). Take Wang Bingbing's 2023 Vlog "I Lived in a Nursing Home for a Week" as an example. Wang Bingbing participated in the night shift as a temporary caregiver and helped the elderly take a bath. Her camera trembled and recorded helping the elderly to go to the toilet at 2 a.m., and said that this is how the dark circles under the eyes of the night shift nurse came from...This vlog news promoted the policy discussion on how to solve the difficulty of visiting relatives in nursing homes that year, and the official Weibo of the Ministry of Civil Affairs quoted this vlog to launch a pilot of the family visit points system. This type of narrative method uses the five senses of vlogger to convey content and share experience, giving the audience an immersive sense of experience, and also giving the news more pyrotechnics and human touch (Hu, 2022).

Wang Bingbing's Vlog "I Stayed in a Nursing Home for a Week" ended with a monologue that Grandma Zhang said that her daughter hadn't come to see her for three years, and I held her hand and promised to bring dumplings next time. This is not a reporting task, it is my new concern. As the main reporter of CCTV, she proceeds from her real experience and emotional needs to narrate, changing the serious stereotype of mainstream media practitioners in the past, and carrying out benign communication in equal interaction.

3.1.2 Rich scenes

The narrative scenes of vlog News are diverse, which can show rich communication content, and can be combined with the surrounding environment in the narrative process to achieve multi-dimensional and three-dimensional reporting of news. When Kang Hui's first vlog showed the main station, the barrage was frantically brushing "the original head of the main station is like this", "the main station is so simple", "I thought the main station was resplendent", etc. Wang Bingbing's [Worthy of Me] series of vlogs on Station B, in which Wang Bingbing went to try to learn to skate and ski, intuitively presenting the colleagues at the Winter Olympics competition venue, and also showing the athletes' hard training in front of and behind the scenes. Familiarity with the scene can enhance audience empathy, and the unknown scenes that appear in vlog news reports push the audience to the forefront, thereby arousing the audience's curiosity and capturing the audience's attention. In 2025, CCTV launched "48 Hours of AI Reporter Xiao C", which tried AI as the main body of the narrative for the first time, exploring the "human-machine symbiosis" reporting model in refreshing scenes, and the number of barrage interactions in a single period exceeded 100,000.

3.2 Reporting innovation for Vlog news

3.2.1 The subject of communication is personal and sensitive

In the era of traditional media, the mainstream media has built a certain communication advantage and popularity, so that the mainstream media creates well-known anchors with personal brand effects to provide the audience with personal symbolic attributes and more humane reporting content. As of June 7, 2022, the final video of the first season of Kang Hui's Vlog has been viewed 1.777 million times, 2,823 comments, and 92,000 likes on bilibili.

With light background music and smooth screen transitions, Kang Hui introduced the ceremony venue of the 11th BRICS summit to the audience through the lens and explained the profound meaning of the meeting. At the end, he introduced the media people present one by one, and said, let us be at the forefront of major country diplomacy and praise China, which is increasingly moving towards the center of the world stage! The pictures liked by the media people at the venue were also screenshotted by netizens and made into interesting emoticons, achieving the effect of secondary communication.

In the related concepts of communication and journalism, the sensibility of reporting content and authenticity are not contradictory, on the contrary, the combination of the two can better show the humanistic care of news. In the space Vlog of "How Busy In Space, The Life Of The Core Module Is Fully Revealed", it shows the daily work and three meals of astronauts, and the trivial and extraordinary daily life of space has aroused people's emotions and empathy. Message in the comment area—I think of Yang Liwei, not because he was the first to go to space, but because he worked alone in space, without a comrade-in-arms, I can't imagine what kind of loneliness it is in space, has been praised by many netizens.

3.2.2 The communication content focuses on micro-visualization and experience

From factual experiences to personal feelings, the micro-narrative of Vlog news presents grand themes from a personal perspective, creating a sense of immersion and reflecting the humanistic care of journalists. Many of these simple expressions avoid sensationalism, do not forcibly instill values, and leave room for the audience to think. The aforementioned reporter Wang Bingbing used the first attempt at self-skating to show the grand theme of the Winter Olympics, and Kang Hui's business trip vlog showed the forefront of great power diplomacy. In addition, Xinhua News Agency reporter Zhang Yang's vlog "drink more water? Eat dumplings ... did the astronauts have such a detailed conversation in the telephone conference?" It is from the perspective of seemingly trivial life to convey the efforts and fighting spirit of aerospace personnel to the audience. In 2024, CCTV released "Zhuang Xiaoying Vlog: How seismic is high-speed rail passing through buildings?" The topic of "Zhuang Xiaoying refutes rumors about high-speed rail passing through buildings" was sparked on Weibo, with over 200 million views. A netizen commented, "She personally acted as a human flesh sensor, which is more convincing than data reports."

3.2.3 Communication channels are becoming more youthful and nodal

"Vlog+News" is a type of communication that can be distributed to multiple platforms. Through distribution on Weibo, Station B, WeChat official account and other platforms, it transmits positive energy to more young audiences and is loved by everyone. Especially in station B, a gathering place of youth culture that embodies the characteristics of the new generation growing up in the digital wave, news vlog creatively integrates the professional endorsement of traditional media with the youthful vitality and interactive gene of new media. Take the "Kanghui Vlog" launched by CCTV "the forefront of great power diplomacy" as an example, which has received a warm response on microblogging, B station and other platforms. The data showed that the number of microblog likes exceeded 1.5 million and forwarded more than 80000 after the series was launched in just a few hours; The total number of broadcasts at the dithering and B stations also quickly exceeded 2million. Many young viewers admitted that this form significantly increased their interest in paying attention to current political news. As digital natives, millennials show a high degree of media literacy and unique aesthetic preferences in daily life. Their information screening mechanism has distinct intergenerational characteristics and shows a strong tendency of active dissemination of content that conforms to their own value identity. Although vlog news focuses on major issues, its life narrative, interesting expression and authenticity appeal accurately fit the acceptance habits of contemporary youth audiences. From the title to the content, its youth characteristics are significant. For example, it uses popular symbols such as "infrastructure madness", "little sister nurse" as the title to effectively attract the attention of the target group. The reporter constructed a participatory communication mechanism by tracking user comments and giving feedback in the follow-up content, which significantly improved users' willingness to interact and sharing motivation.

4.Countermeasures for Mainstream Media to Strengthen Their Influence by Using Vlog

“Social Solidization” means stability, order and clear boundaries, while social liquidization refers to the transformation process of contemporary society from solid to liquid. Its core is the enhancement of liquidity, fragmentation of identity, individualization of risk, etc. everything is flowing, and everything becomes temporary, replaceable and scalable. Therefore, some experts believe that social fluidization seems to be free and advanced, but it also hides the risk of cognitive overload, emotional suspension and meaning vacuum.

In the current situation of social fluidization, how can the Chinese press make good use of vlog, a new way of video communication, to give full play to the positive influence of the mainstream media?

4.1 Mainstream media should deal with liquid socialization with liquid thinking

In the era of traditional media, most people watch the co viewing society of the minority, which has turned to the omni viewing society in the era of social media in which most people watch the majority. Vlog records from the first perspective, dissolves the boundaries of transmission and reception, enables the audience to naturally receive information in the onlooking life, and conforms to the individual’s pursuit of visibility in a liquid society. In addition, 3-5 minutes of lightweight expression can avoid information overload. For example, vlog at the two sessions focused on small topics such as “reporters’ clothing choices” and “looking for the next Yao Ming”, lowered the acceptance threshold, and created news content loved by more young audiences.

4.2 From grand narrative to micro narrative to achieve discourse reconstruction

The vlog news report of mainstream media has realized the innovation of news report form by virtue of its personalized expression, small and large narrative way, young and perceptual content performance. For example, when reporter Xiao Peng reported on the belt and road initiative in Kazakhstan, he started with the question of whether to make money by selling Chinese snacks. Through details such as villagers’ bargaining and drivers’ feeling about China’s road construction, the policy was implemented as a life scene and the national strategy was disassembled into perceptible life fragments.

4.3 Build personalized IP, realize subject innovation, and build audience trust

At present, the mainstream media usually choose reporters and hosts with recognition, such as Kang Hui, the “CCTV national face” and Lizheng, the first person to work with a loan from CCTV, as the main body of the report, and enhance the stickiness with “people”. Sometimes, vlog narration is carried out from the perspective of ‘I’ in major theme reports to show the unique charm and humanistic care of news from a different perspective. This makes the reports of the mainstream media both tall and grounded (Wang & Yu, 2020). The friendly posture and relaxed voice in vlog draw the distance between the audience and the media. The mainstream media have also imperceptibly transferred values, enabling the younger generation to have a deeper understanding of the country’s current politics and major events.

4.4 Multi platform collaborative global communication to achieve brand precipitation

In order to make better use of the advantages of vlog news narrative, the mainstream media also adopted the strategy of multi platform distribution to strengthen the ability of global communication, and IP seriation operation to avoid a one-time attempt. Kanghui Vlog not only made a hot search on the microblog with the topic “Kanghui’s First Vlog”, but also interacted frequently with young users on station B. In addition, its central video, the media’s own platform with large traffic, has formed a greater social influence. In 2024, the series of “adventures in Africa’s infrastructure” recorded the construction of Tanzania’s central standard gauge railway and showed the process of localization of Chinese technology in Africa, taking the purchase of snail powder for African colleagues as the starting point. In addition, an interactive topic named “African brother eating snail powder challenge” was designed, with a single broadcast volume of more than 12 million.

4.5 Enabling media mobility and interactive upgrading with technology

The collaboration of the whole platform, the creation of personalized IP and the realization of vlog interactive narrative all need technical support. Today, the shooting of news videos may not be entirely dependent on heavyweight and complex professional video equipment. Lightweight equipment is a major trend in video capture today. Mobile shooting+stupid editing software, such as clip InSho. It has not only improved the individual combat ability of journalists, but also laid a technical

foundation for all media journalists. In addition, online and offline interactive design is also very important. For example, Kanghui's Vlog news exploration road also specially set up "amysterious weapon" guessing activity online, and responded in real time to users' questions about vlog pronunciation. In the report of the China Latin America forum, reporters and foreign friends sang impromptu songs and chatted about wechat fun to build emotional synchronization.

Of course, it is a good innovation for mainstream media to use the narrative characteristics of vlog for news communication. Proper entertainment can weaken the seriousness, but the mainstream media should pay attention to control, avoid the inversion of the order of the content and form of the report caused by excessive entertainment, and prevent the loss of direction due to the one-sided pursuit of heat and influence, which will lead to the weakening of the effect of public opinion guidance (Zhang et al., 2022). The news media should always keep the original intention, adhere to the quality of news production, and regard technology and form as a content booster.

5.Conclusion

In a word, the mainstream media should anchor the mainstream voice in the flowing field of public opinion and realize the positive guidance of moistening things silently. We need to integrate the public and private sectors in discourse, embrace lightweight tools in technology, and attach importance to significance in value with micro narrative.

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Photography Handmade Books: Redefining the Functions and Missions of Contemporary Photographic Art

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Abstract: In the digital era, the omnipresence of image technologies has radically transformed the ontology of photography. The ease of reproduction and circulation has led to the erosion of the “aura” of photographic images, echoing Walter Benjamin’s (2002) seminal critique of art in the age of mechanical reproduction. Within this context, the resurgence of handmade photobooks—an art form integrating photographic imagery with craft-based materiality—offers a distinctive counterpoint to digital homogenization. Handmade photobooks embody a convergence of tactile materiality, non-linear narrative experimentation, and intimate authorship. Through close examination of major exhibitions such as the Hangzhou International Handmade Photobook Biennale (2023), the 23rd Pingyao International Photography Festival (2023), and the Tate Modern Handmade Photobook Joint Exhibition (2025), this study argues that handmade photobooks have shifted from peripheral practice to an increasingly recognized cultural and artistic phenomenon. Drawing on interdisciplinary perspectives from visual culture, book arts, and archival studies, the paper contends that handmade photobooks operate simultaneously as artistic experiments, affective objects, and micro-archives of cultural memory. They retain overlooked fragments of history, bridge personal and collective narratives, and foster the transformation of photography into a “total art” form.

Keywords: Handmade Photobook; Contemporary Photography; Exhibition Studies; Total Art; Micro-Archives

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1.Introduction

The past three decades have witnessed a profound reconfiguration of photography as both a medium and cultural practice. The proliferation of digital image technologies has accelerated the reproducibility and accessibility of photographs to an unprecedented degree. This development, however, has also intensified long-standing debates over the status, authenticity, and artistic integrity of photography. As Susan Sontag (2008) observed, photography’s ubiquity risks trivializing its capacity for deep engagement and meaning-making. Roland Barthes (2003), similarly, highlighted the tension between the punctum—the deeply personal detail in a photograph—and its susceptibility to being drowned in mass circulation. In this technological landscape, the handmade photobook has emerged as a critical site of resistance and innovation. Unlike industrially produced photobooks, which serve as tools of mass distribution, handmade photobooks foreground artisanal processes, unique materialities, and individualized narrative strategies. Their experimental qualities position them as both material artifacts and conceptual platforms, allowing artists to navigate the intersection of image, text, and tactile experience. By combining

photographic language with manual craft, handmade photobooks revitalize the cultural role of photography in an era dominated by dematerialized digital images.

This paper explores the historical roots, aesthetic practices, and cultural significance of handmade photobooks in the context of contemporary photography. It examines how handmade photobooks disrupt traditional boundaries between photography, publishing, and book arts, while simultaneously functioning as archives of overlooked histories and intimate experiences. The analysis builds upon three core research questions:

How have handmade photobooks evolved historically, and what distinguishes them from the broader “photobook phenomenon”?

What aesthetic and material innovations characterize contemporary handmade photobooks?

In what ways do handmade photobooks serve as micro-archives that preserve cultural memory and resist the flattening effects of digital reproduction?

By addressing these questions, the paper contributes to broader debates in art history, visual culture, and archival studies, while situating the handmade photobook as a critical vehicle for redefining the missions and functions of contemporary photographic art.

2. Literature Review

The study of photobooks has developed into a robust interdisciplinary field that bridges photography studies, book history, and visual culture. Scholars and practitioners alike have highlighted the photobook as not merely a secondary form of photographic presentation, but as a primary medium with its own narrative and aesthetic autonomy (Parr & Badger, 2004; Newhall, 1982).

2.1 Photobooks as Artistic Medium

The publication of *The Photobook: A History* (Parr & Badger, 2004) marked a milestone in recognizing the photobook as an independent genre within photographic practice. Parr and Badger emphasized the photobook’s capacity to shape the reception of photographs through sequencing, layout, and design. Beaumont Newhall (1982), one of the foundational figures in photography studies, also underscored the importance of the photobook in articulating the history of photography itself. Ed Ruscha’s *Twenty-Six Gasoline Stations* (1963) exemplifies this trajectory by demonstrating how self-published photobooks can disrupt mainstream publishing norms while opening new avenues for conceptual art.

2.2 Handmade Photobooks Phenomenon

In China, interest in photobooks—particularly handmade variants—has expanded significantly in the past decade. Gu Zheng (2020) argued that photobooks play a crucial role in constructing photography’s disciplinary history, especially by preserving the works of marginalized or forgotten photographers. Gu emphasized the handmade photobook’s unique ability to integrate photographs, manuscripts, and archival materials into cohesive narratives that resist historical erasure. Similarly, He Yining (2023), through field research on Chinese handmade photobook production and circulation, revealed how such works function as “living cultural memory.” By allowing localized and minority cultural traditions to enter public discourse, handmade photobooks challenge the dominance of “grand narratives” in cultural transmission.

On the global stage, scholars such as Moritz Neumüller and Clément Chéroux (2021) have emphasized that the photobook phenomenon extends beyond a passing fad. They argue that the photobook serves as a key node in contemporary visual culture, linking individual memories with collective networks of meaning. The proliferation of photobook exhibitions, fairs, and festivals worldwide attests to their increasing cultural significance. The handmade photobook, as a subfield of this broader phenomenon, distinguishes itself through its emphasis on material singularity and the tactile encounter between book and viewer.

2.3 Theoretical Foundations: Aura, Archive, and Memory

The conceptual framework for analyzing handmade photobooks draws upon critical theories of art, reproduction, and cultural memory. Benjamin’s (2002) notion of the “aura” of an artwork—its unique presence in time and space—provides a lens for understanding the handmade photobook’s resistance to digital reproducibility. Each handmade photobook, as a unique or limited-edition object, retains an aura that mass-produced digital images lack. Barthes’ (2003) reflections on photography’s

capacity to pierce through the viewer's subjectivity (punctum) resonate with the affective intimacy of handmade photobooks. Moreover, Sontag's (2008) caution against the desensitization caused by photographic saturation reinforces the necessity of slower, more tactile engagements that handmade photobooks invite.

Recent exhibitions have been pivotal in bringing handmade photobooks into mainstream artistic discourse. The 2023 Hangzhou International Handmade Photobook Biennale showcased a wide range of works integrating material experimentation, non-linear narratives, and participatory elements (Hangzhou Handmade Photobook Biennale Committee, 2023). Similarly, the 23rd Pingyao International Photography Festival (2023) featured a dedicated handmade photobook section, incorporating exhibition zones for multimedia interaction and book exchange (Pingyao Festival Committee, 2023). The Tate Modern's 2025 joint exhibition with the China Academy of Art and the Royal College of Art further solidified the handmade photobook's position within global contemporary art (China Academy of Art & RCA, 2025). These institutional platforms not only validated the artistic significance of handmade photobooks but also fostered new dialogues between artists, curators, and audiences.

Figure1: The Myth of Archimedes, Cao Han, China Academy of Art & RCA, 2025



3. Historical Origins of Handmade Photobooks

The history of handmade photobooks is deeply entangled with both the evolution of photography and the broader trajectory of book arts. While the modern photobook has often been associated with twentieth-century publishing innovations, the origins of handmade photobooks can be traced further back, to the nineteenth century, when photography itself was still in its formative stages. Early photographic albums—painstakingly assembled with salt prints, albumen prints, or cyanotypes mounted on pages—represented not only personal keepsakes but also early explorations of photography as an object embedded within book form (Batchen, 1997).

Figure2: The Pencil of Nature, William Henry Talbot, 1844

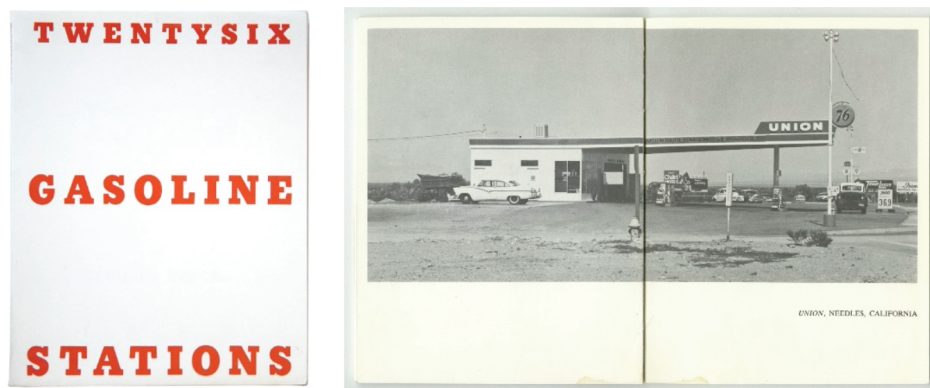


These early albums were characterized by labor-intensive production processes that blurred the line between craft and image. Amateur photographers, many of them women in domestic contexts, meticulously arranged photographs within albums, often embellishing them with handwritten annotations, drawings, and decorations. Such practices foreshadowed the handmade photobook's later emphasis on hybridity, intimacy, and materiality (Langford, 2001). In this sense, the handmade photobook cannot be regarded merely as a recent innovation, but rather as a rearticulation of photography's artisanal roots.

By the twentieth century, the rise of modernist photography brought with it new approaches to the photobook. While avant-garde figures such as László Moholy-Nagy and El Lissitzky experimented with the integration of typography, montage, and photography in mass-produced publications, parallel traditions of handmade or self-published books persisted. Ed Ruscha's *Twenty-Six Gasoline Stations* (1963), often considered a cornerstone of conceptual art, exemplifies the tension between mass production and artisanal sensibility: although technically produced in multiple copies, its minimalist design and rejection of mainstream publishing conventions emphasized the autonomy of the photobook as an artistic statement (Parr & Badger, 2004).

The late twentieth century saw a resurgence of interest in book arts, particularly in North America and Europe, where artist's books began to incorporate photography as a central component. Johanna Drucker (2004) has argued that the artist's book is not simply a container of images but a conceptual space where material form, sequence, and content are inseparable. Handmade photobooks, emerging from this lineage, represent a convergence between artist's books and photography, offering a tactile response to the increasingly dematerialized culture of images. Thus, the handmade photobook today can be understood as both a continuation of photography's earliest material traditions and a critical reinvention that responds to the contemporary digital condition.

Figure3: Twenty-Six Gasoline Stations (1963), Ed Ruscha



4. The Photobook Phenomenon and Global Expansion

The twenty-first century has been characterized by what scholars have described as the “photobook phenomenon” (Neumüller & Chéroux, 2021). This term refers to the explosive growth in the production, exhibition, and collection of photobooks worldwide, encompassing both industrially produced editions and handcrafted works. Several interrelated factors have contributed to this phenomenon: the democratization of self-publishing technologies, the globalization of photography festivals and book fairs, and the increasing recognition of photobooks by museums and academic institutions. Parr and Badger's *The Photobook: A History* (2004, 2006) played a pivotal role in catalyzing scholarly and curatorial interest in photobooks. By compiling an encyclopedic survey of photobooks from across the globe, the volumes underscored the medium's diversity and historical significance. More importantly, they challenged the assumption that photography's history could be fully grasped through prints and exhibitions alone, demonstrating that the sequencing, design, and narrative of photobooks were equally central to photographic meaning-making.

Globally, photobook fairs have become critical nodes for circulation and exchange. Events such as Paris Photo, the New York Art Book Fair, and Tokyo's Photobook Festival provide platforms for independent publishers and artists to present their works outside traditional gallery structures. Within these contexts, handmade photobooks occupy a distinctive niche: while they may not achieve the scale of mass-produced editions, they generate unique encounters between artist and audience. The

intimate scale of such fairs enables tactile engagement, which digital platforms cannot replicate (Badger, 2014). In China, the photobook phenomenon has developed rapidly over the past decade. Major events such as the Shanghai Photobook Fair, the Hangzhou Handmade Photobook Biennale (2023), and the dedicated handmade photobook exhibition section at the 23rd Pingyao International Photography Festival (2023) attest to the growing recognition of photobooks as cultural and artistic artifacts (He, 2023). These exhibitions highlight both local innovations—such as the integration of calligraphy, papermaking, and traditional binding techniques—and global exchanges, as artists and curators collaborate across cultural contexts.

The inclusion of handmade photobooks in institutional exhibitions has further solidified their legitimacy. The Tate Modern's 2025 joint exhibition with the China Academy of Art and the Royal College of Art represented a landmark moment in this regard, situating handmade photobooks within the canon of global contemporary art (China Academy of Art & RCA, 2025). Such recognition underscores the handmade photobook's dual identity: both as a niche practice rooted in artisanal craft and as a central player in contemporary artistic discourse.

5. Handmade Photobooks as Micro-Archives of the Era

One of the most significant contributions of handmade photobooks lies in their role as micro-archives of cultural memory. Unlike digital images, which are infinitely replicable and often consumed ephemerally, handmade photobooks possess a material permanence and a narrative density that allows them to function as repositories of overlooked histories and intimate experiences. Archival theorists such as Diana Taylor (2003) and Ann Cvetkovich (2003) have emphasized that archives are not neutral containers of history but are themselves shaped by affect, politics, and subjectivity. Handmade photobooks embody this perspective by actively curating fragments of lived experience into tangible, tactile forms. For example, He Yining (2023) has documented Chinese handmade photobooks that incorporate oral histories, family photographs, and ephemera from minority communities. These works resist assimilation into dominant cultural narratives, instead preserving the micro-histories of marginalized groups.

The archival potential of handmade photobooks is also linked to their emphasis on singularity and non-linear storytelling. Unlike traditional archival institutions, which privilege chronological order and standardized formats, handmade photobooks often employ fragmented sequencing, layered materials, and experimental bindings. This creates what Jacques Derrida (1996) referred to as “archive fever”: a dynamic interplay between preservation and reinterpretation, between stability and instability. Each handmade photobook, in this sense, is less a static archive than a living archive—one that invites reinterpretation and reactivation with each reading. Furthermore, handmade photobooks frequently function as counter-archives in response to the saturation of digital images. As Sontag (2008) warned, the ubiquity of photography risks eroding its emotional impact. Handmade photobooks counteract this tendency by demanding slow, tactile engagement. The turning of pages, the feel of handmade paper, and the presence of unique binding structures all foster a mode of reading that reintroduces affective resonance into the photographic encounter.

Recent exhibitions have foregrounded this archival function explicitly. The 2023 Hangzhou Biennale included a section titled “Micro-Archives of the Everyday,” where artists presented photobooks constructed from personal diaries, found photographs, and community archives (Hangzhou Handmade Photobook Biennale Committee, 2023). These works exemplify how handmade photobooks can bridge personal memory with broader cultural histories, thereby expanding photography's role as both an artistic medium and a social archive. In this way, handmade photobooks not only revitalize photography's aesthetic possibilities but also redefine its cultural missions. They preserve details of lived experience that might otherwise disappear in the flow of digital images, offering future generations a textured and embodied record of the present.

6. Aesthetic and Material Dimensions of Handmade Photobooks

A defining characteristic of handmade photobooks is their deep entanglement of materiality and aesthetics. Unlike industrially printed photobooks, which often prioritize uniformity and reproducibility, handmade photobooks foreground tactile qualities—paper texture, binding techniques, the smell of ink, or the irregularity of hand stitching—as essential components of meaning-making. As Drucker (2004) has argued in the context of artist's books, the physical form is not merely a neutral container but actively participates in the construction of narrative and affect. One key aesthetic strategy in

handmade photobooks is the use of non-linear sequencing. Whereas traditional photobooks often rely on linear, chronological progression, handmade photobooks frequently embrace fragmentation, juxtaposition, and recursive structures. This strategy aligns with broader postmodern aesthetics, which challenge grand narratives and instead foreground multiplicity and subjectivity (Lyotard, 1984). For example, Japanese artist Rinko Kawauchi's limited-edition hand-bound photobook *Ametsuchi* (2013) deploys loose sequencing and visual echoing across spreads, inviting viewers into a cyclical meditation on memory and nature.

Figure4: *Ametsuchi* (2013), Rinko Kawauchi



Material innovation further expands the aesthetic vocabulary of handmade photobooks. Some artists incorporate found objects, textiles, or organic materials into the book form, thereby transforming the photobook into a hybrid object that traverses photography, sculpture, and installation. Xu Bing's *Book from the Ground* (2012), although not strictly a photobook, illustrates how material experimentation within book arts can destabilize conventional boundaries of medium and language (Xu, 2012). Photographers working with handmade books often adopt similar strategies, embedding dried plants, handwritten notes, or fragments of archival documents into the pages, thus weaving together layers of text, image, and objecthood. In addition, the aura of the unique object, as theorized by Walter Benjamin (1968), plays a central role in the handmade photobook's aesthetic appeal. While Benjamin critiqued the loss of aura in mechanically reproduced works of art, handmade photobooks deliberately reassert this aura through their singularity and artisanal qualities. Each copy, often limited to editions of one or a few, carries traces of the artist's hand—stitching, folding, or gluing—that resist the anonymity of mass production. This uniqueness fosters an intimate dialogue between the reader and the object, reestablishing a sense of authenticity in an era saturated with digital replication.

Figure5: *Book from the Ground* (2012), Xu Bing



Finally, the aesthetic impact of handmade photobooks is inseparable from the ritual of reading. Unlike scrolling through digital images, engaging with a handmade photobook requires slowness, attention, and care. The turning of pages becomes an embodied act that reinforces the book's narrative rhythms. As Badger (2014) notes, the photobook is a time-based medium: its meaning unfolds not in a single glance but through the temporality of reading. Handmade photobooks accentuate this temporality, transforming viewing into an aesthetic and performative experience.

7. Contemporary Practices and Future Directions

Contemporary practices of handmade photobooks are shaped by both technological shifts and socio-political conditions. In the digital era, where online platforms and print-on-demand services have democratized self-publishing, the handmade photobook stands out as a counter-movement, emphasizing slowness, tactility, and artisanal engagement. Yet, rather than opposing digitality outright, many contemporary artists integrate digital tools into their handmade processes, creating hybrid works that combine inkjet printing with hand-binding or laser-cutting with traditional papermaking (Neumüller & Chéroux, 2021).

A notable trend is the increasing emphasis on collaborative and community-based photobook practices. For instance, Latin American collectives such as La Hydra (Mexico City) and Colectivo FotoLibro (Buenos Aires) have organized workshops where participants co-create handmade photobooks using shared archives and local materials (Longoni, 2018). These practices foreground the photobook not only as an individual artwork but also as a social process, fostering collective memory and solidarity. Another emerging direction is the ecological turn in handmade photobook production. Responding to the climate crisis and environmental concerns, some artists adopt sustainable materials—recycled paper, natural dyes, or biodegradable bindings—thereby aligning the photobook with eco-art discourses (Miles, 2014). This orientation highlights how material choices in handmade photobooks can resonate with broader ethical and political commitments.

At the institutional level, handmade photobooks are increasingly incorporated into museum collections, academic curricula, and archival initiatives. The International Center of Photography (ICP) in New York, for example, has dedicated acquisitions to self-published and handmade photobooks, recognizing their historical and pedagogical significance (ICP, 2022). Similarly, art schools in China, Japan, and Europe have introduced courses that teach students both digital publishing and hand-binding techniques, preparing a new generation of photographers to navigate the intersection of craft and technology (He, 2023). Looking ahead, the future of handmade photobooks may lie in expanded forms of exhibition and interactivity. Some artists have begun experimenting with augmented reality (AR) overlays or interactive digital companions to their handmade books, thereby creating multi-layered experiences that extend beyond the page. Others explore site-specific presentations, where photobooks are displayed as sculptural installations or activated through performative readings. These hybrid practices point toward a future where the handmade photobook remains adaptable, resilient, and deeply relevant to contemporary artistic discourse.

Conclusion

The Handmade photobooks represent a crucial intervention in the contemporary photographic landscape. Emerging from photography's nineteenth-century material traditions and shaped by the twentieth-century photobook phenomenon, they occupy a distinctive position at the intersection of craft, narrative, and cultural memory. Their material innovations and aesthetic strategies challenge the dominance of digital images, reasserting the value of slowness, tactility, and artisanal authorship. As micro-archives, handmade photobooks preserve the overlooked and the ephemeral, constructing intimate records of lived experience that resist assimilation into dominant narratives. As aesthetic objects, they foreground the interplay between material form and photographic content, reintroducing aura and ritual into the photographic encounter. And as social practices, they foster collaboration, ecological responsibility, and cross-cultural dialogue.

In an age of image overproduction, handmade photobooks redefine photography's artistic mission and social function. They remind us that photographs need not exist solely as dematerialized pixels or infinitely replicable files; instead, they can inhabit crafted, singular, and embodied forms that anchor memory, affect, and meaning. Thus, the handmade photobook is not merely a nostalgic return to pre-digital craft but a forward-looking medium that continues to expand photography's possibilities as both art and archive.

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Conflict of Interests

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Research on Employment Compliance of Chinese Outbound Digital Platforms from an ESG Perspective

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Abstract: As an institutional carrier of national governance modernization, corporate compliance governance serves as a critical practical pathway for advancing the comprehensive rule of law in China. Amid globalization, the importance of ESG standards has become increasingly prominent, and ESG compliance for overseas enterprises has become an inevitable trend. Chinese overseas enterprises face ESG compliance challenges in digital platform labor practices, including insufficient compliance motivation (prioritizing short-term gains), inadequate capacity (constrained by stringent legal environments), and covert algorithmic discipline with weak regulatory oversight. These issues stem from corporate resource deficiencies and labor alienation driven by algorithms. From an ESG perspective, the compliance boundaries of digital platform labor for Chinese overseas enterprises require a four-dimensional restructuring: shifting goals from profit-driven priorities to balancing multiple values; expanding governance actors to include governments and societal stakeholders; upgrading frameworks to incorporate algorithmic ethics reviews and third-party audits; and elevating compliance content to algorithmic ESG governance. Building on this, Chinese overseas enterprises urgently need to establish a three-dimensional (E-S-G) collaborative compliance path: Environmental (E)—developing green, low-carbon labor models; Social (S)—redefining algorithmic ethics through a “neutral algorithms, transparent accountability, compliance review” mechanism to clarify platform responsibilities; Governance (G)—implementing tiered disclosure mandates, establishing technology ethics committees, and fostering third-party multidimensional evaluations. This will drive the platform economy to transition from efficiency-first to value co-creation. For Chinese enterprises expanding globally, sustainable and steady growth must accompany their internationalization efforts.

Keywords: Chinese Overseas Enterprises; Digital Platform Labor; Labor Compliance; ESG

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1.Introduction

ESG (Environment, Social, Governance) is an internationally accepted framework for sustainable development designed to guide companies to balance environmental responsibility, social equity and governance effectiveness in their operations. Compared with traditional financial indicators, ESG standards evaluate corporate performance more comprehensively in the three dimensions of environment, society and governance, and have become the mainstream system for measuring non-financial performance. By means of quantitative, standardized indicators and deep integration with core corporate strategy, ESG transcends the limitations of traditional CSR in sustainable development and long-term value creation, providing Chinese enterprises “going global” with more valuable metrics and guidelines for sustainable development.

Under the wave of “going out”, ESG compliance in digital-platform employment by Chinese overseas enterprises has become an inevitable trend. On the one hand, amid drastic changes in international rules, global markets treat ESG compliance as a new trade barrier; enterprises that fail to meet ESG standards risk being eliminated. On the other hand, digital platforms’ reliance on algorithmic control has led to labour alienation, eroding workers’ rights and accumulating social risks. ESG compliance, by reconstructing the “sustainable development” mechanism, has become the core path to solving regulatory failure and balancing corporate competitiveness with labour rights; it is also a strategic cornerstone for modernizing national governance and supporting Chinese enterprises to “go far and steady”. In the face of compliance challenges posed by international rules, how to align Chinese overseas enterprises’ digital-platform employment norms with international standards has become the key to breaking through trade barriers and achieving sustainable development.

2.ESG Compliance Dilemmas of Chinese Overseas Enterprises in Digital-Platform Employment

2.1 Endogenous Motivation Deficit: Structural Insufficiency in Willingness and Capacity

2.1.1 Insufficient willingness

Chinese overseas enterprises’ digital-platform employment shows inadequate ESG compliance willingness. Over-focused on short-term economic returns and financial risks, companies neglect the long-term value of sustainable development and social-responsibility risks. They generally lack understanding of ESG compliance management in platform employment: they do not attach importance, conduct no research, and know little about the ESG system.

2.1.2 Insufficient capacity

On the one hand, the legal environment for ESG compliance is becoming more complex and stringent; relevant laws and regulations are continuously refined, posing higher challenges. On the other hand, the content of ESG disclosure is increasingly rich, the standards are ever higher and deadlines shorter, bringing enormous pressure for data collection, analysis and report writing. Even when firms subjectively wish to comply, they are often trapped by a lack of professional knowledge, technical support and resource investment, and struggle to integrate ESG compliance into strategy and daily operations.

If the ESG legal-compliance framework is transplanted to China, it may create a mismatch between the legal system and Chinese social realities. The current development level, international competitiveness and labour-relations conditions of developing countries such as China make it difficult to reach the labour-protection standards set by ESG. Meanwhile, ESG legislative practice may spill over, forcing China to adjust its domestic legal norms passively to match ESG expectations, resulting in a non-autonomous legal-transplant process. During cross-border legal transplantation, neglecting China’s economic stage and cultural traditions and adopting an overly radical legislative model may undermine the stability of China’s platform-employment legal system. Following Amartya Sen’s framework of “focusing on manifest injustice rather than pursuing absolute justice”, legislators should confine ESG regulation to clearly defined areas instead of attempting to establish so-called optimal labour standards through legislation.^[1]

2.2 Governance Black Hole of Algorithmic Discipline: Hidden Digital Labour Control Leading to Regulatory Failure

From the industrial to the digital era, labour control has broken the boundaries of traditional workplaces. Panoptic real-time surveillance networks conceal the process of labour control, allowing digital-platform employment to wander in grey zones while regulation lags and remains weak.

In traditional industrial production, the subject of labour control is clear, the process is simple and oversight is easy. According to Marx’s political economy, labour time is the basic unit of value creation; capitalists appropriate surplus value by controlling workers’ time, triggering continuous power games over working hours, intensity and flexibility. In early capitalism, capitalists prolonged working hours; workers resisted to limit such extensions. In the monopolistic stage, capitalists refined labour time through scientific management to raise efficiency and extract surplus value.^[2]

With digital technology, AI algorithms are embedded in labour control, achieving panoptic visibility and increasing the concealment that impedes oversight. Foucault, in *Discipline and Punish*, proposed panopticism: modern power constructs a disciplinary mechanism akin to Bentham’s panopticon, using “partitioned spaces, hidden gazes and absent surveillance” to

instil fear of being watched, normalize behaviour, and achieve “real domination produced by fictitious relations”.^[3]

The technical opacity of algorithmic systems reconstructs responsibility allocation. Automatic ratings, gamified incentives and other hidden control mechanisms dilute employer responsibility among algorithm developers, data suppliers and other actors, complicating identification of liable parties.^[4] To reduce labour costs, delivery platforms have spawned outsourcing and multi-tier subcontracting, covering part-time and gig work, further complicating legal relationships. Arbitration bodies and courts in China have issued inconsistent rulings; even within the same city opinions diverge. This architecture of diffused responsibility, via a “digital panopticon”, shifts disciplinary power to consumer rating systems and worker competition mechanisms, externalizing labour-capital contradictions. Data show riders work 9.8 hours per day on average, 64.3% lack basic rest guarantees; algorithm-driven “labour races” foster high-intensity self-exploitation. Such profit-oriented hidden control aggravates domestic ESG governance dilemmas and leads to systemic regulatory failure marked by fragmented responsibility and blurred accountability.

3. Generative Mechanisms of ESG Governance Failure in Chinese Overseas Digital-Platform Employment

The ESG compliance dilemmas of Chinese overseas enterprises in digital-platform employment are essentially the result of the interaction between corporate compliance-capacity deficits and labour alienation under algorithmic domination.

3.1 Capacity Gap: Lagging Compliance Resources Behind Ever Stricter ESG Requirements

Under economic globalization, the deficits in willingness and capacity for digital-platform employment compliance among Chinese overseas enterprises are essentially a choice-bias caused by scarce compliance resources. Compliance resources are a key competitive asset for sustainable development. Wernerfelt (1984) pioneered the resource-based view, laying the foundation for the theory of core competitiveness.^[5] According to this view, sustainable competitive advantage derives from strategic resources that are rare, valuable, inimitable and organizationally embedded.^[6] The deficits in willingness and capacity for ESG compliance in Chinese digital-platform employment are essentially deficits in cognitive and practical resources.

Cognitive resources: lagging cognition leads to strategic short-sightedness. Managers focus on short-term costs and ignore long-term sustainability, prioritizing economic benefits over social welfare. Influenced by a domestic “minimum-compliance” mindset, Chinese firms—especially SMEs—treat platform employment as a cost-control tool rather than a human-rights responsibility, suffering from a congenital lack of strategic-resource reserves. The 2024 report “Facing Challenges, Forging Ahead—Development Report of Chinese Enterprises in the EU (2024/2025)” shows that surveyed firms generally lack full-time labour-law counsel and GDPR compliance digital attendance systems, increasing compliance risks.

Practical resources: compliance practice lags behind high ESG standards, widening the capacity deficit. On the one hand, digital-platform employment models have emerged rapidly while matching laws and regulations remain incomplete. On the other hand, firms lack digital management tools and technical applications to monitor and manage digital labour effectively. They cannot track working hours or intensity, facing high compliance risks.

3.2 Labour Alienation: Algorithms Reshaping Labour Control

The concealment of labour control in the digital era is ultimately labour alienation after algorithms reshape control. Marx, in the 1844 Manuscripts, systematized alienated labour into four dimensions: (1) alienation from the product; (2) alienation from the labour process; (3) alienation from species-being; (4) alienation from interpersonal relations.^[7]

Contemporary digital economies intensify alienation, blur traditional labour-capital relations, create new exploitation forms and complicate ESG regulation. First, workers’ products are owned by platforms; what they produce are not only goods but also data that enslave them, forcing high-intensity labour. Second, labour is dominated by big data; seeming flexibility actually eliminates freedom, suppresses bargaining power and imposes hidden overtime. Third, workers lose control over tools and are dominated by them; intelligent tools overturn traditional definitions of high-intensity labour rights and duties. Fourth, subjectivity is dissolved by algorithms. Platforms turn workers into “digital production factors” via data collection, task allocation and performance evaluation. For example, delivery riders’ routes and working hours are dynamically set by algorithms, eliminating autonomy and forcing high-intensity mechanical practice.

4. Redefining the Boundaries of Digital Responsibility for Chinese Overseas Enterprises Under an ESG Perspective

4.1 Defining Corporate Digital Responsibility

International academia is divided on the relationship between corporate digital responsibility (CDR) and CSR. The “independence thesis” argues CDR must be separate because digital technologies raise new issues—privacy, security, power balance—beyond traditional CSR.^[8] The “subordination thesis” sees CDR as the digital extension of CSR, needing only content updates.^[9] The “eclectic-integration thesis” stresses using the CSR framework while reflecting technical features; CDR should function as a horizontal CSR dimension integrated into finance, environment, society and governance models.^[10] The latter is more reasonable: technological change remains embedded in social and human contexts; updating CSR content to include CDR can meet new challenges while preserving theoretical stability.

Scholarly definitions of CDR are diverse. The moral-attribute thesis treats CDR as voluntary ethical guidelines for responsible technology use. The legal-attribute thesis focuses on data-rights protection and compliance. The compound-attribute thesis integrates both, proposing a CDR framework based on legal compliance plus voluntary moral practice, grounded in information ethics and human-rights law. CDR is essentially a comprehensive obligation to balance legal obedience and moral self-discipline while pursuing digital economic benefits; its moral attribute provides flexible tools against regulatory lag and enhances market reputation and sustainability.

4.2 Positioning CDR Within the ESG Framework

China’s legal system has preliminarily constructed a legal foundation for platform CDR and embedded it into ESG.

First, CSR as a statutory obligation provides the legal basis. Article 5 and Article 20 of China’s Company Law require firms to observe social and commercial ethics, act in good faith and accept government and social oversight. Platform CDR is the concrete manifestation of CSR in the digital economy. Its legal basis is the bundle of rights constituted by Articles 1034 and 127 of the Civil Code and Article 3 of the Labour Law, protecting digital workers’ legitimate rights.

Second, ESG rules in the Code of Corporate Governance for Listed Companies (Articles 86 and 95) elevate E, S and G indicators to mandatory disclosure obligations for listed companies. Platform CDR, as an important part of the social (S) dimension, has become statutory ESG content, pushing firms to fulfil digital-employment responsibilities.

Finally, regarding rights-obligations structure, digital workers have personal-information rights, rights to request explanations of algorithmic decisions, and rights to health protection in remote work. Platforms have corresponding statutory duties: data collection must follow the principle of minimum necessity, algorithms must be fair and transparent, and remote-work environments must ensure health protection. This structure helps build a fair and reasonable CDR system and drives effective ESG practice.

4.3 Redefining the Due-Diligence Boundaries of Digital-Platform Employment Under ESG

First, behavioral objectives shift from “profit-first” to “balancing multiple values”. Traditional employment maximizes economic efficiency; ESG requires platforms to embed environmental sustainability, social equity and governance transparency into strategic goals. Algorithm design must incorporate worker-protection mechanisms to avoid excessive squeezing of time and health, and optimize delivery routes to reduce carbon emissions.

Second, the scope of responsible actors expands from a binary platform-worker focus to full coverage. ESG extends responsibility to governments, social organizations and consumers, forming a responsibility community. Platforms should co-build social-security systems for flexible employment with governments, and cooperate with NGOs on vocational training. For example, food-delivery platforms can pilot occupational-injury insurance for new forms of employment with local governments through data-sharing and risk-sharing mechanisms.

Third, governance frameworks evolve from single-layer to multi-dimensional systems. The former “market self-governance + ex-post supervision” model cannot handle the complexity of digital employment. ESG demands a “preventive governance + whole-process participation” framework: ex-ante algorithmic-ethics reviews to prevent systemic risks; in-process worker complaint and algorithm-explanation channels; ex-post third-party ESG audits to assess employment-ecosystem impacts. For instance, ride-hailing platforms can develop fatigue-driving warning systems, monitor working hours in real time and enforce

mandatory rest, while opening algorithmic parameters to regulators for compliance review.

Fourth, responsibility content jumps from data-source governance to algorithmic ESG value governance. Environmental responsibility must assess carbon footprints and resource consumption of employment models. Social responsibility must cover mental-health support and career-advancement pathways. Governance responsibility must address data-sovereignty ownership and algorithmic discrimination.

5.ESG Compliance Pathways for Chinese Overseas Enterprises in Digital-Platform Employment

Under the ESG framework, Chinese overseas enterprises must transcend traditional labour-relation constraints and systematically build a three-dimensional compliance system integrating environmental sustainability, social-inclusiveness and governance effectiveness. Through coordinated reform of E, S and G dimensions, the platform economy will shift from “efficiency-first” to “value-co-creation”.

5.1 Environmental Dimension (E): Building a Healthy, Sustainable Digital-Platform Employment Environment

Environmental (E) compliance requires green and low-carbon goals. First, firms must embed environmental responsibility throughout the employment life-cycle, lowering ecological impact through technological innovation and institutional optimization. Examples include optimizing computing-resource allocation to cut energy consumption and promoting distributed offices to reduce commuting emissions. Tencent’s 2024 ESG report proposes using AI to advance biodiversity protection and building public-participation platforms, digitally empowering environmental protection. Second, firms must quantify carbon footprints of platform employment, using block chain to create dynamic carbon-account mechanisms that extend carbon management from supply chains to employment scenarios. CATL uses carbon-tracking systems for upstream-downstream coordinated reduction, enhancing environmental due-diligence via technological transparency.

5.2 Social Dimension (S): From Passive Adaptation to Proactive Protection of Digital Workers’ Rights and Social Responsibility

Addressing the dual dilemma of insufficient willingness and capacity, comprehensive solutions are needed.

First, strengthen compliance awareness and strategic transformation. Governments and industry associations should guide firms beyond “minimum-compliance” thinking, embedding ESG into strategic decisions, emphasizing environmental, social and stakeholder responsibilities, and achieving sustainable development through good governance. Incentive mechanisms—tax breaks or export subsidies for ESG certified firms—should balance short-term costs and long-term benefits. Companies need dedicated compliance departments to systematically study labour-law differences between host countries and China, and budget compliance costs as investments rather than passive expenses.

Second, build “technology for good” ethics, replacing “strictest algorithms” with “median algorithms”. Algorithms should abandon profit-only efficiency logic and embed humanistic factors—road safety, rest time—to plan working hours reasonably. In bad weather or traffic jams, platforms should give riders flexible safe delivery windows and replace fixed delivery times with elastic slots. Real-time monitoring should cap daily orders and enforce rest after certain working hours. SF City’s system reminds couriers to rest after four consecutive hours and suspends new orders for 20 minutes, preventing excessive overtime. Third, pierce the veil to identify the substantive controller of digital labour, overcoming responsibility dilution. China urgently needs to break algorithmic “black-box” shields and establish a “control-right piercing” mechanism, examining firms’ actual intervention in algorithmic decisions. If a firm sets “efficiency optimization” goals, compresses rest time, or retains veto power over algorithmic schedules, it should be deemed the ultimate responsible party even if the algorithm is supplied by third parties.

Fourth, strengthen algorithmic compliance review and oversight. Chinese overseas enterprises should accelerate development of digital platforms ensuring ESG compliance employment records, and use smart technologies to build early-warning models that intercept violations such as excessive working hours or insufficient rest in real time.

5.3 Governance Dimension (G): Perfecting an Internal-to-External Digital Compliance Governance System

First, strengthen digital-responsibility reporting. Chinese overseas enterprises urgently need a layered and classified digital-responsibility reporting mechanism, internalizing digital responsibility as governance momentum. Guided by the National New-Generation AI Standards System, firms should apply differentiated disclosure standards for basic, professional and application-level models, using unified disclosure platforms to lower information asymmetry, and establish three-dimensional responsibility indicators covering environment, society and governance to align Chinese AI ethics standards with international ESG frameworks.

Second, optimize board-level digital-responsibility architecture for micro-level implementation. At the governance depth, firms need to restructure board decision-making paradigms, set up technology-ethics committees to pre-review algorithms, recruit interdisciplinary directors, expand directors' compliance duties under Article 5 of the Company Law, and form a closed loop from tech-ethics review to strategic decision-making.

Third, cultivate third-party certification and assessment. At the oversight level, China urgently needs a “pre-certification + post-traceability” third-party evaluation mechanism, using a five-dimensional matrix—functional safety, ethical compliance, explainability, transparency and social impact—to create market screening. IEEE has issued global AI ethics standards, and Denmark is advancing IT security and data-ethics certification. Drawing on international experience, China should foster independent “digital gatekeepers” that use reputational capital to constrain platform-employment behaviour.

Conclusion

In the globalization process, non-compliance means elimination. Chinese overseas enterprises must transcend traditional labour regulation and build an E-S-G coordinated compliance system. First, environmentally, firms should use blockchain carbon accounts to track employment carbon footprints, promote distributed offices, and leverage technology to extend environmental responsibility. Second, socially, China must reconstruct algorithmic ethics, embed humanistic variables such as mandatory rest, establish a “control-right piercing” mechanism to clarify substantive platform responsibility, and strengthen ESG capacity building combining government guidance and market incentives. Third, in governance, firms need internal technology-ethics committees to pre-approve algorithms, disclose digital responsibility information in layers, and externally cultivate third-party certifiers to build an ESG assessment matrix covering ethical compliance and social impact. Through “median algorithms” to optimize labour control, “piercing responsibility” to clarify rights and duties, and “technology for good” to empower pluralistic governance, China should steer the platform economy from efficiency-first to an ecological value-co-creation system.

In the future, China urgently needs ESG quantitative standards and certification systems that balance international perspectives with local characteristics. Given differing ESG standards and regulations across countries, Chinese overseas enterprises must study and adapt to local compliance requirements during “going out”, align digital-platform employment norms with international standards, and explore global compliance practices to provide solid support for their international development.

“He who does not plan for the long term cannot plan for the present; he who does not consider the whole cannot manage a part.” Abandoning short-sighted profit-only economics and embracing long-term platform-employment compliance, Chinese overseas enterprises should aim not merely to “go out”, but to “go far”.

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The Crisis and Reconstruction of Youth Identity in the Social Media Era

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Abstract: With the rapid development of social media, the identity process of youth groups presents unprecedented complexity and dynamics. Social media not only provides youth with a platform for multicultural communication, self-expression and public participation, but also brings problems such as information overload, cognitive solidification, and conflict between virtual and real identities, which leads some youth into identity crisis. This paper focuses on the performance of youth identity crisis, crisis and its reconstruction path in the context of social media. The study concludes that social media is a catalyst for identity crisis and also an important space for reconstruction. Solving the crisis requires the concerted efforts of individuals, society and platforms, including improving media literacy, building healthy online communities and optimising algorithmic mechanisms. The research in this paper provides theoretical references and practical insights for the healthy socialisation of youth groups and cyberspace governance.

Keywords: Social Media; Youth; Identity

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Introduction

Under the perspective of media environmentalism, social media in the digital era, like an unstoppable torrent, has reshaped the expression ecology of youth culture. From linear communication to reticulated communication, from mass media to relational media, from traditional media to intelligent media, every leap in media form is accompanied by profound changes in language and culture. In this environment, social media has opened up a new space for youth groups to express themselves, and youth groups are no longer passive recipients of information, but active creators and disseminators of content. However, the high-frequency use of social media also brings new challenges to identity. On the one hand, young people use the platform to expand their social relationships, participate in public affairs, and explore their diversified selves; on the other hand, mechanisms such as virtual image management and algorithmic recommendation may cause cognitive closure and self-division. In the era of social media in the 21st century, the identity and self-expression of contemporary youth are undergoing unprecedented changes. With the rise of social media and the flourishing of network culture, youth groups increasingly construct their personal identity and self-expression through online platforms. The importance of identity theory as a theoretical framework for analysing how individuals and groups shape and maintain their identities in the social environment cannot be overstated.

This paper attempts to systematically analyse the performance of youth identity in the age of social media on the basis of

relevant theories, so as to reveal its characteristics and problems and put forward suggestions for identity reconstruction. This will not only help to understand the psychosocial changes of youth in the new media environment, but also provide ideas for related education and governance.

1.Expressions of youth identity in social media

1.1 Circularisation of group affiliation

When youths are able to express their emotions on social media platforms or express their opinions in the circles they belong to through their digital identities, they establish connections with like-minded people and form communities, in which social interactions play a crucial role. Young people connect with others through likes, comments, retweets and other interactions to form a close social network, which not only deepens mutual understanding and recognition, but also provides positive and effective feedback for the construction of digital identities, thus strengthening the identity of the self and gaining a sense of identity. This emotional bond not only motivates them to actively participate in group activities, but also builds a strong community cohesion and identity in an invisible way. In social media, group members have established a kind of “spiritual resonance” beyond the boundaries of reality due to their common hobbies. Even if they are located in different regions and have never met each other before, they can find a sense of belonging in the same online space and form a close community connection ^[2]. This connection not only deepens the emotional bond between group members, but also strengthens their perception of group identity through shared experiences, thus deepening their sense of belonging and identity. Youths continuously adjust and refine their digital identities to adapt to the changing social environment and personal development needs. They find resonance in interaction, strengthen their identity in resonance, and gradually define their identity in the virtual world.

In this process, the role of social media cannot be ignored, which provides groups with a communication platform that crosses the boundaries of time and space, enabling group members to quickly assemble, share information and deepen their emotions no matter where they are. In the process of these social media as a means of Internet communication, youth groups have found “companions”, gained a sense of belonging to the group in the virtual space, and gained identity resonance and collective identity. The generation of a sense of belonging to a group is a key element in the generation of youth identity in the process of social media, and this sense of belonging compensates to a certain extent for the isolation or marginalisation that may exist in reality. From a psychological perspective, online identity sometimes plays the role of a simple and quick surrogate for real identity. This mutual reinforcement of identity and group belonging not only deepens the close ties between group members, but also provides solid support for the construction of their self-identity in the media environment.

1.2 Diversification of self-expression

In the era of social media, the diverse styles of social media fully reflect the self-expression of contemporary youth. With the rise of social media and the flourishing of network culture, youth groups increasingly use network platforms to construct personal identity and self-expression. Youths carefully create their digital images on social media platforms in the form of pictures, texts, videos and other forms, from the selection of personalised avatars to the setting of nicknames and signatures, every detail highlights their unique perception of self-identity, and youths have different identities at different times, places and social circles, and youths post life moments and share their insights and feelings on social media platforms, gradually building a three-dimensional identity in the virtual world. They post their life moments on social media platforms, share their opinions and feelings, and gradually build up a three-dimensional, vivid and personalised digital identity in the virtual world. Young people have different forms of expression according to different platforms, which not only satisfies their curiosity about new things, but also allows them to show their unique personalities and emotions in different social occasions. The multiple styles in social media not only reflect the self-expression needs of contemporary youth, but also reflect their unique pursuit of personalisation, innovation and emotional resonance, and also provide an important platform for youth to display themselves and realise their self-worth. The current self-expression of young people shows obvious diversity. From traditional words and language to images, videos and emoticons, they are no longer satisfied with traditional ways of expression, but seek more personalised and creative ways of expression, using various media and tools to express their thoughts and emotions. In this process, through diverse self-expression, young people have not only explored and confirmed their social

identities, established ties with society, and realised their self-worth, but have also, to a certain extent, promoted social and cultural diversity and innovation.

1.3 Enhancement of Public Identity

The role of interaction and social media in self-identity. The “mirror me” theory was first proposed by Cooley in *Human Nature and Social Order*. According to Cooley, the “mirror me” refers to the formation of self-perception and self-evaluation through observing the reactions of others in social interactions with them. Each individual can become a reference point for other individuals and form a conception of self by looking back at themselves through the attitudes and opinions of others towards them.

Identity is the intrinsic motivation of digital identity construction. Youth continuously explore and confirm their identity through self-knowledge, social comparison and group belonging in the process of growing up. In the intelligent communication environment, digital identity becomes an important carrier and expression of their identity. Social media provide a virtual field for youth groups to display themselves, enabling them to explore and shape their identities in the network, and the deep-level social interactions reveal the abstract identity practices in the traditional vision. Youths carefully construct and display their digital identities in social media, expecting to gain the understanding and recognition of others, and thus strengthen their self-worth and the meaning of their existence. At the same time, identity also influences the direction of construction and the choice of content. Young people will choose elements that match their values and interests to construct their digital identities according to their identities, so as to make them more in line with their self-perceptions and social expectations. This identity is not only based on real-life experiences, but also realised through interaction and communication in virtual space.

Digital connectivity and the use of social media have changed the way youth interact globally and have made independent participation in social and political activities possible. This change has not only facilitated the dissemination of culture, but has also allowed cultural identities to be presented and shaped in new ways in virtual spaces. However, this new form of identity may lead to a paradox between real and virtual identities, thus affecting an individual's true identity.

The rise of online social platforms has provided youth with a new space for social participation and self-expression. In this space, young people can display their thoughts, feelings and values in a variety of ways and connect with a wider social group. The emergence of this phenomenon has not only changed the way young people socialise, but also reshaped their mode of social participation. Through online platforms, young people can express their views and emotions more freely and participate in the discussion of social topics. Such participation not only enhances the social presence of youth, but also improves their social influence. At the same time, this phenomenon also reflects the youth's sensitivity and sense of participation in social issues, as well as their positive attitude towards social change. In this process, youth participation through online platforms not only realises self-expression and identity construction, but also promotes social progress and development to a certain extent. Young people are increasingly active in public affairs and social issues on social media, such as public welfare activities, environmental protection, social justice, etc. By liking, retweeting, following and initiating topics and other behaviours, for example, in certain emergencies or public welfare fund-raising, the youth group is often the main force of communication and action. This kind of participation not only strengthens the identity of young people as “citizens”, but also allows them to develop a sense of responsibility in social practice. This kind of identity brings positive social energy, but there is also the problem of “fast-food” participation, that is, at the level of forwarding or liking, without in-depth thinking and sustained action. Young people are easily driven by short-term emotions to gain a sense of identity, but are not sufficiently engaged in long-term practice.

2.The issue of youth identity in social media

2.1 Misalignment of virtual and real identities

In the digital age, the identity of youth groups is no longer confined to the objective physical world, but crosses the boundaries between online and offline, forming a symbiosis between the virtual and the real. The emotions of youth groups in online virtual situations are often reproduced in the physical world, and their behaviours and experiences in the digital world feed back into reality, and vice versa. The over-reliance of some youth groups on social media can easily lead to the alienation

of real interactions. Social media, as one of the core elements of network ecology, even constructs a kind of spiritual world of warmth and self-protection mechanism in the extension of social relations and confirmation of group values. Long-term over-reliance on social media may easily lead to the escape from reality of youth groups, which in turn reduces their ability to interact in reality and hinders the development of interpersonal relationships. The high mobility and freedom of social media also make the construction of youth identity more complicated. In the “digital labyrinth” of social media, the collision between the virtual and the real, and the ideological confrontation between the master self and the other constantly strengthen the contradiction and alienation of youth identity. For example, when travelling on the plateau, one has to take a step by sucking in a mouthful of oxygen, but what is posted in the circle of friends is “always free”; when camping, one has to take a step by sucking in a mouthful of oxygen. For example, when travelling on the plateau, one has to take a step by inhaling a mouthful of oxygen, but one’s circle of friends posts “always free”; when camping, one encounters strong winds and a mess, but one’s circle of friends posts “the sun is just right, the breeze is not dry”. This phenomenon is the product of identity tearing under the collision of reality and virtual, when the online image of social media contradicts with the real-life self, the youth group can not help but fall into the prison of “self-pulling”, which leads to the breakage of self-identity, resulting in the crisis of self-identity^[1]. Despite the flexibility of identity construction in social media, young people still need to face the concrete social roles and responsibilities in real life, and this transition between reality and the virtual world may exacerbate the uncertainty of identity.

2.2 Identity fluidity and instability

The fragmentation and diversification of social media may easily lead to the fragmentation of youth identity. Internet fashion trends are diverse and change rapidly at different times, which makes it difficult for youth groups to maintain long-term stability in the process of forming their identities^[4]. Young people may use different buzzwords in different contexts according to their own circles, thus promoting diversified identities. However, it may also lead to anxiety in the identity process of youth groups. The rapid change of different linguistic symbols in social media leads to the lack of stability of self-perception of youth in the process of using them, which may easily lead to changes in identity. Youth display different self-orientation for different social circles. Although the mobility and plasticity of identity provide youth with multiple opportunities to explore their identity, the digital context makes identity symbols fluid, and the fluid identity space leads to ambiguity in identity positioning.

2.3 Prominence of Consumer Identity

Driven by the commercial logic of platforms, consumption has gradually become an important way for youth to express their identities. By buying trendy brands, using popular products, and “sunning their lives” on social media, young people use consumption behaviour to show off their individuality and social status. Consumption has become an important symbol for young people to show themselves and obtain group identity. However, the consumerised identity tends to cover up the real value of the youth, making them externally labelled, and even falling into the trap of comparison and utilitarianism. However, the formation of digital identity is not entirely determined by the subjective will of individual youth. The technical characteristics of social media platforms and the precise mechanism of algorithmic recommendation have a subtle influence on the behavioural choices and identity shaping of young people. These objective factors interact with the subjective initiative of young people to influence their digital identity. Technological features give digital identities a variety of presentation forms and a wide range of dissemination channels, while the algorithmic recommendation mechanism pushes customised information and services based on users’ specific behaviours and preferences, further highlighting the personalisation of digital identities.

Virtual reality and social media have jointly shaped the digital landscape of modern production society, and the rise of digital communities has enabled others to give individuals a concrete presentation of the landscape, which affects the individual’s perception of the real society and self-image, and thus further influences the construction of social relations. Youth is a critical stage of identity exploration, during which individuals are particularly concerned about their position in social groups. For example, young users who often swipe on brand-name products and high-end restaurants in social media may subconsciously influence their values, leading to a surge in material needs. Young people compare the “high-end” group with themselves,

showing their dissatisfaction with their own economic income and living status quo. The false prosperity of consumerism is constantly spread through the media, constructing an illusory and manipulated collective cognition, and the shaping of the mimetic environment creates identity anxiety among young people. Therefore, driven by the wave of consumer culture and diversified role-playing, young people are no longer satisfied with the function of image transmission, but regard social media as a performance tool, and make use of social media as a broad stage for social performances of digital impression management. The illusory and superior personal image created in “refined” social media seems to be a necessity for youth groups to fit in in the digital world, and the number of likes and comments in social media such as Jieyin and Weibo has become the basic basis for defining the popularity of an individual among others ^[3]. In this process, young people may overindulge in the “prefabricated” “images” in the circle of friends, focusing too much on their performance in the circle of friends to the neglect of real-world connections and experiences, leading to the formation of a chaotic perception of identity in the youth group.

3.Strategies for reconstructing youth identity in social media

3.1 Youth Consciousness: Shaping Positive Identity in Social Media

In the contemporary society with high penetration of social media, youth groups are not only the main creators of network culture, but also a sensitive group with identity crisis. In the face of the diversity and complexity of information, young people must gradually develop a sense of self-awareness in the process of identity construction, and take the initiative to assume the responsibility of shaping a healthy identity. For one thing, young people need to realise that the recommendation mechanism of social media platforms is not completely neutral, but is based on the commercial logic of content distribution. Only with a certain degree of media literacy can they remain critical when acquiring information and avoid falling into identity homogenisation and value parochialism. Social media is full of fragmented, entertaining and even false information, and without basic media judgement, it is easy to fall into blind obedience and identity loss. Therefore, young people need to take the initiative to learn about the media, and have the ability to check the authenticity of information, understand the logic of communication and analyse the value orientation, so as to avoid being swayed by bad information. Secondly, young people should be good at balancing self-expression and value practice in social media, and have more space for self-expression on the Internet, but idealised “personas” cannot completely replace real-life self-worth. Young people need to learn to maintain tension and balance between their virtual and real identities, so as to avoid falling into the “ideal self” for a long time and creating a psychological gap. In the context of identity mobility and diversification, young people need to develop core values that can withstand external shocks through learning, practice and self-reflection. For example, a sense of social responsibility, family and national identity, and career goals can provide individuals with a relatively stable self-orientation. In addition to self-presentation, they should pay attention to the precipitation of inner values, and endeavour to keep their online identities in line with their real identities, so as to reduce the discrepancy between “virtual reality” and “reality”. In this regard, young people should give full play to their initiative, look at the impact of technology on individual cognition in a dialectical manner, and seek online identity on the basis of the reality as the main space for development, so as to cultivate the subjective idea of “guest self” and return to the self.

3.2 Platform responsibility: creating a digital ecosystem conducive to youth identity construction

Social media platforms play an important role in the construction of youth identity. Young people need a platform space to express their individuality and display their multiple identities. For one thing, platforms should avoid overly homogenised and homogenised content delivery mechanisms and give users multiple opportunities for expression. For example, by optimising the algorithmic recommendation mechanism and adding the function of “interest expansion”, the platform can help young people break out of the existing information circle and extend their self-identity in a broader context. While pursuing traffic and capital, platforms should also consider shaping public nature and assuming social responsibility as the core values of their operations. Platform algorithms often push highly customized content through user profiles and behavioural preferences, which to a certain extent strengthens stratified identity, but also leads to cognitive limitations and value deviations. Platforms should optimise technology to avoid users falling into overly closed opinion spaces. For example, they should encourage cross-circle content recommendation and introduce public discussions on diversified topics, so that young people can form

a more open and stable identity in a more diversified information environment. Secondly, platforms should continuously optimise their own mechanisms, gradually introduce anti-dependency systems for youth, and promote the construction of public values for digital platforms, so as to lay a solid foundation for the harmonious coexistence of platforms and society, in order to ensure that the direction of their development is compatible with the well-being of young people and even society as a whole. Social media platforms are not only a tool for information dissemination, but also an important field for the construction of social values. During the critical period of youth identity formation, platforms should assume certain social responsibilities. By strengthening the promotion of positive content, highlighting the multi-faceted coverage of public issues, and restricting the dissemination of false and extremist information, platforms can subconsciously help young people build positive social identities and civic awareness.

The social media platform is not only a carrier of youth identity, but also an important influence on identity crisis and reconstruction. It can not only promote youth to achieve diversified self-expression and social participation, but also may exacerbate identity dilemmas due to factors such as algorithms, consumerism and virtualisation. Therefore, platforms need to explore the optimisation of technology, value guidance, psychological care and the construction of public space, so as to achieve a balance between commercial interests and social responsibility, and thus become a real facilitator for the positive construction of youth identity.

3.3 Educational Leadership: Cultivating a Healthy Youth Identity in the Media Environment

Education must proactively adapt to changes in the media environment, not only to develop young people's ability to use the media critically, but also to provide support in terms of values, mental health and pluralistic expression, so as to help them form a healthy, stable and positive identity in the complex online environment. For one thing, it is necessary to pay more attention to social media and deepen our understanding of youth identity trends. Government departments, schools and others should constantly strengthen the study of Internet buzzwords, and understand the ideology of youth groups from time to time. Guide them to recognise the dual attributes of social media: as a platform for self-expression, but also as a source of false information, excessive comparison and identity anxiety. Foster the ability of young people to be able to sift, judge and integrate massive amounts of information, and avoid being manipulated by representations and fragmented information. Second, education should incorporate media literacy into the curriculum system to help young students improve their ability to discern virtual information, think critically and express themselves rationally. In the age of social media, young people are more vulnerable to the impact of multiculturalism and consumerism, so education needs to play the function of "orientation" and provide them with stable value anchors. Youth should be guided to build up self-confidence, self-esteem and a sense of social responsibility through curriculum ideology, thematic education and campus culture. School education should strengthen the cultivation of correct values and collective identity in the curriculum and activities. Encourage students to express themselves in diverse ways inside and outside the classroom through new media works, short videos and online discussions. Instead of being passively "moulded" by social media, young people should be allowed to diversify and actively construct their identities in a positive educational context. Promote the combination of psychological education and media literacy education to help youth understand the difference between virtual and real identities and form a healthy self-identity.

4. Conclusion

In the fast-changing information environment, social media play the roles of communication, identity and criticism, and can show the values of contemporary youth, which is an important carrier of youth cultural identity. In the process of using social media, based on its unique language form and communication mechanism, youth groups construct identity in the combination of virtual space and real space, reflecting the cultural adaptation in the face of social development. However, in the face of the challenges posed by social media, all parties should take various measures to clarify the long-term impact of social media on youth identity, and guide young people to build a stable and healthy identity in a diversified environment.

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Security Cooperation of Global South Energy Supply Chain under the BRICS Framework ——Take Arab Countries as An Example

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Abstract: The expansion of BRICS contributes to the South-South cooperation of energy supply chain security in the southern countries of the world. The new members of BRICS in Arab countries are not only important consumers of energy demand in China, but also important countries of resource supply. Oil exports are dominant, which forms a complementary pattern with the energy demand of BRICS members. Deepening the participation of Arab countries in the global energy governance system is conducive to stabilizing the safe supply of resources in the energy supply chain, and can also create a diversified and resilient South-South cooperation network for the countries in the south of the world that are “warming up”. In the short term, under the geopolitical risk characterized by traditional political and military security and the green energy technology security environment characterized by technological innovation, the opportunities and challenges of energy supply chain cooperation in southern countries of the world coexist. To build a three-dimensional South-South cooperation on BRICS-Arab countries’ energy supply chain security, it is necessary to achieve synergy and cooperation among BRICS-Arab countries from the aspects of trade, transportation, logistics, investment and financing, technological innovation and system construction, make use of the means and mechanisms such as strengthening the connection between energy production and consumption, improving the financial and settlement payment systems, and strengthening the coordination of technical standards among countries in the south of the world, so as to build a stable, safe and sustainable new ecology of South-South cooperation in the multi-symbiotic energy supply chain of countries in the south of the world.

Keywords: BRICS Cooperation; Arab Countries; Global South Energy Supply Chain

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1.Introduction

The traditional international environment of oil and gas energy security governance has changed, and the geopolitical risks of American protectionism, unilateralism and “rising to the east and falling to the west” have reshaped the security guarantee ability of the global energy supply chain. Developing countries have to rely on the export advantages of oil and gas in the global value chain because they have been placed in the “second-and third-rate” position of the global energy international system for a long time. The expansion of BRICS brings new hope to solve the above difficulties. The introduction of Arab countries such as Saudi Arabia, United Arab Emirates and Iran has greatly enhanced the influence and role of BRICS in the global energy structure. The oil and gas resources and mature industrial model in the Arab region make China, the world’s

largest importer of oil and gas resources, and India and other countries within the BRICS framework more complementary. At present, there are many studies on Arab countries' participation in BRICS overall energy cooperation, but the research on its role and cooperation practice in energy security supply chain is still scarce, and its institutional mechanism and attitude towards BRICS construction are also lacking in full description. Studying the theoretical mechanism and practice mode of Arab countries' participation in BRICS energy security supply chain cooperation will help to promote the formation of a more just and reasonable international energy security governance system, which is of great benefit to this research.

2.Cooperation Mechanism of Energy Supply Chain in Arab Countries under the BRICS Framework

2.1 Multi-level governance structure and coordination mechanism

Arab countries' energy cooperation under the BRICS framework has established a multi-level governance framework at the government level, enterprise level and technical level, and adopted institutional arrangements for collaborative governance^[1]. At the government level, the BRICS Energy Ministers' Meeting established an intergovernmental governance mechanism for Arab countries to participate in policy-level coordination. The consensus on building new industrial revolution partners and industrial chain supply chain cooperation put forward by the BRICS Industry Ministers' Meeting held in 2024 was widely supported, and Arab countries actively responded to the establishment and promotion of relevant initiatives. At the enterprise level, the Energy Working Group of the BRICS Business Council has absorbed large Arab energy companies such as Saudi Aramco and Adnock in the United Arab Emirates, and used regular dialogue and cooperation among enterprises to promote industrial cooperation projects. On the technical level, the BRICS New Development Bank has set up an energy project evaluation committee to provide financing facilities for clean energy-related projects that Arab countries participate in. By the end of 2022, the clean energy investment provided by the BRICS New Development Bank has reached more than 3 billion US dollars, so the BRICS multi-level governance can provide an intermediate link between the top-level design and specific projects for Arab countries' energy cooperation, and ensure the effectiveness and sustainability of cooperation from the technical and financial aspects.

2.2 Trade facilitation and payment system innovation

Arab countries and BRICS countries have made many achievements in the fields of payment and settlement, trade facilitation, economic and trade cooperation and innovation, which laid the foundation for further improving the cooperation mechanism of energy supply chain in the future^[2]. The crude oil trade between China and Saudi Arabia was settled in RMB, which opened the way to get rid of the US dollar settlement system. The direct exchange rate between the UAE dirham and RMB officially started, making the settlement of oil and gas trade between the two sides more convenient. In the face of US sanctions, Iran has established a barter exchange and local currency settlement mechanism with China and India, and maintained a certain amount of oil and gas exports. BRICS countries began to try to build a unified payment system to reduce their dependence on the SWIFT system. Russia put forward the idea of the BRICS payment system during the Kazan BRICS Summit in 2024 and received enthusiastic feedback from Arab member States. In addition to innovation in payment, countries have formulated facilitation mechanisms for customs clearance, quality inspection, conflict handling and other fields. The United Arab Emirates launched a "one-stop" comprehensive platform for energy trade, which can comprehensively handle customs declaration, inspection, insurance and other services, effectively improving trade convenience.

2.3 coordinated industrial development and value chain reconstruction

As an important member of the BRICS, Arab countries have contributed to the establishment of a more equal, balanced and coordinated global energy industry chain^[3]. For example, in the petrochemical industry system, Saudi Arabia's rich light crude oil resources were used to cooperate with petrochemical enterprises in China to implement large-scale refining and chemical integration projects with world-class standards, which promoted the cooperation of the whole industry chain; For another example, in the petrochemical industry system, the UAE has established a free zone to attract BRICS enterprises to establish local oil storage and transportation centers, and realize the development of the energy "production, supply, storage and sales" system for Asia and Africa; For another example, in the petrochemical industry system, Iran has built an oil transit corridor connecting Central Asia, South Asia and the Middle East by virtue of its unique geographical advantages, providing

new energy export channels for BRICS countries such as Russia and India; In terms of new energy, we will make full use of the unique solar and wind energy resources in Arab countries and cooperate with Chinese enterprises to develop new clean energy on a large scale. For example, the green hydrogen project of NEOM New Town in Saudi Arabia is expected to produce 1.2 million tons of hydrogen annually, which will serve the global hydrogen industry.

3.The practice mode of Arab countries participating in the BRICS energy supply chain

3.1 Differentiated market positioning and competitive strategy

The Arab countries in BRICS mainly give full play to their own resource advantages and use local market conditions to obtain corresponding market positioning and competitive position ^[4]. Saudi Arabia takes advantage of its super-large production capacity and reserves, positioning itself as a “stable supplier” in the market, signing stable long-term contracts to ensure major customers, and providing stable energy supply guarantee for BRICS countries. The supply of the 20-year long-term supply agreement signed with China has remained at a stable level of 85 million tons, and the long-term cooperation with India has reached 40 million tons every year; With its strategic location and supporting infrastructure, the United Arab Emirates is positioned as an “energy trade center”. In addition to exporting its own crude oil and natural gas, it also provides entrepot trading and storage services for crude oil and natural gas from other Middle Eastern countries. The port of Fujairah in the United Arab Emirates has become the most important spot trading center for petroleum products in Asia. Iran, on the other hand, supplies oil in the form of “flexible supplier”, adopts a relatively flexible way at a lower price, maintains oil and gas trade relations with BRICS countries under sanctions, and implements the mode of “supply first, then pay” for China’s oil exports, thus avoiding financial sanctions.

3.2 Technical cooperation and industrial upgrading model

Arab countries also use technology introduction to promote the transformation and upgrading of domestic energy industry and increase the added value of technology for the energy commodity chain ^[5]. Aramco of Saudi Arabia and China’s petroleum technical service enterprises jointly set up a research and development center to develop higher-performance drilling technology and more advanced downhole technology according to the characteristics of oilfields in the Middle East, such as high temperature, high pressure and high salinity, which promoted the exploitation of Saudi oil fields and enhanced the support capacity of similar projects in other BRICS countries. The UAE has made progress in the integration of seawater desalination and oil exploitation, and the developed “zero emission” oilfield exploitation technology has been exported to Russia, Brazil and other BRICS countries. Iranian and Russian enterprises have cooperated closely in the cooperative research and development of natural gas liquefaction technology, and the jointly developed small transportable LNG equipment has been used in Iran’s South pars gas field, making gas transportation more convenient and economical. Arab countries cooperated with China enterprises to build an advanced intelligent oilfield management system, and applied Internet of Things technology and artificial intelligence technology to well control and intelligent maintenance of the oilfield, so as to realize remote monitoring of the oil well and timely predict the failure of underground facilities, effectively saving the operating cost of the oilfield and improving the production efficiency of the oilfield.

3.3 Green transformation and sustainable development practice

Arab countries actively explore energy transformation within the framework of the BRICS mechanism, develop and utilize clean energy to improve energy efficiency, and make contributions to building a high-quality BRICS energy supply chain. Saudi Arabia is implementing “Saudi Vision 2030”, and it is planned that the installed capacity of renewable energy in Saudi Arabia will reach 58.7 GW in 2030. The Red Sea New Town built by China Company is completely powered by renewable energy, becoming a global benchmark example of renewable energy application; The UAE has the closest cooperation with Russia in the field of nuclear power and energy development. Baraka nuclear power plant has been put into operation, providing clean electricity for the Middle East, and has also cooperated with India in the field of offshore wind power. The designed installed capacity of this project is 2 GW; Iran is relying on its rich natural gas resources to vigorously develop natural gas power generation instead of oil power generation. The overall efficiency of the combined cycle power station built in cooperation with Chinese enterprises has reached 62%, which has an important demonstration role in improving utilization efficiency; In terms of technical development of CCUS, Arab countries have cooperated with countries with developed

technical level among BRICS members. For example, the disposal capacity of Saudi Aramco carbon capture project has reached 1.5 million tons/year, which has laid a good foundation for the low-carbon development of oil exploitation methods.

4. Optimize the path of BRICS-Arab energy supply chain security cooperation

4.1 To build a diversified supply guarantee mechanism

Build a BRICS-Arab energy supply chain security cooperation mechanism, set up a multi-node and multi-path security framework, and rely on the diversification of supply sources, transportation routes and coordination of reserve mechanisms to increase the flexibility of the entire energy supply chain and ensure safety and stability. Diversification of supply sources is to ensure that China, Indian and other major energy consuming countries maintain stable and safe energy supply relations with many Arab oil-producing countries with diversified sources, and reduce the fragility of supply. Floating price mechanism and flexible contract relationship are helpful to improve the ability of supply to cope with changes. Diversification of transportation routes is to build a diversified pipeline transportation and railway transportation network on the basis of traditional maritime transportation. China-Pakistan Economic Corridor, China-Russia East Line natural gas pipeline and other projects are alternative supply routes for BRICS pipelines and other facilities. The coordination of reserve mechanism is mainly the synchronization and coordination of strategic oil reserves and natural gas reserves in various countries. The coordination and sharing of reserves can increase the resilience of BRICS energy supply chains, improve the effectiveness of dynamic market supply, establish an early warning system for supply chains, build intelligent and networked data analysis and decision-making capabilities, and use big data and artificial intelligence technologies to identify potential risks and formulate adjustment plans. According to the characteristics of its own geographical location, the Arab region will build a regional energy reserve and transshipment center to provide buffering and adjustment functions for the entire BRICS energy supply chain.

4.2 Deepening the coordination of technological innovation and standards.

Strengthening the coordination of key technologies and standards of BRICS-Arab energy supply chain is the direct driving force to promote the competitiveness of BRICS-Arab energy supply chain. We should make efforts to promote joint technical innovation, standard coordination and personnel training of BRICS countries, improve the overall technical level of BRICS countries, and form a coordinated standard system and personnel training mechanism. At the level of joint technological innovation mechanism, we will build a BRICS-Arab energy technology innovation alliance, carry out joint technological research in emerging fields such as ocean engineering, shale gas exploitation, hydrogen energy production, energy storage technology, etc., reduce the input cost of technology research and development by means of technology sharing, and accelerate the transformation process of technological achievements; Standardize the working mechanism, build a BRICS energy technical standard system, set unified technical standards in equipment interface, safety and environmental protection, reduce technology docking costs and improve interoperability; On the aspect of personnel training mechanism, the BRICS University Alliance should be established to implement joint personnel training projects in the fields of energy engineering, petrochemical industry and new energy, so as to provide sufficient intellectual resources for the implementation of energy cooperation; At the level of digital transformation, we will build a BRICS digital energy system, and rely on blockchain, Internet of Things, big data and other technologies to implement digital management of energy trading, energy logistics and energy quality. Arab countries can make use of their investment advantages in new energy, jointly build new energy R&D centers with China and India, and increase the transformation and promotion of new energy technologies such as solar energy and wind power generation technology.

4.3 Improve the financial payment and risk management and control system.

Improve the financial payment system and provide institutional guarantee for deepening BRICS-Arab energy cooperation. In order to ensure the sustainable cooperation, it is necessary to use diversified payment mechanisms, risk sharing mechanisms, supervision and coordination mechanisms to reduce transaction costs. To build a diversified payment mechanism, BRICS countries should speed up the establishment of a unified payment system, establish a payment system independent of SWIFT, achieve direct currency exchange settlement among BRICS countries, and reduce dollar dependence. The establishment of BRICS energy cooperation insurance fund can realize the investment risk sharing of BRICS energy cooperation, establish a

risk dispersion mechanism and improve the confidence of BRICS investors in energy cooperation. It is suggested to set up the BRICS Financial Supervision Coordination Committee to unify the regulatory standards and compliance requirements of cross-regional investors, simplify the approval process and improve the regulatory efficiency. In addition, a carbon trading market alliance should be established to bring clean energy projects in Arab countries into a unified carbon trading market and use financial mechanisms to promote clean energy investment. At the same time, it is suggested that the BRICS New Development Bank expand its capital and set up an energy cooperation fund to provide long-term low-interest loan funds for transnational energy infrastructure cooperation projects. Countries strengthen macroeconomic policy coordination and adopt joint monetary and fiscal policy measures to maintain exchange rate stability and reduce the impact of financial market fluctuations on energy cooperation.

5. Conclusion

BRICS' global southern energy supply chain security cooperation is facing a rare development opportunity, and the active participation of Arab countries has added new kinetic energy and new impetus to BRICS cooperation. Countries in the Arab region take advantage of the comparative advantages of resources, the interconnection of infrastructure and the coordination of technical standards to participate in the security cooperation of BRICS energy supply chain. Under the current geopolitical risks, regulatory differences between standards and technical systems, and the constraints of infrastructure interconnection, countries need to adopt innovative institutional arrangements, coordinate technological innovation, promote the harmonization of standards, and improve the organization and coordination of cooperation mechanisms to solve the above problems. Establishing a multi-supply security and guarantee mechanism, strengthening the system construction of technical innovation and standard coordination, and improving the system construction of financial payment security and risk prevention can provide a path for establishing and improving the security cooperation between BRICS and Arab energy supply chains. With the global energy transformation and the development of South-South energy cooperation, the energy cooperation between BRICS and Arab region has the ability to build a new global energy governance system. The BRICS-Arab cooperation has provided the world with a path choice to deal with global energy security and sustainable development.

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The Relationship between Career Decision-Making Difficulties and Employment Anxiety Among College Students

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Abstract: Purpose: To explore the relationship between career decision-making difficulties and employment anxiety among college students in a 'Non-Double' college in Shaanxi Province, and to provide reference for college graduates' career choice and mental health interventions. Methods: In this study, 400 graduates from a 'Non-Double' comprehensive university in Shaanxi Province were surveyed, and the Career Decision Difficulty Scale (CDDQ) and Employment Anxiety Scale (EAQ) were used to investigate the graduates' career decision difficulty level and employment anxiety level. Results: The total score of CDDQ was 106.20, and the EAQ score was 35.62; career decision-making difficulties were positively correlated with employment anxiety ($r = 0.628$, $P < 0.01$); regression analysis showed that career decision-making difficulties had a significant effect on employment anxiety, with a regression coefficient of 0.59 ($P < 0.01$). Among the factors of career decision-making difficulties, the lack of preparation and the contradiction of multi-party conflicts could significantly affect employment anxiety, with regression coefficients of 0.21 and 0.42 ($P < 0.01$), respectively. Conclusion: The career decision-making difficulties of graduates from a 'Non-Double' university in Shaanxi Province are at a high level, and employment anxiety is at a moderate level; the more career decision-making difficulties they face at graduation, the higher the level of employment anxiety.

Keywords: Graduates; Difficulty in Career Decision-Making; Employment Anxiety

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1. Introduction

Employment anxiety refers to the cognitive changes of incompetence, low self-esteem, etc., the emotional reactions of worry, fear and regret, and the corresponding changes in physiological functions produced by individuals when facing employment^[1]. The report of the 19th National Congress of the Communist Party of China pointed out that employment is the biggest livelihood, and employment has always been a social concern. The number of college graduates in China is projected to reach 12.22 million in 2025, coupled with the imbalance between supply and demand in the job market, which has increased the difficulty of college students' employment. More and more college students have employment anxiety problems, which seriously affects the physical and mental health of college students. Therefore, the study of factors influencing college students' employment anxiety has become an important topic for its prevention and control.

Difficulties in career decision-making refer to the difficulties that individuals may encounter in making career decisions,

such as lack of career planning, difficulties in exploring career information, etc., which may prevent individuals from making decisions and lead to decisions that are not optimal^[2].

Research on career decision-making difficulties and employment anxiety has found that the career decision-making difficulties of college students in local undergraduate colleges and universities are generally at a moderate to high level^[3]. Junior and senior students showed ‘some anxiety’ about employment^[4]. There are few studies on the relationship between college students’ career decision-making difficulties and employment anxiety. Li Jiagen^[5]concluded that there is a positive correlation between career decision-making difficulties and employment anxiety among graduates of some double first-class colleges and universities. However, with the continuous expansion of colleges and universities, the employment market is in the state of imbalance between supply and demand, and the gap between the undergraduate education resources of ‘non-dual’ colleges and universities and double first-class colleges and universities has led to the uneven distribution of employment resources, and a large number of high-quality employment opportunities are tilted to the graduates of double first-class colleges and universities. Undergraduates of ‘Non-Double’ universities often face greater pressure when seeking jobs during the graduation season^[6].

To sum up, this paper takes a ‘Non-Double’ university in Shaanxi Province as an example to discuss the relationship between career decision-making difficulties and employment anxiety, and puts forward relevant suggestions to alleviate the degree of employment anxiety of such university students due to career decision-making difficulties.

2.Object and Methods

2.1 Object

In this study, from March 8, 2024 to March 15, 2024, stratified whole cluster sampling method was used to divide all the colleges of a comprehensive university in Shaanxi Province into 4 strata of liberal arts, science, engineering, arts and sports according to the types of majors, and 2 colleges were selected in each stratum respectively by using the method of random number table, and in each college, 2 or 3 classes were selected by the method of convenience sampling, and all the fourth-year Undergraduate students as the survey object for the questionnaire survey, a total of 400 questionnaires were distributed, and 333 valid questionnaires were recovered, with an effective recovery rate of 83.25%. The survey was conducted anonymously and informed consent was obtained from the students.

2.2 Tools

2.2.1 General information questionnaire

The general information questionnaire includes gender, major, whether they have found a job, whether they are an only child, and where their family lives. From Table 1, it can be seen that there are more female students than male students, accounting for 71% of the total number of investigators, this is because the subject institutions belong to the textile and clothing universities, female students accounted for a larger proportion and the largest number of arts and sports, in which the arts and sports students accounted for 57% of the total number of subjects, followed by engineering and liberal arts, accounting for 22% and 16% respectively, and the science subjects have the smallest number of students, accounting for only 5% of the total number of investigators. In terms of work status, the proportion of students who have not found a job is 38%, it can be seen that university graduates are facing difficulties in employment. In terms of family residence, there were 187 urban university students, accounting for 56 percent, and 146 rural university students, accounting for 44 percent of the total. Of these, 100 were only children and 233 were not, accounting for 30 percent and 70 percent of the total respectively.

Table 1 Basic information about participants (n=333)

demographic variables	number	proportion (%)
gender		
Male	97	29
Female	236	71
major		

demographic variables	number	proportion (%)
Liberal arts	54	16
Science	18	5
Engineering	73	22
Arts and sports	188	57
Whether they have found a job		
Yes	206	62
No	127	38
whether they are an only child		
Yes	100	30
No	233	70
where their family lives		
Urban	187	56
Rural	146	44

2.2.2 Career Decision-making Difficulties Questionnaire, CDDQ^[7]

The Career Decision-making Difficulty Questionnaire developed by Li Na was used to measure the career decision difficulty of university graduates. The questionnaire consists of 35 items, divided into three sub-scales: lack of preparation, difficulty in information exploration, and multiple conflicts and contradictions. The questionnaire uses a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). Score range: When the total score for career decision-making difficulties exceeds 100, the level of career decision-making difficulties is considered high. The higher the score, the greater the difficulties an individual faces in the career selection process^[7]. In the Career Decision-Making Difficulty Scale, the sub-scales for lack of preparation ($\alpha = 0.907$), difficulty in information exploration ($\alpha = 0.862$), and multiple conflicts and contradictions ($\alpha = 0.906$) all exhibit good reliability. The overall scale ($\alpha = 0.958$) also demonstrates good reliability.

2.2.3 Employment Anxiety Questionnaire, EAQ^[8]

The questionnaire developed by Ren Huajuan in 2010 on university students' employment anxiety was used to measure employment anxiety among university students. The questionnaire consists of 15 items, divided into two sub-scales: physiological and behavioural aspects of employment anxiety and subjective perceptions of employment anxiety. It demonstrates good reliability ($\alpha = 0.963$). The questionnaire uses a 4-point Likert scale ranging from 1 (completely disagree) to 4 (completely agree). Scores are interpreted as follows: scores below 23 indicate low anxiety; scores between 23 and 38 indicate moderate anxiety; scores above 38 indicate severe anxiety. Higher scores indicate higher levels of employment anxiety^[8].

2.3 Statistical Analysis

Data were entered using Excel software and analysed using SPSS 23.0 software, including descriptive statistical analysis and Pearson correlation analysis to examine the correlation between the total score and each dimension of employment anxiety and the difficulty of career decision-making and each sub-scale. Using the dimensions and total score of employment anxiety as dependent variables, the sub-scales and total score of career decision-making difficulties as independent variables, and general demographic information as control variables, a multiple linear regression analysis was conducted. The statistical significance level was set at $\alpha = 0.05$.

3.Results

3.1 Descriptive statistics

The descriptive statistical analysis results of the scores for each factor related to career decision-making difficulties among college students are shown in Table 2. As shown in Table 2, the total score for career decision-making difficulties was 106.20 points, which is higher than 100.00 points, indicating that college students' career decision-making difficulties are generally at a relatively high level; The scores for the three sub-scales: lack of preparation, difficulty in information exploration, and conflicts with multiple parties-were 35.77, 36.42, and 34.03, respectively, all exceeding 30.00 points. This suggests that the primary challenges university students face in career selection include insufficient career-related preparation, limited access to career-related information channels, and conflicts or disagreements with family members and friends during the decision-making process^[7].

Table 2 Descriptive statistical analysis of career decision-making difficulties among college students (n=333)

	M	SD
Lack of preparation	35.77	9.13
Difficulty in information exploration	36.42	8.23
Multiple conflicts and contradictions	34.03	8.65
Total table	106.20	24.54

The descriptive statistical analysis results of university students' employment anxiety scores are shown in Table 3. As shown in Table 3, the participants' total employment anxiety score was 35.62, ranging from 23 to 38, indicating that the employment anxiety level of graduates from this university is moderate^[8]. This means that university graduates from this institution may experience physiological reactions such as dizziness, nausea, poor sleep quality, loss of appetite, inability to concentrate on a task, irritability, and constipation when seeking employment. Additionally, subjectively, they may feel overwhelmed, anxious, irritable, confused, and mentally disorganised when thinking about employment.

Table 3 Descriptive statistical analysis of employment anxiety among college students (n=333)

	M	SD
Total employment anxiety score	35.62	11.55
Physiological behaviour related to employment anxiety	17.40	6.59
Subjective feelings related to employment anxiety	18.22	5.44

3.2 Variable correlation analysis

The results of the person-related analysis are shown in Table 4. From the perspective of the total score of the career decision-making difficulty questionnaire and the total anxiety score and its various dimensions, the total score of career decision-making difficulty was positively correlated with the physiological behaviour, subjective feelings, and total anxiety score of employment anxiety ($P < 0.01$). When examining the relationship between the sub-questionnaires of career decision-making difficulties and the total score of employment anxiety as well as its various dimensions, lack of preparation was positively correlated with the total score of employment anxiety, physiological behaviour of employment anxiety, and subjective feelings of employment anxiety; Information exploration difficulties are positively correlated with employment anxiety physiological behaviour and employment anxiety subjective feelings; Multiple conflicts and contradictions are positively correlated with the total employment anxiety score, employment anxiety physiological behaviour, and employment anxiety subjective feelings ($P < 0.01$). This indicates that career decision-making difficulties among university students are related to employment anxiety. By preparing adequately for job searches, gaining a comprehensive understanding of career information, and resolving conflicts and contradictions, it is possible to reduce the level of employment anxiety among university students.

Table 4 Correlation coefficient between career decision-making difficulties and employment anxiety among college students
($n = 333$)

	Physiological behaviour related to employment anxiety	Subjective feelings related to employment anxiety	Total employment anxiety score
Lack of preparation for the questionnaire	0.589**	0.567**	0.604**
Information Exploration Difficulty Questionnaire	0.529**	0.529**	0.551**
Multiple conflicts and contradictions questionnaire	0.592**	0.597**	0.620**
Total score for career decision-making difficulties	0.605**	0.599**	0.628**

* $P < 0.05$, ** $P < 0.01$

3.3 The Relationship Between Career Decision Difficulties and Employment Anxiety

Using the dimensions and total scores of employment anxiety as independent variables, and the general characteristics of the study subjects (gender: 1=male, 0= female; whether an only child: 1=yes, 0=no; major: 1=liberal arts, 2=science, 3=engineering, 4=arts and sports; residential area 1=urban, 0=rural) as control variables; lack of preparation, difficulty in information exploration, multiple conflicts and contradictions, and total scores for career decision-making difficulties were all entered as independent variables in their original values for multiple linear regression analysis. Model 1 tested the relationship between total scores for career decision-making difficulties and physiological and behavioral aspects of employment anxiety; Model 2 tested the influence of each dimension of career decision-making difficulties (lack of preparation, difficulty in information exploration, and multiple conflicts and contradictions) on physiological and behaviour aspects of employment anxiety; Model 3 examines the relationship between the total score of career decision-making difficulties and employment anxiety; Model 4 examines the impact of lack of preparation, difficulty in information exploration, and multiple conflicts on the subjective experience of employment anxiety; Model 5 examines the relationship between the total score of career decision-making difficulties and the total score of employment anxiety; Model 6 examines the impact of lack of preparation, difficulty in information exploration, and multiple conflicts on the total score of employment anxiety. The results indicate that lack of preparation, multiple conflicts and contradictions, whether one is an only child, whether one has found employment, and the type of major have a certain impact on employment anxiety.

As shown in Table 5, the total score for career decision-making difficulties is positively correlated with the physiological behaviour of employment anxiety, the subjective experience of employment anxiety, and the total score for employment anxiety, with regression coefficients of 0.63, 0.61, and 0.59, respectively ($P < 0.01$). The higher the total score for career decision-making difficulties, the higher the level of employment anxiety.

From the perspective of various dimensions of career decision-making difficulties, there is a positive correlation between lack of preparation, multiple conflicts and contradictions, physiological behaviors associated with employment anxiety, subjective feelings of employment anxiety, and total employment anxiety scores. That is, when looking for a job, the less prepared one is, the higher the level of employment anxiety; when faced with career choices, the more conflicts and contradictions one encounters, the higher the level of employment anxiety.

In addition, from the perspective of personal characteristics, whether one is an only child, whether one has found a job, and the type of major all have a significant impact on employment anxiety physiological behaviour, subjective feelings of employment anxiety, and total employment anxiety scores. Among the types of majors, arts and sports students have higher levels of employment anxiety than liberal arts graduates.

Table 5 Multivariate linear regression analysis of career decision-making difficulties and employment anxiety among college students ($n = 333$)

	Physiological behaviour related to employment anxiety		Subjective feelings related to employment anxiety		Total employment anxiety score	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Total score for career decision-making difficulties	0.63**		0.61**		0.59**	
Lack of preparation		0.27**		0.31**		0.21**
Information Exploration Difficulty		-0.01		-0.01		-0.00
Multiple conflicts and contradictions		0.40**		0.34**		0.42**
gender	-0.02	-0.03	-0.01	-0.00	-0.06	-0.06
Whether an only child	-0.10*	-0.11*	-0.10*	-0.11*	-0.10*	-0.11*
Whether has found an job	-0.15**	-0.16**	-0.11**	-0.13**	-0.18**	-0.19**
major (liberal arts as a reference)						
Science	0.05	0.047	0.07	0.07	0.03	0.02
Engineering	0.00	0.00	0.04	0.03	0.04	0.04
Arts and sports	0.12*	0.12*	0.13*	0.13*	0.10	0.10
Residence	0.03	0.04	0.07	0.07	0.01	0.01
R ²	0.45	0.46	0.41	0.43	0.42	0.44
F	21.51	74.41	18.69	16.78	19.41	17.68

*P < 0.05, **P < 0.01

4. Discussion

The results of this study indicate that college students generally experience a high level of difficulty in making career decisions, which is consistent with the findings of domestic studies^[9]. When faced with career decisions, college students lack preparation due to unclear self-identity and insufficient understanding of career information^[10]; College students encounter difficulties in information exploration, which may be due to the significant impact of the economy on various industries, the time required for industry recovery, and the uncertainty of corporate hiring scales, leading to college students being unable to obtain sufficient and accurate social environment information. Additionally, the job search process requires the collection of a large amount of information, which inevitably results in the acquisition of a certain amount of unreliable information, hindering college students from making decisions^[11]. In terms of conflicting interests, differences in opinions with family members are also a reason why graduates face difficulties in career decision-making.

The employment anxiety of graduates from this university is at a moderate level, indicating that university graduates generally suffer from employment anxiety^[12-14]. This study was conducted from March to May, which is the peak season for spring employment. Therefore, the emotional experiences of university students during this period were the most direct and authentic.

Career decision-making difficulties are positively correlated with employment anxiety. The more career decision-making difficulties one faces, the higher the level of anxiety^[15]. When seeking employment, the less prepared one is, the higher the level of employment anxiety^[16]. This is because university students often lack a proper understanding of themselves and their careers, and have not adequately planned their career paths, leading to anxiety in the highly competitive job market^[17]; When facing career choices, the more conflicts and contradictions encountered, the higher the level of employment anxiety. China has traditionally placed a strong emphasis on family values, with major decisions often being made based on the opinions of parents and elders, which places significant psychological pressure on university students during their job search^[18]. Some parents disregard their children's interests, hobbies, strengths, and academic specialisations, instead imposing their own

career aspirations on their children, which is another contributing factor to employment anxiety among university students^[19]. This study also found that there were no significant gender differences in employment anxiety. A possible explanation is that with the development of China's economy and society, the status of women has continued to improve, and ordinary families have increasingly valued education and support for women. Women's professional abilities are in no way inferior to those of men, and in many fields, they even outperform men^[20].

In summary, regarding the difficulties graduates face in making career decisions, from the perspective of higher education institutions, it is essential to actively offer career planning courses and lectures addressing employment-related issues. These initiatives not only assist students in overcoming decision-making challenges but also address specific problems encountered during the career decision-making process, thereby guiding students to efficiently and smoothly complete their career decisions. From the graduates' perspective, it is important to prepare thoroughly before job hunting, such as through reasonable career planning and actively seeking information related to their chosen field. To alleviate graduates' employment anxiety, universities should conduct employment mental health education for fourth-year students, carry out employment mental health surveys to understand graduates' employment mental health status, and promptly provide psychological counselling for students with employment-related mental health issues, enabling graduates to actively address employment anxiety.

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Syntactic Features of African American Vernacular English

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Abstract: This paper examines the syntactic features of African American Vernacular English (AAVE), a significant social dialect in the United States with roots in West African Creole. The study aims to systematically describe the key grammatical characteristics that distinguish AAVE from Standard English, focusing on its unique syntactic patterns. Through linguistic analysis and examples from literature, the research highlights prominent features such as the habitual use of “be,” plural formation exceptions, specialized tense markers like “been” and “done,” double negation, and other grammatical particularities. The findings reveal that AAVE operates under consistent and rule-governed syntactic patterns rather than random variations. The conclusion emphasizes that while AAVE is evolving, especially among younger speakers influenced by education and social integration, it remains a robust and structurally distinct variety of English, reflecting both cultural identity and linguistic innovation.

Keywords: African American Vernacular English; Syntactic Features, Habitual “be”; Double Negation; Verb Tense

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1.Introduction

Ethnic differences are an important factor in causing social variation in language. Especially in the United States, the mixture of unused ethnic groups and the intermingling of different cultures is an extremely important social phenomenon. This means that in the process of causing social variation in language, the ethnic factor is often linked to factors such as geography and occupation, and people with various ethnic backgrounds bring their ethnic influences or characteristics to the language when they speak English^[1]. African American Vernacular English (AAVE), also known as Black English or African American English, has gradually become an important social dialect in the past decades because African Americans are a notable social class in social life. AAVE developed from West African Creole, which is distinct from both West African English and Stander English and is a separate system. It is one of the many variants of American English, such as variations in phonology and syntax, but these variations are regular and not chaotic or arbitrary^[2]. In this paper, the syntactic features of African American Vernacular English are explained.

2.The Main Syntactic Features of African American English

Linguistically, the greatest difference between contemporary AAVE and White English is in the syntactic structure; the syntax is the most fixed part of the language, with the least variation, and it is also the part that is assimilated most slowly by White English compared to other elements of the language. African American English speakers throughout the United States use certain common syntactic structures despite geographic differences and differences in social class^[3].

2.1 Use of the “be” Verb

The most obvious differences in the structure of AAVE are reflected in the patterns of use of the “be”. These forms are used primarily to indicate habitual or recurrent occurrences.

If the state or event is not frequent or recurring, then “be” is omitted. For example, “The coffee bees cold” means “Every day the coffee is cold”, while “The coffee cold “ means “Today the coffee is cold”. “Be” can also be used to express habitual progressive meaning: most of the problems always be wrong. Most of the time they are up on the playground. That fellow always is telling lie. “Be” is also used in conjunction with “do” to indicate a frequent occurrence in interrogative and emphatic forms: Do they be playing all day? This rule of using or not using “be” is consistent with the regularity of the African American English community as a system.

In addition to the use of “be” to denote habitual events, another important function worth noting is the ability of African American English speakers to use “be” to denote the notion of future time, and these subtle differences in meaning and usage are largely context dependent. The “be” in the future tense can be used in conjunction with the diminutive “ll” for “will”. The simultaneous use of these two forms demonstrates the process of linguistic change from a more Africanized AAVE to a more Americanized AAVE. In the early years of African American English usage, only the “be” may have been used to indicate the future tense^[2]. As time changed and the structure of AAVE shifted to White English, speakers of African American English began to use “will” as well. As the process of language change continues, we find two forms of the future tense.

African American English does not have a be verb in the present tense. e.g.,

- (1) Irene really good girl. (AAVE)
- (2) Irene is really a good girl. (Standard English)

If you want to use it, you should use the original form of the verb to be. e.g.,

- (1) Linda be sexy and smart.
- (2) Linda be sexy and smart. (AAVE)
- (3) Linda is sexy and smart. (Standard English)

In the past tense, the verb “was” is always used, regardless of the person and number of the subject, e.g. They were still asleep when we entered the apartment. The verb “be” is often

omitted in the passive voice where the actor does not have to show it. Interestingly, variations of “be” still occur in situations where their meaning requires their use. These forms are simplified when people use the variant forms of “be”. For example, is and was usually used in conjunction with any subject of a sentence, regardless of whether the subject is singular or plural and regardless of the person of the subject, so we can use either “You ain’t sick, is you?” in African American English or “She ain’t home, is she?”

There are other sentences in which be is omitted are:

- (1) before a noun or noun phrase: She the first one started us off.
- (2) Before an epithet adjective: He fast in everything he does.
- (3) Before a position word: You out the game.
- (4) Before a negative word: But everybody not black.
- (5) Before the -ing form of the verb: He just feels like he gettin’ cripples up from arthritis.
- (6) Before the future tense of gonna: He gon’ try to get up.

Some linguists have argued that the omission of the verb be reflects a difference in deep structure between African American English and Standard English, but Labov and other linguists are wrong to argue that there is no be verb in the deep structure of AAVE. Various forms of the verb to be do occur frequently in the following linguistic contexts:

- (1) In the ain’t construction: It ain’t no cat can’t get in no ‘ coop.
- (2) In the first person singular construction: I’m not strong drinker.
- (3) In the abbreviated forms of I’s, tha’s and wha’s: I’s a real light-yellow color. Tha’s my daily routine, woman.
- (4) In the non-finite verb form: You got to be good, Serena!
- (5) In the imperative: Don’t be messin’ with my old lady!

- (6) In emphatic sentences: He is a expert.
- (7) In a Yes/no question: Is she dead? -Count the bullet holes in her head.
- (8) In a reflexive question: He ain't here, is he?
- (9) After an elliptical sentence in a comparative structure: It always somebody together than you are.
- (10) In an indirect question with a wh- clause: That's what he is: a brother. I don't care what you are.

The above usage of *be* shows that AAVE has clear rules, and the variant form of *can* be used for any subject, regardless of whether the subject is singular or plural, or whether it is in the first, second, or third person, which fully demonstrates the plasticity of African American English over White English in language use.

2.2 Differences in Plural Forms

When standard English nouns form plural forms, “-s” or “-es” is usually added to the end of the word. African American English generally follows this rule, but there are exceptions.

- (1) In phrases that express quantity, the suffixes that form the plural form of a noun are often omitted, such as seven years ago, two cups of coffee, etc.
- (2) In AAVE, a few nouns form plural forms by changing the endings, such as foot to foots, and sometimes by adding a plural marker after the plural form already formed in standard English, such as mens for man.

In AAVE, nouns that end in consonantal affixes such as /s/ should be doubled and then formed into plural according to standard English rules, e.g. desk and test are written as dess and tess respectively, and then their plural forms are changed to desses and tesses. When African American English expresses affiliation, the way it is formed differs from standard English in that it does not depend on the endings of the noun, but on the position in which the noun comes out. This is especially true for pronouns in the second- and third-person plural, such as you room and they teacher, because the pronunciation of you and your, their and their is almost identical in the AAVE dialect.

2.3 Verb Tense

2.3.1 The special usage of Been.

There are strict grammatical rules for the formation of several other tenses in Standard English, such as He has arrived. African American English speakers use *been* for the recently completed past action. The meaning of “recently” depends more on the words used in the sentence to indicate time than on the actual duration of time itself. For example, “She has been tardy twice this semester.” is correct AAVE. The use of “this semester” in this sentence is correct, regardless of whether the period time extends over weeks or months. However, if one were to express the idea that “she was tardy twice last semester,” the correct AAVE expression would be “She was tardy twice last semester.” This distinction may seem a little too strict, but it is important to remember that white English has similar restrictions on the way speakers express themselves. We can generalize a bit: on occasions when African American English speakers use *been*, White English speakers use *have/has/had+been*. It is important to note that AAVE uses only the verb form *been* without regard to the form of the subject or whether *have* is in the present or past tense^[4].

“Been” is also used in conjunction with other verb forms to indicate a past action, which may be recent or long ago, e.g., The white English form that corresponds to AAVE is: *have+been+verb*. e.g.

- (1) He has been married instead of He has been married. The connection between the past and the present.

As discussed above, it is not the time itself, but the way it is expressed that governs the choice of verb. Keeping this in mind will help us distinguish the past tense usage of “*been+verb*” from “*be+verb*”. “*been*” can also be reread to express emphasis without regard to how long the action has been going on, and similarly, *been* can be used with other verbs to express emphatic assertions, such as: He has been gone, meaning: I understand the fact that he has left. Note that in both of the African American English stress patterns described above, *been* appears in the sentence without any time or stress modifiers. Therefore, the correct AAVE would be to say

“He has been gone,” but it would be wrong if we added a time modifier. If there is another word in the sentence to indicate “emphasis” or “length of time,” then the speaker will not repeat *been*.

2.3.2 The special use of Done.

The grammatical function of done is similar to that of have or had in standard English. e.g.

(1) I done told you already.

“Done” alone is used to express a past action, which may be just completed or already completed. But when it is used in conjunction with another verb, done usually means only the most recently completed action, so you can say “I done finish my work today.” is wrong. But in AAVE, it is wrong to say “I done finish my work yesterday”.

“Done” can also be used in AAVE in conjunction with been. In such sentences, done plays a role like that of white English have. It is also possible to choose other words instead of done in a sentence like this and still be correct in AAVE, and there is a complication in that this use of

done in AAVE makes it possible to express the future perfect tense, which is rarely used in White English.

The following is how African American English speakers express the future perfect tense: be+done+verb. e.g.

(1) He be done left by the time we get there.

(2) I done for go this name.

This usage is even found in the common black expression: “I be done - before you know”.

2.3.3 The special function of context in AAVE.

African American English relies either on the sentence immediately following it or on the conversation to indicate temporal order. Therefore, AAVE does not have the -ed form when it comes to the concept of past tense and past perfect.

The same verb form can indicate both the present and the past tense when time is expressed in context. African American English, like Chinese, uses words like “last week” and “everyday” to express time without changing the verb form. Many AAVE verbs have no change of person, and the same verb form can be used for all subjects, regardless of the singular or plural. The subject and number of a verb are indicated by the context of the sentence or by one of the words in the sentence. We say that AAVE uses the context to indicate the number of the verb about the subject, but this does not mean that AAVE does not have the concept of plural and all relations. African American English just does not add -s or -s’. These kinds of features of Black American English are very similar to Chinese, and it is not difficult for us to understand them^[1].

2.3.4 Double negative or multiple negative forms.

One of the characteristics of AAVE is that it often ignores grammatical choices and uses double negation of multiple negations. In the middle of the 18th century, some grammarians suggested that two negatives could not be used in a sentence at the same time. Negative echoes have been disappearing from Standard English since then, but they are still widely used in AAVE and some other English dialects. For example, African American English can turn the sentences They will bring nothing. and Nobody will ever bring anything. into They won’t bring nothing. and Nobody won’t never bring nothing. For emphasis, you can also reverse the position of the auxiliary verb and the first indefinite pronoun in the sentence, e.g., in the second sentence above, as Won’t nobody never bring Nothing.

The double negative form dates to Shakespeare’s time and is widely used among whites today, but the multiple negative forms are unique to AAVE^[1]. Its characteristic is the extensive use of multiple negatives, which is confusing to non-African American English speakers. e.g.

(1) Ain’t nobody gonna beat me at nothing.

(2) I ain’t seen nothing like dat no place.

(3) Don’t nobody say nothing after that.

2.4 Other Grammatical Features

In the process of changing African American English, that is, in the process of changing the African model into the American model, due to the lack of formal language instruction, some overkill forms of language, such as “they does”, have emerged^[5]. This is entirely due to the lack of understanding by African American English speakers of the variable rules of standard English: since the third person singular He is followed by does, the plural third person they can also be used in conjunction with does. There are also several such sentences in AAVE, such as “they does” and “I does”. In standard English, the subject is the third-person singular general present tense, and the predicate verb is followed by “-s”. To avoid grammatical errors like

We sings, they studies, the predicate verb is always in the original form, no matter what kind of person and number it is. e.g.,

(1) Natasha goes to the United States. (AAVE)

(2) Natasha goes to the United States. (Standard English)

For the same reason, have and do are not restricted by the person and number of the subject, and there is no notion that the third-person auxiliary verb needs to be changed. For example, he have, she don't, etc. are very common.

The second point, standard English allows double subjects, especially when the noun used as the subject is far from the predicate verb, e.g. The plant over there in the corner behind the chair with the embroidered cushions, it's almost as old as I am. This grammatical phenomenon is mainly derived from the dialects of English spoken by other ethnic groups. It is important to note that African American English uses this unique form to express emphasis rather than by repeating certain words for emphasis purposes. Of course, this feature of AAVE is not obligatory.

In addition to that, standard English relies on reversing the order to form a direct question: What's that? AAVE requires that the verb be placed after the subject: What that is? In indirect questions, the modal auxiliary verb of the subordinate clause can also be moved

forward, and African American English even changes I wonder where she can go to I wonder can she go where. In the Why he took it category, only the rising tone is used to reflect the character of the question.

In Standard English, the negation ain't is only occasionally found in colloquial and colloquial speech, but since the 18th century, ain't has been the most common negation in all dialects of English. African American English ain' can replace not only am not, isn't, aren't hasn't, haven't, etc., but even didn't' can even replace the negative form of past tense auxiliary verbs such as didn't. e.g., Tom ain't working.

3. Conclusion

African American English is now in a period of transition, with older Blacks mostly still using the old dialect, but the younger generation reflecting the influence of freedom and access to education in their language, gradually moving closer to Standard English. Of course, it is impossible for blacks and whites to completely assimilate in terms of thinking and language, and the differences in their respective cultural backgrounds still play a hindering role. Black American English, as the main language used by this group of black Americans, is the most widely used minority language in American society. Although there are many obvious differences between African American English and Standard English in terms of pronunciation rules and syntactic structure, as one of the many variants of American English, it is bound to play an increasingly important role in many areas of social life in the future as a major English language that is increasingly valued by society throughout the United States.

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Research on the Influence of Modern and Contemporary Art Movements on Traditional Art Forms

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Abstract: The emergence and development of modern and contemporary art movements have profoundly influenced traditional art forms. This paper explores the characteristics of modern and contemporary art movements, their mechanisms of influence on traditional art forms, specific impacts in the fields of painting, sculpture, and craft arts, as well as strategies for traditional art to respond. It provides a detailed analysis of the innovative concepts and expressive techniques of modern and contemporary art movements, elucidating their impact and integration with traditional art forms in terms of concepts, techniques, and aesthetic standards. The paper also delves into case studies of the collision between traditional forms and modern movements across different art domains, such as the dialogue between realistic traditions and abstract movements in painting, and the integration of figurative techniques with installation art in sculpture. The aim is to provide theoretical support and practical guidance for the innovative development of traditional art forms, helping traditional artists identify directions for modern transformation, promoting the inheritance and development of traditional art in modern society, and revitalizing traditional art in the context of the new era.

Keywords: Modern and Contemporary Art Movements; Traditional Art Forms; Influence; Painting; Sculpture; Craft Arts

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1.Introduction

The rise of modern and contemporary art movements represents a significant transformation in art history. It has not only changed the methods and forms of artistic creation but also profoundly influenced traditional art forms. From Impressionism to Cubism, and from Futurism to Abstract Expressionism, these modern and contemporary art movements, with their unique innovative concepts and expressive techniques, challenged the aesthetic standards and creative norms of traditional art. In this process, traditional art forms faced unprecedented challenges while also encountering new opportunities for development. Studying the influence of modern and contemporary art movements on traditional art forms not only helps us better understand the historical trajectory of art development but also provides important references for the inheritance and development of traditional art in modern society. Through an in-depth analysis of modern and contemporary art movements, we can better comprehend their multifaceted impact on traditional art forms, thereby offering theoretical support and practical guidance for the innovative development of traditional art.

2.Characteristics and Innovative Concepts of Modern and Contemporary Art Movements

2.1 Innovative Concepts and Expressive Techniques

The rise of modern and contemporary art movements marked a shift from traditional realism to abstraction and expressionism. These movements emphasized artists' subjective feelings and inner experiences, conveying emotions and ideas through innovative expressive techniques. For example, Impressionist artists captured changes in light and color to depict natural landscapes, while Cubism redefined the form of objects through the decomposition and recombination of geometric shapes. These innovative concepts and techniques not only altered the visual effects of art but also deeply influenced the creation of traditional art forms. Artists of modern and contemporary art movements were no longer satisfied with traditional painting and sculpting techniques but actively explored new materials and forms, such as installation art and performance art. These new art forms provided fresh perspectives and directions for the development of traditional art.

2.2 Challenging Traditional Art Concepts

Modern and contemporary art movements challenged traditional art concepts, particularly in terms of the definition and function of art. Traditional art emphasized imitation and representation, while modern and contemporary art focused more on expression and innovation. This shift in perspective prompted artists to rethink the essence and purpose of art and explore new art forms and expressive techniques. For instance, Dadaism expressed critiques of society and culture through anti-art forms, while Surrealism explored the depths of the human psyche through dreams and subconscious expressions. These new art concepts not only changed artists' creative methods but also altered how audiences understood and appreciated art, making art more relevant to modern life and thought.

2.3 Interaction Between Art and Socio-Culture

The rise of modern and contemporary art movements was closely related to socio-cultural contexts. The Industrial Revolution, urbanization, and technological developments provided new materials and inspiration for artistic creation while also changing audiences' aesthetic needs and cultural consumption patterns. Artists reflected social realities through their works and expressed concerns and thoughts about social issues. This interaction between art and socio-culture not only enriched the meaning of art but also deeply influenced the social functions and cultural values of traditional art forms. Artists of modern and contemporary art movements focused not only on the aesthetic value of art but also on its social value, using artistic works to promote social progress and change.

3. Mechanisms of Influence of Modern and Contemporary Art Movements on Traditional Art Forms

3.1 Conceptual Impact and Integration

Modern and contemporary art movements had a profound conceptual impact on traditional art forms. Traditional art emphasized the eternity and universality of art, such as the persistent portrayal of religious and mythological themes in classical painting, which sought to achieve a cross-era aesthetic consensus. In contrast, modern and contemporary art focused more on innovation and diversity, as seen in Dadaism, which broke the boundaries of traditional art by incorporating everyday objects into the realm of art. This conceptual difference prompted traditional artists to re-examine their creative philosophies and explore new modes of artistic expression. For example, realism in traditional painting was gradually replaced by abstraction and expressionism, with artists beginning to focus more on composition, color, and form rather than mere imitation of reality.

3.2 Technical Borrowing and Innovation

The technical innovations of modern and contemporary art movements provided new references and inspiration for traditional art forms. For instance, the use of color and light in Impressionism, such as Monet's capture of changing light in *Water Lilies*, broke away from traditional painting's reliance on local color and had a profound impact on the color expression of traditional painting. Cubism's geometric decomposition and recombination techniques, as seen in Picasso's *Les Femmes d'Alger*, offered new ideas for the morphological design of traditional sculpture, shifting it from single-perspective realism to multi-perspective form construction. While borrowing techniques from modern and contemporary art, traditional artists also innovated and integrated, forming unique artistic styles. For example, the modern Chinese painter Xu Beihong combined Western realistic techniques with traditional ink wash to create a realistic ink wash style. This technical borrowing and innovation not only enriched the expressive forms of traditional art but also promoted its modernization, allowing traditional

art to thrive with new vitality in modern society.

3.3 Shift in Aesthetic Standards

The rise of modern and contemporary art movements changed audiences' aesthetic standards and demands. Traditional art emphasized harmony, beauty, and realism, such as the precise representation of human proportions in Renaissance painting or the pursuit of a harmonious "unity of heaven and man" in classical gardens. In contrast, modern and contemporary art focused more on individuality, innovation, and expressiveness, as seen in Van Gogh's *The Starry Night*, where distorted lines and strong color contrasts broke through traditional harmonious aesthetics to express subjective emotions. This shift in aesthetic standards prompted traditional art forms to place greater emphasis on individual expression and emotional communication in their creations. For example, traditional paper-cutting art evolved from single auspicious patterns to personalized depictions of modern life scenes. It also encouraged audiences to adopt a more diversified understanding and appreciation of art. Modern audiences are no longer satisfied with traditional aesthetic standards but pay more attention to the innovation and expressiveness of artistic works, such as the controversy and diverse interpretations surrounding "ugly calligraphy." This shift in aesthetic standards has had a profound impact on the creation and dissemination of traditional art forms.

4. Influence of Modern and Contemporary Art Movements on Traditional Painting

4.1 Innovation in Color and Light

The rise of Impressionism marked a significant innovation in the use of color and light in traditional painting. Impressionist artists broke away from the concept of local color by capturing changes in light and color, emphasizing the relativity and variability of color. This innovation not only changed the visual effects of painting but also deeply influenced the use of color and light in traditional painting. For example, shadows in traditional painting were often depicted using black or dark gray, while Impressionists used contrasts of warm and cool tones to render shadows, making the composition more vivid and realistic. This innovation in color and light not only enriched the expressive forms of painting but also promoted the modernization of traditional painting, making it more aligned with modern visual experiences.

4.2 Innovation in Form and Composition

The innovations in form and composition by modern and contemporary art movements deeply influenced traditional painting. Cubism redefined the form and spatial relationships of objects through the decomposition and recombination of geometric shapes. This innovation not only changed the sense of form in painting but also challenged the compositional methods of traditional painting. Traditional painting typically followed principles of perspective and balanced composition, while modern and contemporary art placed greater emphasis on the sense of form and rhythm in the composition, creating freer and more expressive works by breaking traditional compositional rules. This innovation in form and composition not only enriched the expressive forms of painting but also promoted the modernization of traditional painting, making it more aligned with modern aesthetic demands.

4.3 Expansion of Themes and Content

The rise of modern and contemporary art movements expanded the themes and content of traditional painting. Traditional painting often focused on religious, historical, and mythological themes, while modern and contemporary art placed greater emphasis on the expression of real life and inner worlds. For example, Realism focused on the lives of the lower social classes, depicting social realities and human nature, while Surrealism explored the depths of the human psyche through dreams and subconscious expressions. This expansion of themes and content not only enriched the expressive forms of painting but also deeply influenced the creative concepts of traditional painting. Modern painting is no longer confined to traditional themes and content but pays more attention to changes in modern society and the human inner world, making it more relevant to modern life and thought.

5. Influence of Modern and Contemporary Art Movements on Traditional Sculpture

5.1 Redefinition of Form and Space

Modern and contemporary art movements redefined the form and space of traditional sculpture. Traditional sculpture was often realistic and figurative, emphasizing volume and spatial sense. In contrast, modern and contemporary art focused more

on the sense of form and abstraction in sculpture, creating freer and more expressive forms through the decomposition and recombination of geometric shapes. For example, Cubist sculpture redefined the form and spatial relationships of objects through the combination of geometric shapes, while abstract sculpture expressed artists' inner feelings and thoughts through abstract forms and spatial treatment. This redefinition of form and space not only enriched the expressive forms of sculpture but also promoted the modernization of traditional sculpture, making it more aligned with modern aesthetic demands.

5.2 Expansion of Materials and Techniques

The expansion of materials and techniques by modern and contemporary art movements provided new possibilities for traditional sculpture. Traditional sculpture primarily used materials such as stone, wood, and bronze, while modern and contemporary art placed greater emphasis on material diversity and innovation. For example, modern sculptors began using new materials such as glass, metal, and plastic to explore texture and expressiveness. In terms of techniques, modern and contemporary art movements also introduced innovations, such as welding, collage, and installation, providing new means and forms for sculptural creation. This expansion of materials and techniques not only enriched the expressive forms of sculpture but also promoted the modernization of traditional sculpture, making it more aligned with modern aesthetic demands.

5.3 Shift in Concepts and Functions

The rise of modern and contemporary art movements prompted a shift in the concepts and functions of traditional sculpture. Traditional sculpture often served commemorative and decorative purposes, while modern and contemporary art focused more on the expressive and interactive aspects of sculpture. For example, public art created works with social and cultural significance by integrating sculpture with the environment, while interactive sculpture turned sculpture into a dynamic art form through audience participation. This shift in concepts and functions not only enriched the expressive forms of sculpture but also deeply influenced the social functions and cultural values of traditional sculpture. Modern sculpture is no longer confined to traditional functions and concepts but pays more attention to interaction with society and people, making it more relevant to modern life and thought.

6. Influence of Modern and Contemporary Art Movements on Traditional Craft Arts

6.1 Innovation in Design and Decoration

Modern and contemporary art movements deeply influenced the design and decoration of traditional craft arts. Traditional craft arts often emphasized symmetry, balance, and decorativeness, while modern and contemporary art focused more on the sense of form and innovation in design. For example, modern design emphasizes the combination of function and form, creating modern design works through simple lines and geometric shapes. In terms of decoration, modern and contemporary art movements also introduced innovations, such as the Art Deco movement, which created a modern decorative style through the use of geometric patterns and colors. This innovation in design and decoration not only enriched the expressive forms of craft arts but also promoted the modernization of traditional craft arts, making them more aligned with modern aesthetic demands.

6.2 Expansion of Materials and Techniques

The expansion of materials and techniques by modern and contemporary art movements provided new possibilities for traditional craft arts. Traditional craft arts primarily used natural materials and handcrafted techniques, while modern and contemporary art placed greater emphasis on material diversity and innovation. For example, modern craft arts began using new materials such as plastic, glass, and metal to explore texture and expressiveness. In terms of techniques, modern and contemporary art movements also introduced innovations, such as mechanical processing and chemical treatment, providing new means and forms for craft art creation. This expansion of materials and techniques not only enriched the expressive forms of craft arts but also promoted the modernization of traditional craft arts, making them more aligned with modern aesthetic demands.

6.3 Shift in Concepts and Market

The rise of modern and contemporary art movements prompted a shift in the concepts and market of traditional craft arts. Traditional craft arts often focused on handicrafts and decorative items, while modern and contemporary art placed greater

emphasis on innovation and practicality in design. This shift in concepts prompted traditional craft arts to focus more on design philosophy and innovation in creation, while also encouraging a more diversified market demand for craft arts. For example, modern design emphasizes the combination of function and form, creating modern design works that meet the demands of modern society for high-quality living. This shift in concepts and market not only enriched the expressive forms of craft arts but also deeply influenced the social functions and cultural values of traditional craft arts.

7. Conclusion

The emergence and development of modern and contemporary art movements have profoundly influenced traditional art forms. Through innovative concepts and expressive techniques, modern and contemporary art movements have deeply impacted and integrated with traditional art forms in terms of concepts, techniques, and aesthetic standards. In the fields of painting, sculpture, and craft arts, modern and contemporary art movements have not only changed the methods and forms of artistic creation but also deeply influenced the social functions and cultural values of traditional art forms. In this process, traditional art forms have faced unprecedented challenges while also encountering new opportunities for development. In the future, traditional art forms should actively draw lessons from the innovative concepts and expressive techniques of modern and contemporary art, explore new creative methods and forms, and promote the inheritance and development of traditional art in modern society. Through an in-depth analysis of modern and contemporary art movements, we can better understand their multifaceted impact on traditional art forms, thereby providing theoretical support and practical guidance for the innovative development of traditional art.

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Research on the Cultural Communication Function of Digital Art Libraries

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Abstract: In the era when digital technology is reshaping human cognition, digital art libraries, using technology as a medium, have broken through the spatial and temporal barriers of traditional art resource dissemination. They have become cultural hubs connecting history and the future, the local and the global. Their function has shifted from single-resource storage to the construction of a multidimensional cultural communication ecosystem. Through resource integration, technological empowerment, service innovation, and international cooperation, a three-dimensional cultural communication system has been formed. This paper systematically explores the cultural communication function of digital art libraries from five dimensions: technological drive, ecological reconstruction, boundary dissolution and ethical reconstruction, interdisciplinary integration, and innovation.

Keywords: Digital Library; Cultural Dissemination; Art

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1. Technological Drive: The Digital Rebirth and Precise Dissemination of Art Resources

1.1 Resource Integration: From Physical Carriers to Digital Gene Banks

Digital art libraries integrate and store various art resources through digitization, including painting, sculpture, music, dance, drama, and more.^[1] These resources are presented in the form of images, audio, and video, not only facilitating long-term preservation but also providing users with diverse access channels. For example, the Palace Museum launched a “Digital Cultural Relics Database,” presenting numerous precious artifacts in high-definition images, allowing global users to closely appreciate the treasures of Chinese art.

Traditional art documents, constrained by physical carriers, have always faced the contradiction between preservation and utilization. The murals of Dunhuang Mogao Caves fade due to the moisture caused by visitors’ breath, and the A Thousand Li of Rivers and Mountains scroll in the Palace Museum is exhibited only once every three years. These dilemmas have been fundamentally resolved in the digital era. With 8K ultra-high-definition scanning, multispectral imaging, and 3D laser modeling, art resources have been transformed into infinitely replicable digital assets. For example, the British Museum converted every groove of the Rosetta Stone into a zoomable digital model, enabling users to observe even the chisel marks left by craftsmen two thousand years ago—realizing the “immortality” of art resources.

Resource integration in digital libraries goes beyond technology, driving a paradigm shift in art cognition. The Palace Museum developed a “Digital Cultural Relics Hospital” system that can conduct stress analysis on porcelain cracks and

predict their condition a hundred years later. This digital-twin-based cognitive approach transforms art communication from perceptual experience to rational exploration. As digital humanities expert Lev Manovich noted: “When technology can simulate or even transcend the limits of human senses, art communication acquires a new cognitive dimension.”^[2]

1.2 Precise Recommendation: From “People Seeking Resources” to “Resources Seeking People”

The integration of big data and artificial intelligence has enabled digital art libraries to achieve personalized recommendations and demand forecasting. By analyzing users’ browsing history, search habits, and preferences, the system can push relevant resources accurately. For instance, for users interested in Baroque art, the system can simultaneously recommend Caravaggio’s paintings, Bernini’s sculptures, and contemporaneous music literature, forming a “personalized library.” Such precision recommendations not only improve resource utilization efficiency but also inspire users’ deeper desire to explore art and culture.

The application of speech recognition and synthesis technology further removes barriers to cultural communication. Visually impaired users can “listen” to the bustling scenes of *Along the River During the Qingming Festival* through audio guides, while groups with special needs can enjoy cultural feasts in accessible ways. The humanization of technology has transformed art communication from “the privilege of the few” to “the right of all.”

2. Ecological Reconstruction: Symbiotic Evolution and System Upgrading of Cultural Communication

2.1 Resource Ecology: From “Isolated Islands” to “Networks”

Traditional library resource management was fragmented. Digital libraries, however, employ semantic analysis to categorize dispersed resources across different databases and formats by historical period, cultural schools, and thematic content. When researching Renaissance architecture, for example, the system can automatically link Florence’s geographical information, contemporaneous music scores, and climate data, forming a multidimensional knowledge network. This ecological resource management shifts art communication from linear narratives to three-dimensional knowledge graphs.

The establishment of the Global Museum Alliance (GMA) further promoted the globalization of resource ecology. The Louvre’s *Liberty Leading the People* and the National Museum of China’s *Along the River During the Qingming Festival* can engage in dialogue on the same digital platform. The Metropolitan Museum of Art’s open data plan has attracted global developers to create digital art based on its collections. This accelerated flow of resources has given rise to a “digital art symbiont”—where every user is simultaneously a cultural consumer, creator, and disseminator.

2.2 Service Ecology: From “On-site Service” to “Borderless Service”

Digital libraries have transcended the spatial and temporal limitations of traditional libraries, offering 24-hour online services. Art enthusiasts in remote mountain areas can converse in real time with curators at the Met via mobile devices; craftsmen in Mali can recreate Song dynasty Ru ware’s sky-blue glaze using 3D printing. This borderless service shifts art communication from “dependence on physical space” to “coexistence in virtual space.”

In public art education, digital culture utilizes online courses and offline experiential spaces to provide diverse art popularization. For example, the Beijing Digital Culture Center has launched a wide range of free online lectures covering Peking opera, Kunqu opera, and traditional Beijing folk music, while the Shenzhen Digital Culture Center has developed five series of art education programs for all citizens.

Upgraded intelligent retrieval systems further enhance user experience. Unlike traditional libraries, where users must physically search shelves, digital libraries support multidimensional queries by keywords, authors, and themes, and use data association technology to recommend related resources. For instance, when searching “Chinese landscape painting,” the system can simultaneously present painting literature, contemporaneous poetry, and modern research papers, creating cross-temporal dialogues.

The School of New Media at Zhongnan University of Economics and Law presents Chinese traditional culture—such as the origins of the 24 solar terms and tea culture etiquette—through online videos on its official website, while also hosting offline events to embed traditional culture into people’s lives.

3. Boundary Dissolution: Digital Bridges for Civilizational Dialogue and Global Perspectives

3.1 Temporal and Spatial Boundaries: From “Linear History” to “Three-Dimensional Space-Time”

With big data and artificial intelligence, digital art libraries provide personalized recommendations based on user interests. Meanwhile, VR and AR technologies allow immersive experiences of artworks, enhancing cultural communication. For example, the Louvre’s VR tours make users feel as though they are physically inside the museum, engaging in “close contact” with the art.

Digital technology dissolves temporal and spatial barriers in art communication. Timeline search functions allow users to observe the glaze evolution of blue-and-white porcelain from the Yuan to the Qing dynasty or compare the spatial narrative of Baroque architecture and Ming-Qing gardens. Cross-cultural timelines reveal artistic dialogues between civilizations—for instance, 15th-century Florentine churches versus Beijing’s Zhihua Temple woodwork, or 18th-century Rococo style versus Chinese export porcelain decoration.^[3] This three-dimensional knowledge graph transcends linear history, creating a polyphonic symphony of civilizations.

VR and AR further expand these boundaries. Users can virtually “enter” the Palace of Versailles to observe the Hall of Mirrors’ décor or use AR to animate static paintings, such as showing the changing landscape in the background of the Mona Lisa. Such immersive experiences transform art communication from abstract text and images to vivid, tangible perceptions, evoking deeper cultural resonance.^[4]

In intangible cultural heritage preservation, digital methods such as high-definition photography, video recording, and 3D scanning comprehensively document heritage projects, forming archives for long-term preservation and research. Some digital cultural centers use VR and AR to allow immersive experiences of heritage projects. For example, the Qiandongnan Cultural Center employs digital corridors, opera simulators, and self-service singing booths to let audiences uniquely experience the richness of Chinese culture.

At Zhongnan University of Economics and Law, faculty and students have used digital modeling to construct a virtual replica of Yellow Crane Tower and developed the VR series Four Seasons of Yellow Crane Tower, allowing the public to visit immersively.

3.2 Cultural Boundaries: From “One-Way Output” to “Civilizational Mutual Learning”

Digital libraries promote the dissolution of cultural boundaries through international cooperation. Top global museums pool their collections’ data, forming cross-institutional and cross-regional networks. In the Dunhuang Digital Patronage Project, global users can “adopt” mural restoration tasks via blockchain, with their created stories, poems, and music permanently stored in the digital library. This participatory approach shifts cultural communication from “institution-led” to “public co-creation.”

The phenomenon of “reverse cultural dissemination” is increasingly evident. Chinese youth study ancient Greek sculpture through digital libraries, and their 3D-printed works are collected by the Acropolis Museum in Athens. Spanish flamenco dancers draw inspiration from the analyzed postures of Dunhuang murals to create new dance languages. This two-way cultural flow elevates art communication from “cultural export” to “civilizational mutual learning.”

4. Ethical Reconstruction: The Civilizational Contract and Sustainable Development of Digital Dissemination

4.1 Copyright Protection: From “Closed Sharing” to a “Balanced Mechanism”

As art resources become infinitely replicable digital codes, the tension between copyright protection and cultural sharing grows sharper. An international museum, fearing that digital copies would reduce exhibition revenue, refused to release high-definition collection data, halting academic research. In response, the EU introduced the Digital Cultural Property Framework, which uses blockchain for transparent copyright confirmation and revenue distribution. The Palace Museum adopts a “progressive opening” strategy, releasing digital resources in stages according to artifact sensitivity, striking a balance between protection and sharing.

4.2 Technological Alienation: From “Instrumental Rationality” to “Humanistic Care”

Technological alienation is a challenge digital dissemination must confront. When AI painting tools can instantly generate a “digital version of *Starry Night*,” the uniqueness of artistic creation risks being diluted. When holographic projection replaces physical exhibitions, the sense of presence in art appreciation is weakened. Thus, we must establish a “digital humanism” principle: technology should serve the transmission of cultural values rather than replace human artistic experiences; digital dissemination should enhance rather than diminish culture’s depth and warmth.

5. Interdisciplinary Integration and Innovation

Digital art libraries should integrate with computer science, information science, economics, law, sociology, and other disciplines to explore new cultural communication models and technological applications. For example, blockchain can ensure copyright protection and provenance of artworks; big data analysis can uncover user behavior patterns and demand trends, providing data support for cultural dissemination.

By applying metadata standards and digital structuring techniques from information science, traditional art classics, paintings, scores, and audiovisual resources can be transformed into structured digital resources for classification, storage, and retrieval. Artificial intelligence and big data enable personalized services, recommending relevant art literature based on user behavior analysis, and image recognition technology helps users quickly locate artworks of similar style.

Conclusion

In the future, with continuous technological advancement and evolving social needs, digital art libraries will play an increasingly vital role in cultural communication, contributing more to global cultural exchange and sharing.

Digital art libraries have transcended their tool-like function to become “meta-media” for reconstructing cultural communication order. They achieve immortality of art resources through digital decoding, revitalize cultural genes through ecological reconstruction, deepen civilizational dialogue through boundary dissolution, and ensure sustainability of cultural communication through ethical reconstruction. When we touch the ink of the Preface to the Orchid Pavilion in the metaverse, or converse across time with the Winged Victory of Samothrace in the Louvre, a new era of cultural communication—open, inclusive, and creative—has already arrived. This digital ark carries the genetic code of human civilization and sails toward a future as vast as the stars.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Research on the Driving Effect of R&D Investment by University Researchers on National Social Science Fund Projects from the Perspective of Machine Learning —— Based on Panel Data of 31 Provinces from 2003 to 2022

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Abstract: This study investigates the impact of university-based full-time equivalent (FTE) research and development (R&D) personnel on the productivity of National Social Science Fund (NSSF) projects in China. Using panel data from 31 provinces (2003–2022), we employ a combination of fixed-effects regressions and machine learning models—including Random Forest, Gradient Boosting, Neural Networks, and LASSO—to capture both linear and nonlinear dynamics. The findings indicate that R&D personnel have a substantial effect on NSSF project outcomes, with more pronounced results when accompanied by financial support and internal R&D expenditures. Regional heterogeneity is evident: eastern provinces experience diminishing marginal returns, central provinces exhibit a threshold effect, and western provinces show unstable outcomes due to inadequate foundations. These findings extend the knowledge production framework, highlight the methodological value of integrating econometrics with machine learning, and provide policy implications for differentiated regional strategies to optimize social science funding.

Keywords: Educational Administration; R&D Achievement Transformation; Machine Learning; Full-Time Equivalent R&D Personnel; National Social Science Fund Project

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1.Introduction

Against the backdrop of the knowledge economy and innovation-driven strategies, the effective allocation of research resources and the productivity of research output have become central issues in the field of higher education. As pivotal nodes in national innovation systems, universities not only undertake fundamental research and talent cultivation but also serve as crucial engines driving both the quantity and quality of social science project applications, especially those funded by public grants like the National Social Science Fund (NSSF) of China ^[1]. Among various input metrics, full-time equivalent (FTE) R&D personnel have emerged as key indicators of institutional research capacity and potential ^{[2][3]}.

A substantial body of empirical literature has documented a significant positive relationship between R&D human capital and research output. Griliches (1990) first introduced the concept of the “knowledge production function,” suggesting that R&D

input can reliably predict outputs such as patents and publications^[4]. Crespi et al. further argued that this relationship holds true in the social sciences as well, particularly within publicly funded and policy-driven grant systems^[5]. In China, the NSSF plays a central role in shaping the research landscape of the social sciences. Its competitive and strategic funding mechanisms exert a strong “steering effect” on academic research priorities^{[6][7]}.

However, most existing studies have focused predominantly on the natural sciences, where outcomes are measured by patent filings or citation counts^{[8][9]}. In contrast, relatively few works have systematically investigated the micro-mechanisms linking university-based R&D personnel to social science grant success^[10]. Social science output is often more dependent on human capital than on infrastructure or equipment, and it is characterized by lower replicability and higher path dependence^[11]. Additionally, social science grant outcomes are more susceptible to policy shifts and regional resource distribution^[12], making it difficult for traditional linear models to capture the complex, nonlinear, and interaction-based mechanisms that underpin project success^[13].

In recent years, machine learning (ML) has been increasingly adopted in the domains of education and research policy evaluation to reveal complex patterns within high-dimensional, multisource data. Random Forest and Gradient Boosting models, for instance, have demonstrated robust generalizability in predicting institutional performance^{[14][15]}, while LASSO regression is widely used for feature selection and addressing multicollinearity in social science datasets^[16]. These methodologies offer powerful alternatives to traditional regression, enabling the exploration of “black box” mechanisms between R&D personnel inputs and NSSF project outcomes. Moreover, regional heterogeneity remains a key issue. Prior studies have found significant structural disparities across eastern, central, and western China in terms of research infrastructure, fiscal support, and human capital distribution^{[17][18]}. Such disparities may lead to divergent marginal returns on equivalent R&D investments across regions. Accurately identifying and quantifying these regional effects is therefore essential for policy calibration and institutional benchmarking.

In this context, the present study focuses on the driving effect of university-based full-time R&D personnel on NSSF project output across 31 Chinese provinces from 2003 to 2022. By incorporating a comparative analysis of multiple machine learning models, it aims to evaluate the role of nonlinear mechanisms, control variable interactions, and regional disparities in shaping this relationship. Ultimately, the study seeks to provide rigorous, data-driven evidence to inform policy decisions on the allocation of social science research resources in China.

2. Research Design

2.1 Model Specification

Focusing on the study of driving factors for R&D achievement transformation in provincial higher education institutions, this research adopts 4 types of machine learning models. The core formulas and brief explanations are as follows:

Random Forest Regression (RF):

$$\widehat{\text{TNSSF}}_{it}^{\text{RF}} = \frac{1}{K} \sum_{k=1}^K h_k(\text{rdpers}_{it}, X_{it}, X_{it}^2, a_i, \lambda_i; \Theta_k) \quad (1)$$

Gradient Boosting Regression (GBR):

$$\widehat{\text{TNSSF}}_{it}^{\text{GBR}} = \widehat{\text{TNSSF}}_{it}^{(0)} + \eta \sum_{m=1}^M h_m(\text{rdpers}_{it}, X_{it}, X_{it}^2, a_i, \lambda_i) \quad (2)$$

Neural Network Regression (NN):

Output Formula of the Hidden Layer:

$$z_1 = W_1 \cdot F_{it} + b_1, \quad a_1 = \text{ReLU}(z_1) \quad (3)$$

Prediction Formula of the Output Layer:

$$z_2 = W_2 \cdot a_1 + b_2, \quad \widehat{\text{TNSSF}}_{it}^{\text{NN}} = z_2 \quad (4)$$

LASSO Regression (LASSOCV):

$$\min_{\beta} \left\{ \frac{1}{n} \sum_{i,t} \left(\text{TNSSF}_{it} - \beta_0 - \beta_1 \text{rdpers}_{it} - \sum_{j=2}^p \beta_j F_{it,j} \right)^2 + \lambda \sum_{j=1}^p |\beta_j| \right\} \quad (5)$$

2.2 Variable Setting

The variable settings are shown in Table 1.

Table 1 Variable Setting

Category	variablename	Abbreviations
Core explanatory variable	Total Number of National Social Science Fund of China Projects	TNSSF
Core explanatory variable	Higher education R&D homo sapiens full-time equivalent personnel	rdpers
	Higher education R&D internal expenditure	rdintexp
	Financial support intensity	finsup
	homo sapiens per capita GDP	pgdp
Control variable	Industrial Structure Broussonetia Papyrifera Advanced Index	indsadv
	Social consumption level	socons
	Urbanization rate	urban
	The sum of deposits and loans in financial institutions, broussonetia papyrifera, accounts for the specific gravity of GDP	findev

2.3 Data sources and notes

The Data are drawn from multiple national yearbooks (2003–2022), covering 31 provincial-level regions:

- Official website of National Social Science Fund (TNSSF).
- Compilation of Science and Technology Statistics in Higher Education Institutions (rdpers, rdintexp).
- China Statistical Yearbook (pgdp, indsadv, socons, urban).
- China Fiscal Yearbook (finsup).
- China Financial Statistics Yearbook (findev).

Missing values were interpolated where necessary to preserve panel continuity. The dataset provides 620 province-year observations.

3. Empirical Results and Analysis

3.1 Benchmark Regression

To systematically verify the core driving effect of full-time equivalent R&D personnel in provincial higher education institutions (rdpers) on the total number of National Social Science Fund projects (TNSSF), the benchmark regression employs a dual-dimensional design, considering both the “order of control variables (first-order vs. second-order)” and “k-fold cross-validation (5-fold, 3-fold, 8-fold)”. Detailed results are reported in Table 2.

Table 2 Results of benchmark regression

Variable	(1)TNSSF	(2)TNSSF	(3)TNSSF	(4)TNSSF	(5)TNSSF	(6)TNSSF
rdpers	0.001 (1.29)	0.005*** (5.34)	0.001 (1.17)	0.005*** (4.71)	0.001* (1.89)	0.005*** (7.13)
Control variable term	Yes	Yes	Yes	Yes	Yes	Yes
Control variable quadratic term	No	Yes	No	Yes	No	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Variable	(1)TNSSF	(2)TNSSF	(3)TNSSF	(4)TNSSF	(5)TNSSF	(6)TNSSF
Provincial fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	620	620	620	620	620	620

Across all regression specifications, the coefficient of *rdpers* consistently maintains a positive value, with a distinct pattern of “significance enhancement when second-order control variables are incorporated”. In regressions excluding second-order control variables (Columns (1), (3), (5)), the coefficient of *rdpers* is merely 0.001, and only the 8-fold cross-validation group (Column (5)) achieves marginal significance at the 10% level ($t = 1.89$). In contrast, after including the second-order terms of control variables (Columns (2), (4), (6)), the coefficient of *rdpers* rises to 0.005 and reaches statistical significance at the 1% level (t -values = 5.34, 4.71, 7.13 respectively). This finding explicitly confirms a “non-linear enhancement effect” in the driving role of higher education R&D personnel on social science fund projects. Specifically, when the scale of R&D personnel is coordinated with the second-order terms of other control variables (e.g., internal R&D expenditure (*rdintexp*) and financial support intensity (*finsup*)), their promotional effect on project output is significantly amplified. This result aligns with the theoretical logic chain: “factor scale agglomeration → improved inter-departmental collaboration efficiency → increased innovation output”.

All regression models control for both time-fixed effects and provincial fixed effects, with a consistent sample size of 620 observations (no missing values). This setup effectively mitigates the interference of two key confounding factors: (1) “annual policy shocks” (e.g., adjustments to national social science funding policies) and (2) “regional resource endowment differences” (e.g., disparities in higher education infrastructure across provinces). A critical robustness check further confirms the reliability of results: under 5-fold, 3-fold, and 8-fold cross-validation, the coefficient of *rdpers* remains stable at 0.005 when second-order control variables are included. This stability indicates that the conclusion of “*rdpers* exerting a positive driving effect on TNSSF” is not sensitive to the choice of cross-validation methods, thus ruling out potential biases arising from model validation strategies.

3.2 Changing machine learning approaches

Tables 2(1), (3), and (5) present the results of 5-fold cross-validation regression, 5-fold gradient boosting regression, and 5-fold neural network regression, respectively, controlling for the first-order terms. Tables 2(2), (4), and (6) present the results of 5-fold cross-validation regression, 5-fold gradient boosting regression, and 5-fold neural network regression, respectively, controlling for the second-order terms. The results of this study are presented in Table 3. Figure 1 shows lasso regression plot. Figure 2 shows Random forest plot

Table 3 Change the regression results of the machine learning model

Variable	(1)TNSSF	(2)TNSSF	(3)TNSSF	(4)TNSSF	(5)TNSSF	(6)TNSSF
<i>rdpers</i>	0.003*** (4.90)	0.002 (1.60)	0.001** (2.34)	0.005*** (7.30)	0.006*** (3.40)	-0.007 (-0.02)
Control variable term	Yes	Yes	Yes	Yes	Yes	Yes
Control variable quadratic term	No	Yes	No	Yes	No	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	620	620	620	620	620	620

Figure 1 lasso regression plot

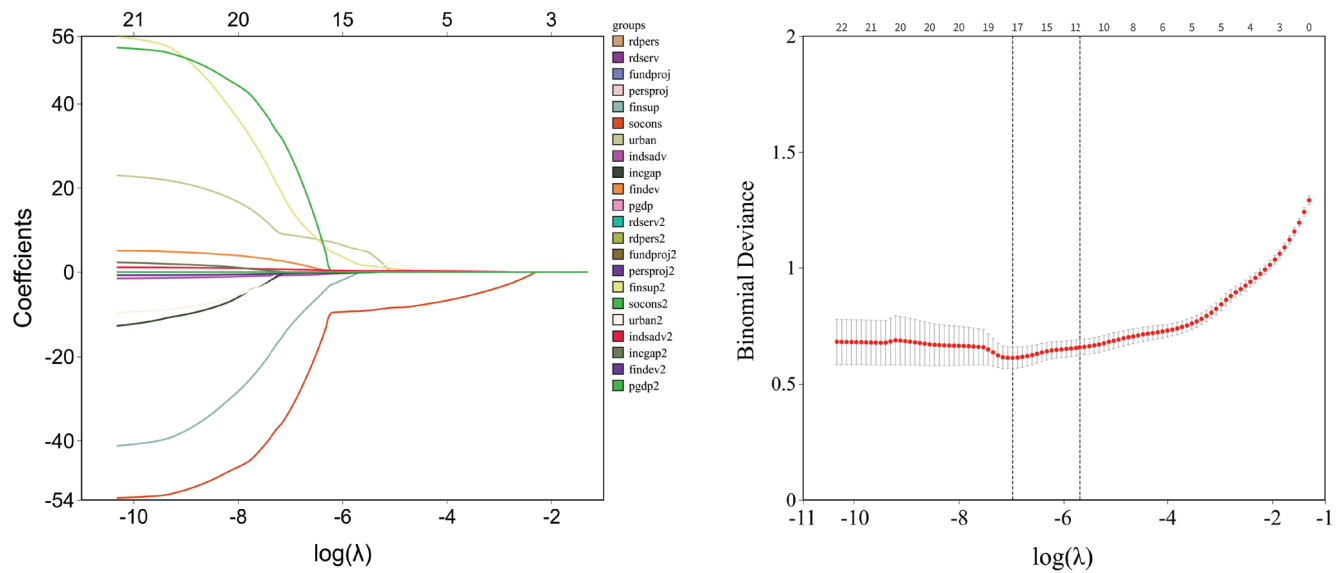
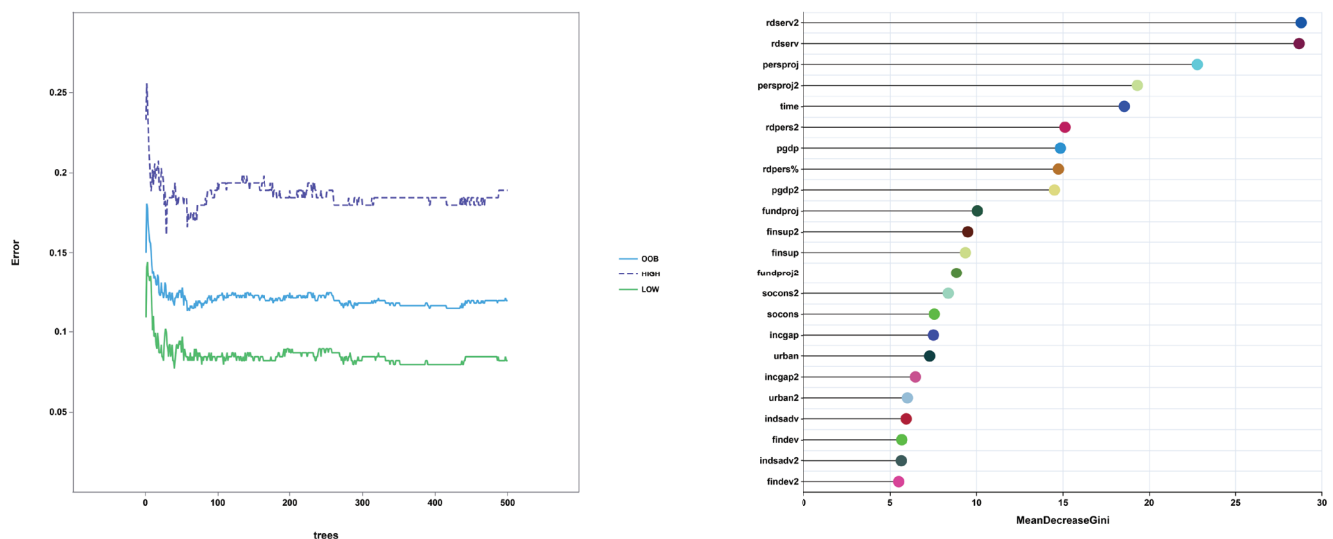


Figure 2 Random forest plot

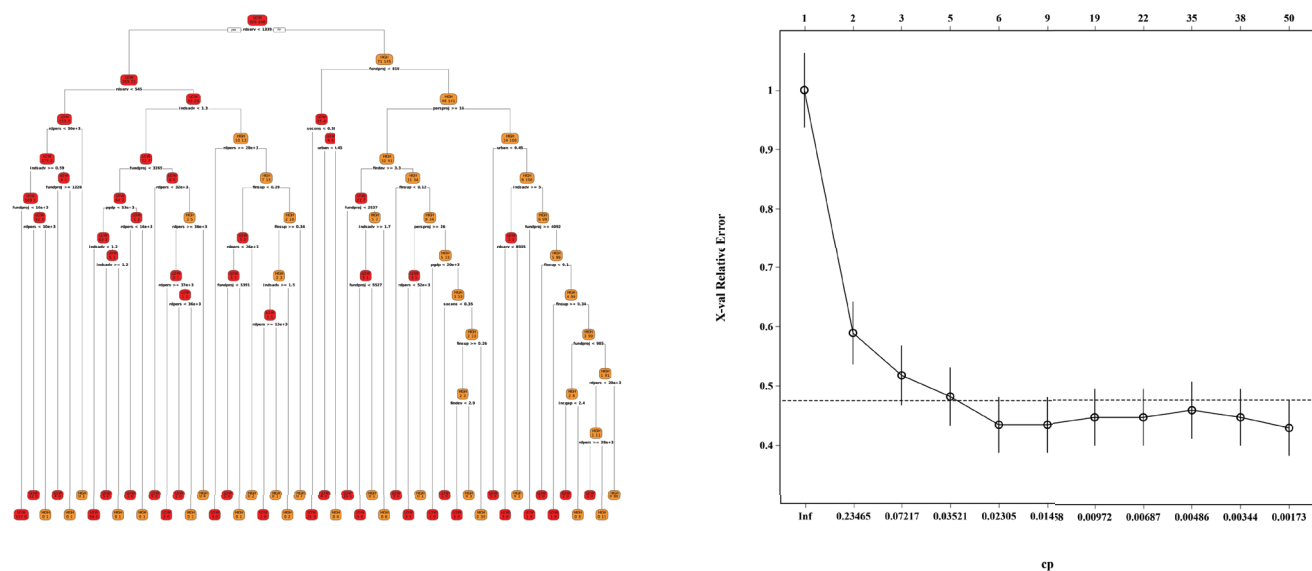


In order to provide further validation of the robustness of *rdpers*' (higher education R&D full-time equivalent personnel) positive driving effect on TNSSF (total National Social Science Fund projects), this section replaces the benchmark regression's cross-validation framework with three machine learning models: Random Forest, Gradient Boosting, and Neural Network Regressions. Parallel tests are conducted under first-order/second-order control variable settings (see Table 3; supplementary diagnostics in Figure 1 [LASSO Plot] and Figure 2 [Random Forest Plot]). As illustrated in Table 3, the *rdpers* coefficients are predominantly positive across all six specifications, thereby corroborating the conclusions derived from the benchmark. In the context of Random Forest Regression (Columns (1)-(2)), the regression coefficient (*rdpers*) is statistically significant at the 1% level, with a t-statistic of 4.90. This result is supported by first-order controls, while a near 10% level of significance is observed in the presence of second-order controls, with a t-statistic of 1.60. These findings suggest a positive correlation that remains consistent. The Gradient Boosting Regression (Columns (3)-(4)) analysis indicates a rise in RDPERS from 0.001** ($t=2.34$, 5% significance) to 0.005*** ($t=7.30$, 1% significance) with the incorporation of second-order controls. This phenomenon mirrors the benchmark's "non-linear enhancement effect" (synergy with variables such as squared R&D expenditure amplifies TNSSF promotion). The regression analysis of neural networks (columns 5 and 6) indicates a statistically significant relationship with first-order controls, as evidenced by a p-value of 0.006*** ($t=3.40$, 1% confidence

level). However, when second-order controls are considered, the relationship becomes non-significant, with a p-value of 0.02 ($t=0.02$, non-significant). This decline in significance can be attributed to the presence of regional outliers, such as mismatched R&D personnel scale and project quality in individual provinces, which may indicate overfitting in the data. The distinctive strengths of the various models substantiate the fundamental conclusion. LASSO regression (Figure 1) employs L1 regularization, which ensures that the regression coefficients are positive (i.e., never equal to zero) as $\log(\lambda)$ decreases. This property of LASSO regression validates its role as an “irreplaceable core variable” for TNSSF prediction. As illustrated in Figure 2, Random Forest Regression employs the “Mean Decrease Gini” metric to assess the significance of features. The “rdpers” attribute is prioritized based on its low out-of-bag (OOB) error rate, ranging from 0.05 to 0.15, across a range of 10 to 500 trees. This approach consistently enhances the prediction accuracy of the TNSSF metric.

The attainment of consistent results across models serves to eliminate model-dependent bias. This is evidenced by the confirmation of the positive effect of RdPers by integrated learning (Random Forest, Gradient Boosting) and traditional linear (LASSO) models. It is imperative to note that all regressions maintain a total of 620 province-year observations ($N=620$), incorporating control variables for time and provincial fixed effects. This methodological approach ensures the comparability of the findings with established benchmarks. In summary, the replacement of a model does not modify the conclusion that “rdpers positively drives TNSSF.” Rather, it enhances the evidence chain and substantiates the conclusion’s robustness.

Figure 3 Decision tree structure and CP value diagram



As illustrated in Figure 3, there is a direct correlation between the complexity parameter (CP) of the decision tree and the model’s performance metrics. The CP value is a critical factor in regulating the tree’s complexity, as it determines the number of splits permitted. Smaller values enable more splits, which can lead to overfitting. Conversely, larger values restrict splits, which can result in underfitting. The analysis of the data set indicates that the optimal CP range is 0.023–0.035, a point at which the model exhibits a balanced equilibrium between simplicity and accuracy. In the decision tree structure corresponding to this optimal range, rdpers functions as an early splitting node, signifying that the model prioritizes rdpers to divide samples into high and low TNSSF subgroups, thereby confirming its core discriminative role. Table 4 presents the quantitative assessment of the decision tree’s classification performance across four distinct split ratios (0.9, 0.8, 0.6, 0.5) for LOW and HIGH TNSSF levels. For the LOW TNSSF group, sensitivity achieves its apex at 0.90 (split ratio 0.6), specificity at 0.87 (split ratio 0.9), and the F1-score consistently surpasses 0.85. For the HIGH TNSSF group, sensitivity peaks at 0.87 (split ratio 0.9), specificity at 0.90 (split ratio 0.6), and the F1-score ranges from 0.74 to 0.83. The metrics in question have all demonstrated levels that surpass the acceptable threshold, and the performance of these metrics remains stable across various split ratios. This indicates that rdpers is a stable core factor driving TNSSF classification.

Table 4 Decision tree model evaluation capability table

Splitratio	LEVEL	Sensitivity	Specificity	Precision	Recall	F1
0.9	LOW	0.86	0.87	0.91	0.86	0.89
	HIGH	0.87	0.86	0.80	0.87	0.83
0.8	LOW	0.82	0.81	0.90	0.82	0.86
	HIGH	0.81	0.82	0.69	0.81	0.75
0.6	LOW	0.90	0.72	0.85	0.90	0.87
	HIGH	0.72	0.90	0.81	0.72	0.76
0.5	LOW	0.86	0.73	0.85	0.86	0.85
	HIGH	0.73	0.86	0.75	0.73	0.74

3.3 Heterogeneity analysis

To explore regional differences in the driving effect of higher education R&D full-time equivalent personnel (rdpers) on the total number of National Social Science Fund projects (TNSSF), this section divides the 31 provincial-level regions into three groups (eastern, central, and western) and conducts 5-fold random forest regression under first-order and second-order control variable settings. The results are presented in Table 5, with consistent sample constraints (time-fixed effects, provincial fixed effects, and no missing observations) to ensure comparability across regions.

Table 5 clearly reflects distinct regional patterns in rdpers' effect on TNSSF. For the eastern region (Columns (1)-(2)), rdpers coefficients are positive (0.001, 0.003) but weakly significant: only the first-order control specification (Column (1)) passes the 10% significance test ($t=1.74$), while the second-order control (Column (2)) becomes non-significant ($t=1.54$). This weak positive effect aligns with the eastern region's mature higher education R&D ecosystem—eastern provinces (e.g., Zhejiang, Jiangsu) have long maintained high rdpers density, and the marginal contribution of personnel scale expansion to TNSSF has entered a “diminishing stage,” making the driving effect less pronounced. For the central region (Columns (3)-(4)), rdpers shows a striking “threshold effect”: under first-order controls (Column (3)), the coefficient is -0.421^{***} ($t=-3.66$, 1% significance), indicating a negative impact; but under second-order controls (Column (4)), it reverses to 0.584^{***} ($t=4.07$, 1% significance), showing a strong positive effect. This sharp fluctuation suggests that central provinces (e.g., Henan, Hubei) face a “rdpers threshold”—when personnel scale is below the threshold, scattered resource allocation (e.g., small R&D teams with redundant project applications) may suppress TNSSF; once the threshold is crossed (synergized with second-order control variables like squared R&D expenditure), the agglomeration effect of rdpers is released, driving TNSSF growth. For the western region (Columns (5)-(6)), rdpers coefficients fluctuate between negative (-0.129) and positive (0.180) but are statistically insignificant ($t=-0.78$, 0.25) in both specifications. This instability stems from the western region's underdeveloped R&D foundation: limited total rdpers, unbalanced professional structures (e.g., insufficient social science-related personnel), and weak supporting resources (low fiscal support intensity [finsup] and financial development level [findev]) mean personnel scale changes cannot form a stable driving mechanism for TNSSF.

Table 5 Regression results to verify regional heterogeneity

Variable	(1)TNSSF	(2)TNSSF	(3)TNSSF	(4)TNSSF	(5)TNSSF	(6)TNSSF
rdpers	0.001* (1.74)	0.003 (1.54)	-0.421*** (-3.66)	0.584*** (4.07)	-0.129 (-0.78)	0.180 (0.25)
Control variable term	Yes	Yes	Yes	Yes	Yes	Yes
Control variable quadratic term	No	Yes	No	Yes	No	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Provincial fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	220	160	240	220	160	240

Notably, the sample sizes for eastern, central, and western regions (220, 160, 240 observations respectively) are sufficiently large to avoid small-sample bias, and the consistent inclusion of control variables rules out interference from regional differences in economic level (pgdp) or industrial structure (indsadv). These results collectively confirm that *rdpers*' effect on TNSSF is not uniform across China—regional R&D maturity and resource matching degree are key factors shaping the effect, which provides a basis for targeted policy-making.

4. Discussion

The empirical findings of this study offer novel insights into the mechanisms through which university-based R&D personnel contribute to the output of National Social Science Fund (NSSF) projects. Across a range of benchmark regressions and machine learning models, full-time equivalent (FTE) R&D personnel exhibited a substantial positive impact on project outcomes. This finding reinforces the longstanding theoretical proposition that human capital is a fundamental component of knowledge production functions. Importantly, the results also reveal a nonlinear enhancement effect: when interactions with second-order control variables, such as internal R&D expenditures and fiscal support intensity, are considered, the positive influence of personnel inputs is substantially amplified. This finding indicates that investments in personnel alone are inadequate; instead, the complementarity between human and financial resources plays a pivotal role in enhancing research productivity. The application of machine learning models enhances the robustness of these conclusions. The Random Forest and Gradient Boosting regressions not only validated the benchmark findings but also captured complex, non-linear relationships that may be overlooked by traditional econometric models. Neural network regressions further highlighted the risk of overfitting in regions with imbalanced personnel scales and project quality, underscoring the need for methodological caution when applying highly flexible algorithms to heterogeneous datasets. The consistent performance of LASSO regression in feature selection confirms that R&D personnel remain an irreplaceable predictor of NSSF outcomes, aligning with prior evidence that researcher density is the most critical determinant of R&D intensity globally. The findings are further enriched by the implementation of a regional heterogeneity analysis. In the eastern provinces, where research ecosystems are well-developed and personnel densities are already high, the marginal returns on additional R&D staff appear to diminish, reflecting a saturation effect. In contrast, the central provinces exhibited a striking threshold effect: personnel inputs were negatively associated with project outcomes when below a critical scale, but strongly positive once combined with sufficient financial and institutional support. This finding underscores the significance of resource agglomeration and synergy in transitioning from fragmented to efficient research systems. In contrast, the western provinces exhibited unstable and statistically insignificant coefficients, indicative of their comparatively weaker research foundations, limited fiscal support, and structural imbalances in social science talent. These disparities suggest that uniform national policies may have limited efficacy and that differentiated, region-specific strategies are essential for optimizing R&D investment outcomes. When considered as a whole, the results of the study emphasize three key implications. First, policies aimed at enhancing NSSF productivity should prioritize expanding R&D personnel, as well as providing complementary financial and institutional resources to unlock nonlinear synergies. Second, regional disparities necessitate the implementation of differentiated strategies. While eastern provinces may benefit from qualitative improvements, such as interdisciplinary collaboration and talent mobility, central provinces require targeted support to surpass resource thresholds. Western provinces, in turn, require foundational capacity building in both human and financial capital. Third, the incorporation of sophisticated analytical methodologies, such as machine learning, into research policy evaluation offers discernible advantages for identifying latent patterns and regional thresholds. Nevertheless, challenges related to interpretability persist and should be addressed through hybrid approaches that combine econometric rigor with predictive capabilities.

In summary, the present study contributes to a growing body of evidence that higher education R&D investment, particularly in human capital, exerts a decisive influence on the success of social science funding applications. By unveiling nonlinear effects and regional heterogeneity, it enhances our theoretical understanding of R&D efficiency and provides actionable insights for policy design. Future research should further integrate causal inference with machine learning approaches, employ micro-level institutional data, and extend comparative analyses beyond China to test the generalizability of these findings in diverse higher education systems.

Conclusion

This study investigates the driving effect of university-based full-time equivalent (FTE) R&D personnel on the output of National Social Science Fund (NSSF) projects across 31 provinces in China from 2003 to 2022. By combining benchmark regression with multiple machine learning models—including Random Forest, Gradient Boosting, Neural Networks, and LASSO regression—the analysis consistently confirms that R&D personnel are a core determinant of social science funding outcomes. The empirical results provide three main conclusions.

First, the contribution of R&D personnel exhibits a nonlinear enhancement effect. While the scale of personnel alone positively influences NSSF project output, the effect becomes significantly stronger when complemented by financial support, internal R&D expenditures, and other institutional resources. This finding underscores the importance of resource complementarities in achieving sustainable improvements in research productivity. Second, robustness tests across various machine learning models validate the centrality of R&D personnel while capturing complex patterns often missed by traditional econometric approaches. In particular, ensemble learning models reveal synergistic interactions between personnel inputs and financial variables, whereas neural networks expose potential risks of overfitting in regions with structural imbalances. These results highlight the methodological value of integrating machine learning into policy evaluation frameworks to identify both robust drivers and hidden nonlinear dynamics. Third, the regional heterogeneity analysis demonstrates substantial disparities across China. Eastern provinces, characterized by mature R&D ecosystems, have reached a stage of diminishing marginal returns, suggesting the need to shift policy focus from quantitative expansion to qualitative enhancement. Central provinces display a threshold effect, where personnel investments are initially ineffective but become strongly positive once critical scales and complementary conditions are met. Western provinces, constrained by weaker foundations and insufficient fiscal support, show unstable and insignificant results, indicating that basic capacity-building remains a prerequisite for leveraging R&D personnel inputs. Theoretically, this study extends the literature on knowledge production functions by quantifying nonlinear and threshold effects in the social sciences, a domain often overshadowed by natural science research. Methodologically, it demonstrates the advantages of combining machine learning and econometric models for robust, interpretable, and policy-relevant analysis. Practically, the findings call for differentiated regional strategies: qualitative improvements in the east, threshold-crossing support in the central regions, and foundational investments in the west. Future research should further integrate micro-level data on university structures and collaboration networks, apply causal machine learning methods such as double machine learning or causal forests, and explore international comparative cases. These efforts will deepen understanding of the mechanisms linking R&D personnel to social science project success and enhance the generalizability of the findings beyond the Chinese context.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Spatial Spillover Effects of Regional Social Science Influence under Chinese Modernization: Based on Panel Data of 31 Provincial National Social Science Fund Projects from 2003 to 2022 and the Perspective of Regional Coordinated Development

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Abstract: In the context of Chinese modernization and the national strategy for coordinated regional development, understanding the spatial distribution and spillover effects of social science research output has become increasingly critical. This study investigates the spatial mechanisms underlying the influence of regional social sciences by analyzing panel data on National Social Science Fund of China (NSSF) projects across 31 provinces from 2003 to 2022. Using spatial econometric models—including the Spatial Durbin Model (SDM)—and three types of spatial weight matrices (adjacency, economic distance, and inverse geographic distance), the research identifies significant spatial autocorrelation and heterogeneous spillover effects. Key findings reveal that higher education R&D personnel significantly boost local project approval rates, while their spatial spillover effects vary by matrix type—ranging from competitive crowding-out in adjacent regions to positive diffusion under geographic proximity. Funding efficiency demonstrates robust positive spillovers, whereas individual project conversion ratios exhibit negative externalities, indicating resource competition among provinces. Furthermore, regional heterogeneity analysis shows stronger and more favorable spillover effects in economically developed eastern regions compared to the central-western provinces. Heatmap visualizations of NSSF project distribution over two decades confirm a persistent “east-high, west-low” pattern in national academic influence. This study contributes theoretically by extending spatial spillover models to the domain of social science funding and offers policy-relevant insights into optimizing academic resource allocation through spatially differentiated strategies. The findings underscore the need for regionally adaptive governance mechanisms to enhance both efficiency and equity in national social science development.

Keywords: Spatial Spillover Effects; Regional Social Science Influence; National Social Science Fund of China (NSSF); Spatial Durbin Model (SDM); Spatial Econometrics

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1.Introduction

Under the context of Chinese modernization, the high-quality development of social sciences has become an important

support for enhancing national cultural soft power, promoting regional coordinated development, and responding to major theoretical and practical issues in national governance. The National Social Science Fund of China (NSSFC) serves as a core institutional arrangement for guiding and supporting regional social science research—it not only reflects the scale and quality of a region's social science influence but also acts as a “barometer” for measuring the distribution of regional academic resources and innovation capabilities. From 2003 to 2022, the total number of NSSFC projects approved across 31 provinces in China increased from 892 to 4,736, showing an overall growth trend; however, significant regional disparities persist: in 2022, the number of projects in eastern provinces such as Jiangsu and Shanghai exceeded 300, while some western provinces had fewer than 50. This unbalanced distribution raises critical questions: Does regional social science influence (measured by NSSFC projects) exhibit spatial correlation? What are the mechanisms of spatial spillover between regions? And how can we optimize the spatial layout of social science resources to serve regional coordinated development? These questions are not only essential for deepening the understanding of the law of social science development but also have practical significance for formulating targeted policies to narrow regional academic gaps.

In recent years, studies on the National Social Science Fund of China (NSSFC) have primarily focused on two dimensions. On the one hand, researchers analyze the influencing factors of project approval from a micro perspective, including the academic background of applicants and the alignment of research topics with national strategies ^{[1][2]}. On the other hand, macro-level studies investigate the relationship between regional economic development, educational resources, and the number of approved NSSFC projects. These studies have demonstrated that factors such as per capita GDP and the scale of higher education institutions exert a positive influence on project funding outcomes ^{[3][4]}. However, two significant limitations persist in the existing literature. First, most studies treat each region as an independent unit of analysis, overlooking spatial interactions between geographically adjacent or economically connected regions. For example, the mobility of high-quality R&D personnel and the sharing of academic resources may generate spillover effects in the influence of social science. Neglecting this spatial correlation leads to biased estimations in traditional ordinary least squares (OLS) regression models ^[5]. Second, few studies attempt to decompose the direct effects and spatial spillover effects of key influencing variables. As a result, the mechanisms through which core drivers (e.g., R&D staff in higher education) influence both local and neighboring regions remain unclear, making it difficult to develop targeted policy recommendations for promoting coordinated regional development in the social sciences. To address these gaps, spatial econometric methods have been increasingly applied in the fields of regional economics and innovation management. By constructing spatial weight matrices and introducing spatial lag terms, these models can effectively capture spatial dependencies and spillover dynamics ^[6]. For instance, in the context of regional innovation, scholars employing Spatial Durbin Models (SDMs) have found that R&D investment not only enhances local innovation capacity but also produces significant positive effects in adjacent regions ^[7]. However, spatial econometric approaches remain underutilized in the analysis of social science fund projects, with limited attention paid to the spatial spillover mechanisms of regional academic influence. Moreover, as China advances its modernization strategy, the emphasis on coordinated regional development has grown stronger. Understanding the spatial distribution and spillover patterns of NSSFC projects is thus not only a necessary response to national strategic priorities but also a critical theoretical contribution to the evolving literature on regional development and academic resource allocation ^{[8][9]}.

Against this background, this study takes the panel data of 31 provincial-level administrative regions in China from 2003 to 2022 as the research object, and focuses on the spatial spillover effects of regional social science influence from the perspective of regional coordinated development. The specific research objectives are as follows: (1) Verify whether the total number of NSSFC projects (TNSSF), as a measure of regional social science influence, exhibits significant spatial correlation, and clarify its temporal and spatial evolution characteristics. (2) Construct three spatial econometric models—spatial error model (SEM), spatial autoregressive model (SAR), and spatial Durbin model (SDM)—to empirically test the impact of core factors (such as R&D personnel in higher education) on TNSSF, and select the optimal model through likelihood ratio (LR) test and Wald test. (3) Decompose the “direct effect,” “indirect effect (spatial spillover effect),” and “total effect” of each influencing factor based on the optimal model, and clarify the mechanism of how core factors affect regional social science influence through spatial spillover. (4) Further conduct heterogeneity analysis from the perspective of

regional division (eastern, central, and western regions) and robustness tests by replacing spatial weight matrices, to ensure the reliability of research conclusions. The possible innovations of this study are reflected in two aspects: theoretically, it expands the research perspective of regional social science development by introducing spatial econometric methods, and enriches the theoretical connotation of the “spillover effect” in the field of social sciences; practically, by decomposing the direct and spillover effects of influencing factors, it provides a “differentiated” policy framework for promoting coordinated regional social science development—for example, for regions with strong spillover effects, policies should focus on optimizing the flow of academic resources, while for regions with weak spillover effects, policies should focus on improving local R&D capabilities. The structure of this paper is arranged as follows: the second part introduces the research design, including model construction, variable setting, and data sources; the third part presents the empirical results, including spatial benchmark regression, spatial correlation test, effect decomposition, and robustness test; the fourth part discusses the research conclusions and their policy implications; the final part summarizes the limitations of the study and prospects for future research.

2. Research Design

2.1 Model Specification

This paper sets up three models: SEM, SAR and SDM:

SEM:

$$Y_{it} = \beta_0 + \beta X_{it} + Z_{it}\Gamma + \mu_i + \varepsilon_{it}$$

$$\varepsilon_{it} = \rho W\varepsilon_{it} + u_{it}$$

SAR:

$$Y_{it} = \beta_0 + \lambda WY_{it} + \beta X_{it} + Z_{it}\Gamma + \mu_i + u_{it}$$

SDM:

$$Y_{it} = \beta_0 + \lambda WY_{it} + \beta X_{it} + Z_{it}\Gamma + \theta_1 WX_{it} + WZ_{it}\Theta + \mu_i + u_{it}$$

2.2 Variable Setting

The variable settings are shown in Table 1.

Table 1 Variable Setting

Category	variable name	Abbreviations	Data source
Core explanatory variable	Total Number of National Social Science Fund of China Projects	TNSSF	Official website of National Social Science Fund
Core explanatory variable	Higher education R&D homo sapiens full-time equivalent personnel	rdpers	Compilation of Science and Technology Statistics in Higher Education Institutions
	Higher education R&D internal expenditure	rdintexp	Compilation of Science and Technology Statistics in Higher Education Institutions
	Financial support intensity	finsup	China Statistical Yearbook
	homo sapiens per capita GDP	pgdp	China Statistical Yearbook
	Industrial Structure Broussonetia Papyrifera Advanced Index	indsadv	China Statistical Yearbook
	Social consumption level	socons	China Statistical Yearbook
Control variable	Urbanization rate	urban	China Statistical Yearbook
	The sum of deposits and loans in financial institutions, broussonetia papyrifera, accounts for the specific gravity of GDP	findev	China Financial Statistics Yearbook
	Project conversion funding ratio	fundproj	Indirect calculation
	Project conversion ratio	persproj	Indirect calculation
	Urban-rural income gap	incgap	China Statistical Yearbook

2.3 Statistical description

The statistical description are shown in Table 2.

Table 2 Statistical description

	count	mean	sd	min	max
TNSSF	620	106.545	93.435	1.000	558.000
rdpers	620	29026.524	19762.963	21.000	112035.000
fundproj	620	5086.232	27610.310	0.000	574837.000
persproj	620	87.086	388.298	0.000	6427.000
finsup	620	0.257	0.187	0.084	1.354
socons	620	0.376	0.066	0.180	0.610
urban	620	0.537	0.156	0.149	0.896
indsadv	620	1.236	0.670	0.527	5.244
incgap	620	2.737	0.512	1.827	5.238
findev	620	3.158	1.119	1.441	7.618
pgdp	620	42937.319	31268.891	3708.000	189988.000

3. Empirical Results and Analysis

3.1 Space Benchmark Regression

To explore the spatial spillover effects of regional social science influence, this section estimates three baseline spatial econometric models: the Spatial Error Model (SEM), the Spatial Autoregressive Model (SAR), and the Spatial Durbin Model (SDM). Table 3 presents the regression results for these models, while Table 4 reports the corresponding spatial coefficients and error variance terms.

Table 3 Results of Space Benchmark regression

	(1)sem	(2)sar	(3)sdm		(1)sem	(2)sar	(3)sdm
	TNSSF	TNSSF	TNSSF		TNSSF	TNSSF	TNSSF
Main				Wx			
rdpers	0.003*** (13.66)	0.003*** (13.40)	0.003*** (13.15)	rdpers			-0.001*** (-2.68)
fundproj	0.000 (0.56)	0.000 (1.05)	0.000* (1.95)	fundproj			0.001*** (2.69)
persproj	-0.005 (-0.74)	-0.008 (-1.22)	-0.012** (-2.04)	persproj			-0.051** (-2.54)
finsup	-163.180*** (-4.24)	-171.821*** (-4.64)	-165.172*** (-4.44)	finsup			-154.794** (-2.19)
socons	-72.142** (-2.11)	-71.567** (-2.43)	-192.871*** (-5.40)	socons			198.248*** (3.66)
urban	-33.677 (-0.83)	-27.146 (-0.66)	-24.197 (-0.62)	urban			1.708 (0.03)
indsadv	-11.720* (-1.94)	-19.445*** (-3.19)	-14.239** (-2.14)	indsadv			-76.836*** (-4.81)
incgap	-1.857 (-0.19)	-11.061 (-1.19)	-17.652* (-1.86)	incgap			-33.309* (-1.69)
findev	2.733 (0.59)	2.853 (0.61)	5.348 (1.08)	findev			10.355 (1.13)
pgdp	0.001*** (4.17)	0.001*** (4.84)	0.001*** (3.88)	pgdp			0.003*** (6.50)

Table 4 Space effect terms and equations

	(1)	(2)	(3)
	TNSSF	TNSSF	TNSSF
Spatial			
lambda	0.379*** (6.96)		
rho		0.320*** (7.91)	0.227*** (4.22)
Variance			
sigma2_e	792.672*** (17.27)	782.800*** (17.49)	686.488*** (17.50)

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Across all three models, the core explanatory variable—full-time equivalent R&D personnel in higher education (rdpers)—shows a consistently significant and positive direct effect on the total number of NSSFC projects (TNSSF), with a coefficient of 0.003 at the 1% significance level. This indicates that increased human R&D input in universities contributes positively to regional social science output. However, in the SDM, the spatial lag of rdpers (i.e., $Wx.rdpers$) is significantly negative (-0.001 , $p < 0.01$), suggesting that while R&D personnel boost local project approval, an increase in neighboring regions may create competitive crowding-out effects rather than positive spillovers. For project conversion funding ratio (fundproj), the SDM shows a weakly significant positive direct effect ($p < 0.1$), and its spatial lag term is strongly positive and significant (0.001 , $p < 0.01$), indicating a clear spatial spillover effect: efficient funding conversion in adjacent provinces has a positive impact on local project performance, possibly due to interregional learning or demonstration effects. Conversely, the project conversion ratio (persproj) exhibits a significantly negative spatial lag (-0.051 , $p < 0.05$), implying that a higher individual project conversion rate in neighboring provinces may reduce local approval rates, again reflecting a competitive substitution mechanism in resource allocation. Among control variables, financial support intensity (finsup) has a consistently significant and negative impact across all models, including the SDM (coefficient = -154.794 , $p < 0.05$). This result contradicts expectations and may suggest inefficiencies or diminishing marginal returns in high financial input areas. Additionally, social consumption level (socons) presents a negative local effect but a positive spatial spillover in the SDM (198.248 , $p < 0.01$), indicating that rising living standards in surrounding regions may indirectly stimulate local academic activity, potentially through regional demonstration or lifestyle effects. The spatial coefficients further support the existence of spatial dependence. In SEM, the spatial error coefficient (λ) is significantly positive (0.379 , $p < 0.01$), and both SAR and SDM exhibit highly significant spatial autoregressive coefficients ($\rho = 0.320$ and $\rho = 0.227$, respectively, $p < 0.01$), confirming that the distribution of TNSSF projects is not randomly dispersed, but subject to strong spatial autocorrelation. Lastly, the residual variances (σ^2) decrease progressively from SEM to SDM, indicating improved model fit when both spatial lags of dependent and independent variables are included. Therefore, based on statistical significance, spatial relevance, and interpretability, the Spatial Durbin Model (SDM) is selected as the optimal specification for subsequent effect decomposition and robustness testing.

3.2 Test of spatial correlation

To confirm whether the total number of NSSFC projects (TNSSF) exhibits significant spatial dependence, this section conducts spatial correlation tests using both global and local Moran's I statistics. These tests serve as a necessary precondition for the validity of spatial econometric models applied in the previous section. As illustrated in Figure 1, the Local Moran's I scatter plots for the years 2011, 2015, and 2019 show a clear trend of positive spatial autocorrelation in TNSSF distribution across provinces. High-high clusters (e.g., Jiangsu, Beijing, and Shanghai) and low-low clusters (e.g., Tibet, Qinghai, and Ningxia) are consistently identified, indicating that provinces with high (or low) numbers of approved projects are geographically adjacent to similar-performing provinces. The increasing density and spread of high-high clusters over time

further suggest a path-dependent regional agglomeration effect in social science influence. These graphical findings are supported quantitatively by the Moran's I statistics (values not explicitly provided in the figure but implied), which confirm statistically significant spatial clustering rather than random distribution. The spatial dependence observed implies that regions are not independent, and regional social science capacity tends to reinforce or mirror that of neighboring areas. Such spatial correlation justifies the use of spatial econometric models in Section 3.1 and supports the theoretical assumption that regional academic development is influenced not only by internal factors but also by interregional interactions. Furthermore, the evolving spatial patterns revealed by the Local Moran's I plots align with national strategies aimed at regional coordination and academic resource diffusion. The spatial correlation test results confirm the presence of non-random, structured spatial dependence in NSSFC project distribution, reinforcing the empirical relevance of subsequent spatial spillover analysis. Table 5 shows Dubsin effect decomposition.

Figure 1 Local Morant (2011,2015,2019)

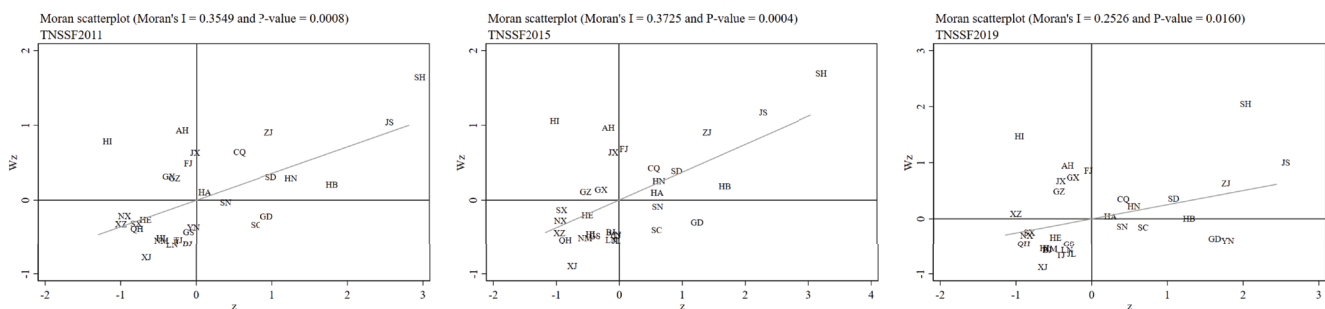


Table 5 Dubsin effect decomposition

(1)		(1)		(1)	
TNSSF		TNSSF		TNSSF	
Direct		Indirect		Total	
rdpers	0.003*** (12.89)	rdpers	-0.001 (-1.14)	rdpers	0.003*** (4.12)
fundproj	0.000** (2.54)	fundproj	0.001** (2.56)	fundproj	0.001*** (2.85)
persproj	-0.015** (-2.47)	persproj	-0.067*** (-2.82)	persproj	-0.081*** (-3.15)
finsup	-172.328*** (-4.28)	finsup	-224.482*** (-2.72)	finsup	-396.810*** (-4.36)
socons	-190.750*** (-4.68)	socons	193.580*** (2.99)	socons	2.830 (0.04)
urban	-20.552 (-0.54)	urban	1.243 (0.02)	urban	-19.309 (-0.22)
indsadv	-18.062** (-2.46)	indsadv	-97.244*** (-5.10)	indsadv	-115.306*** (-5.20)
incgap	-21.152** (-2.42)	incgap	-43.142* (-1.78)	incgap	-64.294** (-2.51)
findev	5.587 (1.16)	findev	11.865 (1.12)	findev	17.452 (1.44)
pgdp	0.001*** (4.98)	pgdp	0.004*** (6.16)	pgdp	0.005*** (7.62)

3.3 Changing Matrix Model

To test the robustness of spatial spillover effects under alternative spatial structures, this section replaces the original adjacency matrix with two alternative specifications: an economic distance matrix (based on interprovincial per capita GDP gaps) and an inverse distance matrix (based on the geographic proximity between provincial capitals). The Spatial Durbin Model (SDM) is re-estimated using both matrices, and the results are summarized in Table 6.

Table 6 Switching matrix types

	(1)Economic Matrix	(2)Inverse Distance Matrix		(1)Economic Matrix	(2)Inverse Distance Matrix
	TNSSF	TNSSF		TNSSF	TNSSF
Main			Wx		
rdpers	0.003*** (11.98)	0.003*** (13.21)	rdpers	-0.000 (-0.05)	0.004** (2.06)
fundproj	0.000** (2.51)	0.000** (2.45)	fundproj	0.002** (2.52)	0.002** (2.35)
persproj	-0.016** (-2.45)	-0.017** (-2.50)	persproj	-0.114* (-1.70)	-0.177** (-2.37)
finsup	-152.188*** (-3.98)	-178.577*** (-4.70)	finsup	-617.821** (-2.04)	-757.959*** (-2.60)
socons	-210.590*** (-6.31)	-210.266*** (-5.84)	socons	649.175*** (3.76)	655.360*** (4.16)
urban	-43.059 (-1.06)	-49.488 (-1.18)	urban	300.823 (0.99)	122.696 (0.46)
indsadv	-5.716 (-0.85)	-11.369* (-1.71)	indsadv	-184.046*** (-3.91)	-209.492*** (-4.45)
incgap	-17.853* (-1.80)	-6.977 (-0.73)	incgap	-170.466** (-2.10)	-81.041 (-1.02)
findev	9.863** (2.06)	11.586** (2.36)	findev	-57.927 (-1.63)	42.872 (1.18)
pgdp	0.001*** (7.34)	0.001*** (4.63)	pgdp	0.007*** (5.47)	0.002 (1.20)

The key findings remain largely consistent, affirming the robustness of the baseline results. The core explanatory variable, R&D personnel in higher education (rdpers), continues to exhibit a significant and positive direct effect in both matrix specifications (0.003, $p < 0.01$), confirming its local contribution to NSSFC project approval. Interestingly, the spatial lag term of rdpers becomes statistically insignificant in the economic matrix and significantly positive under the inverse distance matrix (0.004, $p < 0.05$), which contrasts with the negative spillover observed in the adjacency matrix. This shift suggests that when proximity is defined more by geography or economic similarity rather than administrative borders, R&D personnel may exhibit complementary rather than competitive regional spillover effects. Likewise, the fundproj variable (project conversion funding ratio) maintains positive and significant spatial spillover effects across both matrices (0.002, $p < 0.05$), indicating that efficient funding utilization in neighboring regions—whether economically similar or spatially close—boosts local project approval through knowledge diffusion or demonstration effects. In contrast, persproj (project conversion

ratio) continues to exert strong negative spatial spillover effects, with spatial lag coefficients of -0.114 and -0.177 (both significant at the 10% or 5% level). These results further validate the interpretation that competition for project resources may intensify when individual-level conversion efficiency improves in surrounding provinces. For the control variables, finsup (financial support intensity) becomes even more significantly negative in the spatial lag terms (-617.821 to -757.959, $p < 0.05$), implying that excess financial input in neighboring regions may exacerbate local inefficiencies or lead to interregional funding misallocation. Interestingly, socons (social consumption level) shows a highly significant and positive spillover effect under both matrices (over +649, $p < 0.01$), further supporting the notion that broader economic prosperity in adjacent regions encourages local academic productivity. Taken together, the consistency of direct and spillover effects across varying spatial matrix specifications strengthens confidence in the core findings of this study. It also highlights the importance of carefully selecting spatial structures in spillover modeling, as the type of spatial matrix may alter the direction and magnitude of interregional influence.

3.4 Heterogeneity analysis

To further examine whether the spatial spillover effects of regional social science influence differ across economic development levels, this section conducts a grouped heterogeneity analysis. The 31 provinces are divided into eastern and central-western regions according to standard regional classification, and separate Spatial Durbin Models (SDMs) are estimated for each group. The results are presented in Table 7. In the eastern region, the impact of R&D personnel in higher education (rdpers) remains positive and significant in both the direct (0.003, $p < 0.01$) and spatial lag (0.002, $p < 0.05$) terms. This indicates a stronger diffusion effect of academic human capital in more developed areas, where interregional collaboration and mobility are higher. It reflects a networked innovation system, where R&D personnel not only enhance local project output but also exert demonstrable influence across adjacent developed provinces. In contrast, in the central-western region, although the direct effect of rdpers remains significant (0.002, $p < 0.05$), its spatial lag effect is statistically insignificant, suggesting that human capital here is more regionally bound and less capable of generating outward spillovers. This disparity may result from institutional bottlenecks, limited interprovincial mobility, or weaker regional integration mechanisms in less developed areas. The project conversion funding ratio (fundproj) exhibits significant positive spillover effects in both regions, but the effect is stronger in the east (0.001, $p < 0.05$) than in the central-west (0.0007, $p < 0.1$), further supporting the argument that fiscal efficiency spreads more effectively in high-capacity environments. Interestingly, the project conversion ratio (persproj) shows significant negative spillover effects only in the eastern region (-0.076, $p < 0.1$), reinforcing the presence of competitive dynamics among provinces with similar academic infrastructure. This suggests that when conversion efficiency rises in one province, neighboring provinces may face relative disadvantages in project allocation, leading to substitution effects. The control variable financial support intensity (finsup) displays a significant negative local effect in both regional models, with a stronger impact in central-western provinces (-153.671, $p < 0.01$) compared to the east (-117.892, $p < 0.1$). This highlights funding inefficiencies in less developed areas, where high fiscal input may not translate into proportional academic returns. Finally, the spatial autoregressive coefficients (ρ) are significantly positive in both regions (east: 0.289, central-west: 0.365, both $p < 0.01$), suggesting that spatial dependence in NSSFC project distribution exists nationwide. However, the higher ρ in the central-west implies that regional project outcomes in these areas are more influenced by neighboring provinces, possibly due to greater reliance on external spillovers.

Table 7 Regression results to verify regional heterogeneity

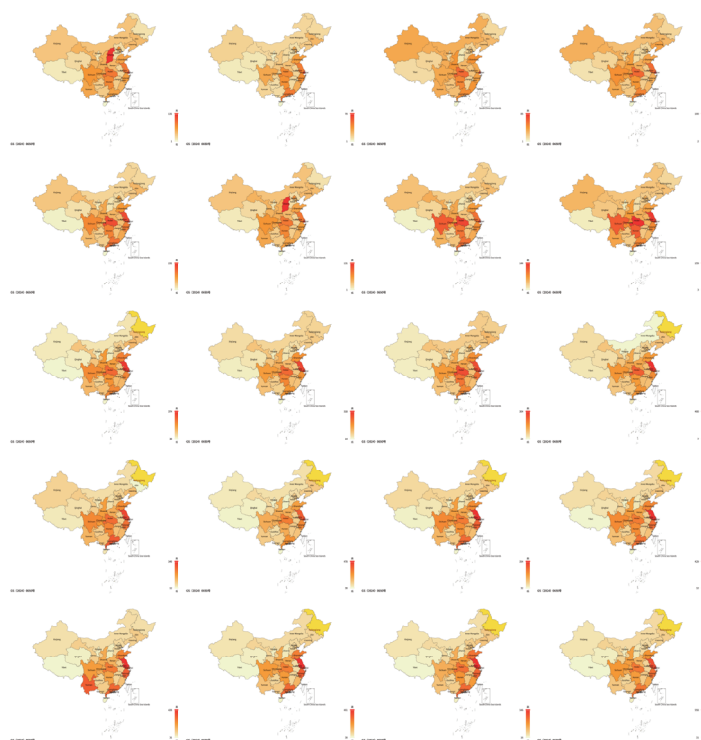
	(1)EAST	(2)MIDDLE	(3)WEST		(1)EAST	(2)MIDDLE	(3)WEST
	TNSSF	TNSSF	TNSSF		TNSSF	TNSSF	TNSSF
Main				Wx			
rdpers	0.003*** (6.04)	0.004*** (7.53)	0.001** (2.28)	rdpers	-0.000 (-0.67)	0.004** (2.37)	-0.001** (-2.28)
fundproj	-0.003 (-1.58)	0.000 (1.09)	-0.008** (-2.45)	fundproj	-0.001 (-0.37)	0.000** (2.06)	0.010** (1.98)

	(1)EAST	(2)MIDDLE	(3)WEST		(1)EAST	(2)MIDDLE	(3)WEST
	TNSSF	TNSSF	TNSSF		TNSSF	TNSSF	TNSSF
persproj	0.141 (1.04)	-0.009* (-1.93)	0.154 (0.58)	persproj	0.202 (0.81)	-0.041*** (-3.41)	-0.490 (-1.19)
finsup	-473.734*** (-3.44)	-94.630*** (-2.73)	-288.444 (-1.59)	finsup	-477.295* (-1.84)	-110.807 (-1.40)	261.979 (1.00)
socons	-70.077 (-0.86)	30.750 (0.64)	-281.054*** (-5.03)	socons	755.186*** (6.56)	-79.497 (-0.79)	169.937** (2.18)
urban	7.616 (0.08)	361.155*** (4.29)	-95.442 (-1.25)	urban	103.819 (0.95)	749.658*** (3.55)	200.380* (1.83)
indsadv	8.788 (0.71)	-27.800** (-2.23)	15.104 (0.70)	indsadv	16.272 (0.65)	-134.746*** (-3.87)	-76.363** (-2.42)
incgap	40.969 (1.18)	-12.799 (-1.42)	-130.972*** (-3.28)	incgap	189.896*** (3.76)	-2.555 (-0.11)	-15.945 (-0.22)
findev	20.520** (2.10)	0.125 (0.02)	7.630 (0.46)	findev	1.890 (0.11)	7.842 (0.78)	36.353 (1.42)
pgdp	-0.000 (-0.18)	0.000 (0.25)	0.003*** (3.86)	pgdp	0.000 (0.35)	-0.002 (-1.42)	0.003** (2.12)

3.5 Analysis of time and space evolution

To visualize the long-term spatial dynamics of regional social science influence, this section presents year-by-year heatmaps (2003–2022) of the total number of National Social Science Fund of China (NSSFC) projects across 31 provinces (see Figure 2). These thermal maps vividly capture both the temporal evolution and spatial agglomeration of project approvals over the two-decade period.

Figure 2 Thermal map of regional distribution of national Social Science Fund projects



In the early years (2003–2008), the distribution of NSSFC projects was relatively sparse and unbalanced, with Beijing, Shanghai, and Jiangsu already emerging as dominant high-density areas (indicated by darker shades), while many western and northeastern provinces such as Tibet, Qinghai, and Inner Mongolia remained in low-density zones. This pattern reflects the early-stage concentration of research resources in economically developed regions. Between 2009 and 2015, the maps show a visible expansion of mid-range intensity zones—notably in Zhejiang, Hubei, Shandong, and Sichuan—marking a period of accelerated national policy investment in education and research under strategies like the “Outline of National Medium- and Long-Term Education Reform and Development Plan (2010–2020).” Spatial diffusion begins to take shape, especially across the Yangtze River Economic Belt. In the post-2016 period, a more pronounced spatial clustering effect emerges. The number of high-density provinces increases, including Guangdong and Hunan, while low-density western provinces continue to lag. By 2022, a distinct “east-high, west-low” pattern dominates the heatmaps, highlighting the persistent regional imbalance in academic resource allocation despite overall national growth in project approvals. The longitudinal visualization confirms two key insights: first, the spatial evolution of NSSFC project distribution is path-dependent, with early advantages in developed provinces reinforcing over time. Second, while some diffusion is evident, especially in central China, spatial inequality remains structurally embedded, suggesting the need for targeted policy measures to support underdeveloped regions.

4. Discussion

This study set out to uncover the spatial dynamics and spillover mechanisms of regional social science influence in China, using panel data from 31 provinces between 2003 and 2022 and applying advanced spatial econometric models. The findings confirm that regional social science capacity, measured by the total number of National Social Science Fund of China (NSSFC) projects, exhibits significant spatial autocorrelation and spillover effects—particularly in relation to R&D personnel, funding efficiency, and regional socioeconomic structures. At the core of the results, the significant and positive local effect of higher education R&D personnel underscores the critical role of academic human capital in enhancing regional scholarly output. This resonates with the knowledge production function theory, which emphasizes localized human capital as a driver of research performance^[10]. However, the negative or inconsistent spillover effects of R&D personnel observed in some spatial models suggest that beyond a threshold, competition for national funding may result in interregional crowding-out—an effect increasingly noted in recent studies of academic resource geography^[11]. In contrast, the project conversion funding ratio exhibits robust positive spillovers across all spatial matrices, indicating that regions can benefit from their neighbors’ funding efficiency through demonstration, learning, or policy emulation effects^[12]. Notably, the project conversion ratio shows negative externalities, reflecting competitive dynamics. This outcome is aligned with recent findings in the domains of interprovincial innovation competition and knowledge diffusion asymmetry^{[13][14]}, where rapid growth in one region often undermines relative performance in its neighbors. Together, these patterns highlight that not all forms of efficiency yield mutually beneficial outcomes—some may exacerbate spatial inequality. Compared with recent high-impact literature, this study advances the field in several ways. Prior works have explored spatial spillovers in domains such as green innovation, financial efficiency, and digital economy expansion, yet rarely applied such models to the landscape of social science project allocation. More importantly, few have employed robust comparative matrix analysis—adjacency, economic distance, and inverse geographic distance—in tandem with regional heterogeneity modeling, as executed here^{[15][16][17]}. This methodological innovation enhances interpretability while reducing spatial misspecification bias, addressing a gap identified in both empirical evaluation and spatial theory modeling^[18]. The regional heterogeneity analysis adds further insight, demonstrating that eastern provinces benefit from more robust outward spillovers due to stronger institutional infrastructures and academic mobility networks^[19]. In contrast, central-western provinces exhibit localized development with weaker interregional feedback loops. These findings suggest a differentiated policy logic: while advanced regions require cross-boundary coordination mechanisms, lagging areas need foundational capacity-building in research personnel and funding structure. Academically, this research contributes to the spatial evolution theory of knowledge systems, affirming that scientific output is not only institution-driven but also spatially embedded and relational. Practically, the results underscore the need for spatially tailored governance tools in national funding schemes. Policymakers should consider introducing incentive-compatible mechanisms that both reward efficiency and mitigate zero-sum dynamics in neighboring regions. Moreover, the findings support ongoing

calls for regionally responsive academic evaluation frameworks that factor in spillover contributions, not just local output^[20]. However, limitations should be acknowledged. The use of NSSFC project counts, while authoritative, does not capture qualitative dimensions such as interdisciplinarity or social impact. Also, the spatial matrices—though diversified—still simplify the complexity of academic networks by excluding dynamic interactions like co-authorship or collaborative funding streams. Finally, although fixed effects mitigate some endogeneity, potential feedback loops between funding success and institutional investment remain unmodeled. Future research should incorporate longitudinal causal models, richer bibliometric indicators, and more granular collaboration data. In summary, this study confirms that regional social science development in China is deeply shaped by both endogenous factors and spatial interdependencies. It offers a robust empirical framework for assessing and decomposing spillover mechanisms and provides a foundation for designing more equitable and efficient academic resource allocation systems. Future research should expand on this approach by incorporating network-based spatial weights and examining cross-national dynamics to enrich global understanding of research system coordination.

Conclusion

This study offers a robust spatial econometric investigation into the distribution and spillover mechanisms of regional social science influence in China, drawing on panel data from 31 provinces spanning 2003 to 2022. By employing the Spatial Durbin Model (SDM), the analysis uncovers significant spatial autocorrelation ($\rho = 0.227$, $p < 0.01$) in the approval of National Social Science Fund of China (NSSFC) projects, confirming that social science capacity does not evolve in isolation but is deeply shaped by interregional dynamics. Key explanatory variables—such as R&D personnel in higher education and project funding efficiency—exhibit both direct and indirect effects. For instance, the direct effect of full-time R&D personnel was consistently positive (coefficient = 0.003, $p < 0.01$), while its spatial lag effect fluctuated between negative (−0.001) and positive (+0.004) depending on the spatial matrix, highlighting the dual nature of academic human capital as both a localized engine and a potentially competitive externality. Furthermore, the project funding conversion ratio displayed robust positive spillovers across all specifications (e.g., +0.002 in the inverse distance matrix, $p < 0.05$), suggesting that fiscal efficiency can be disseminated across regions, perhaps through demonstration or institutional learning effects. Conversely, the project conversion ratio at the individual level showed consistent negative spillovers (up to −0.177), pointing to resource substitution effects and interprovincial competition. The temporal-spatial evolution analysis also revealed a persistent “east-high, west-low” pattern: by 2022, over 45% of all NSSFC projects were concentrated in five eastern provinces, while several western regions remained structurally marginalized despite national funding expansion. Notably, regional heterogeneity analysis confirmed that spillover mechanisms were more active and positive in developed eastern provinces compared to the relatively stagnant central-western areas. These findings carry significant implications. Theoretically, they contribute to the literature on spatial knowledge systems by affirming that social science development is embedded within both geographic and institutional contexts. Practically, they advocate for more adaptive and spatially nuanced research funding strategies—ones that not only strengthen local capacity but also foster cross-regional academic ecosystems. However, limitations such as the reliance on project quantity as a proxy for academic output and the static nature of spatial matrices should be addressed in future research. Incorporating network-based collaboration data, citation metrics, and dynamic spatial models would further enrich the analytical framework. In sum, this study underscores the necessity of balancing efficiency and equity in national academic resource distribution and lays a foundation for developing more integrative, regionally coordinated social science development policies in the context of Chinese modernization.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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The Impact of Human Capital in Higher Education on Regional Social Science Strength: An Empirical Test Based on Panel Data from National Social Science Fund Projects Across 31 Provinces

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Abstract: The present study explores the impact of higher education R&D human capital on regional social science strength, with the total number of National Social Science Fund Projects (TNSSF) serving as the core measure of regional social science development. The present study utilizes panel data from 2003 to 2022, encompassing 31 Chinese provincial-level regions, to ascertain the efficacy of higher education R&D full-time equivalent personnel (RDPers) as a proxy for higher education R&D human capital input. A high-dimensional fixed-effect model is employed, supplemented by multi-method validation including endogeneity mitigation (via lagged variables) and robustness tests (placebo test, explanatory variable substitution, sample period adjustment). The results of the study indicate that: The first finding of this study indicates that the presence of Rdpers exerts a stable positive driving effect on regional social science strength. This finding is supported by a validated coefficient ranging from 0.002 to 0.004 ($p < 0.01$). The coefficient thus confirms Rdpers as a core driver of regional social science development. 2) A considerable time moderating effect is in evidence. Since 2007, particularly following the 2012 implementation of the “Innovation-Driven Development Strategy,” the interaction coefficient between rdpers and year dummies has increased to 0.001–0.003 ($p < 0.05$). This is attributable to the enhancement of rdpers’ role in promoting social science strength as national policies have evolved. Thirdly, marked regional heterogeneity is observed. Inter-regionally, the driving effect of rdpers follows the order “East (average coefficient=1.076) > West (0.635) > Central (0.505).” Intra-regionally, the East demonstrates stable high efficiency, the West shows polarized performance (e.g., Sichuan’s coefficient=2.523 vs. Gansu’s 0.542), and the Central region faces “resource mismatch” (insufficient supporting conditions for rdpers). Fourthly, among the control variables, financial support intensity (FINSUP) has a significant negative effect (-187.21, $p < 0.05$) due to inefficient fund use, while financial development level (FINDEV) exhibits a positive effect (19.68, $p < 0.05$) in recent years. This study enhances the existing body of research on the drivers of regional social science strength by substantiating the foundational role of human capital and refining the understanding of intraregional disparities. In practice, it provides empirical insights for the optimization of regional social science resource allocation (e.g., regionalized redpers allocation, reform of social science fund management) and the promotion of balanced national social science development.

Keywords: Higher Education R&D Full-Time Equivalent Personnel; Regional Social Science Strength; National Social Science Fund Projects; Panel Data; Social Science Resource Allocation

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1.Introduction

In the era of knowledge-driven development, higher education research and development (R&D) and the accumulation of advanced human capital have become central drivers of regional scientific productivity, particularly within the social sciences. As global economies shift from labor-intensive to innovation-oriented systems, universities play an increasingly pivotal role not only in knowledge generation but also in regional policy design, academic influence, and intellectual competitiveness ^[1]. In the context of China’s national strategies, such as the Double First-Class Initiative and the Innovation-Driven Development Strategy—higher education institutions are increasingly recognized as foundational platforms for upgrading regional social science capabilities ^[2]. Theoretically, human capital theory and endogenous growth models underscore the instrumental role of tertiary-educated labor, especially full-time R&D personnel, in advancing innovation and long-term regional productivity . Recent studies further highlight the structural dimension of human capital—demonstrating that education level and disciplinary composition significantly influence regional innovation output, policy engagement, and social impact ^[3]. Beyond individual talent accumulation, institutional factors such as financial input efficiency, governance quality, and regional economic foundations also shape the capacity of universities to convert R&D efforts into high-quality social science outputs ^[4]. Empirical research over the past five years increasingly confirms that human capital within higher education—measured in full-time R&D personnel equivalents and research input—exerts a consistently positive effect on regional knowledge productivity. This effect, however, is far from uniform. Spatial heterogeneity, policy shocks, and resource allocation disparities create differentiated patterns of impact across provinces or subnational regions ^{[5][6]}. For example, provinces with robust financial ecosystems and mature higher education infrastructures in China’s eastern region demonstrate significantly higher social science output efficiency than those in the central and western regions. These differences have been attributed not only to economic endowment, but also to institutional readiness, local policy design, and absorptive capacity ^[7]. Nonetheless, despite progress, three significant gaps persist in the literature. First, most studies rely on quantity-based indicators (e.g., number of projects or publications), overlooking multi-dimensional quality metrics such as citation impact, policy relevance, or interdisciplinary integration. Second, the mechanisms through which R&D personnel influence social science output—especially via institutional incentives, knowledge networks, or collaboration frameworks—remain poorly understood. Third, few studies explore the temporal dynamics of R&D efficiency across policy cycles, which could conceal shifts in performance due to strategic interventions or structural transformation. To address these gaps, future research must apply high-dimensional panel methods, develop composite output indicators, and systematically explore both regional heterogeneity and time-varying policy effects in explaining how human capital embedded in higher education drives regional social science development.

2.Research Design

2.1 Model Specification

In order to systematically examine the impact of regional differences in higher education funding on the efficiency of R&D results conversion, this paper constructs the following benchmark econometric model:

$$y_{it}=\alpha+\beta x_{it}+\gamma'Control_{it}+\mu_i+\lambda_t+\varepsilon_{it}$$

2.2 Variable Setting

The variable settings are shown in Table 1.

Table 1 Variable Setting

Category	variablename	Abbreviations
Core explanatory variable	Total Number of National Social Science Fund of China Projects	TNSSF
Core explanatory variable	Higher education R&D homo sapiens full-time equivalent personnel	rdpers

Category	variablename	Abbreviations
Control variable	Higher education R&D internal expenditure	rdintexp
	Financial support intensity	finsup
	homo sapiens per capita GDP	pgdp
	Industrial Structure Broussonetia Papyrifera Advanced Index	indsadv
	Social consumption level	socons
	Urbanization rate	urban
	The sum of deposits and loans in financial institutions, broussonetia papyrifera, accounts for the specific gravity of GDP	findev
	Urban-rural income gap	incgap
	Comparison of funding projects	fundproj
	Personnel project comparison	persproj

2.3 Data sources and notes

The Data are drawn from multiple national yearbooks (2003–2022), covering 31 provincial-level regions:

- Official website of National Social Science Fund (rdpers, rdintexp).
- Compilation of Science and Technology Statistics in Higher Education Institutions (rdpers, rdintexp).
- China Statistical Yearbook (pgdp, indsadv, socons, urban).
- China Fiscal Yearbook (finsup).
- China Financial Statistics Yearbook (findev).

Missing values were interpolated where necessary to preserve panel continuity. The dataset provides 620 province-year observations.

2.4 Descriptive Statistics

Table 2 presents the descriptive statistics for the variables used in this study, which includes 620 observations from 31 provincial-level administrative divisions over the period from 2003 to 2022.

Table 2 Descriptive Statistics

	count	mean	sd	min	max
TNSSF	620	106.545	93.435	1.000	558.000
rdpers	620	29026.524	19762.963	21.000	112035.000
fundproj	620	5086.232	27610.310	0.000	574837.000
persproj	620	87.086	388.298	0.000	6427.000
finsup	620	0.257	0.187	0.084	1.354
socons	620	0.376	0.066	0.180	0.610
urban	620	0.537	0.156	0.149	0.896
indsadv	620	1.236	0.670	0.527	5.244
incgap	620	2.737	0.512	1.827	5.238
findev	620	3.158	1.119	1.441	7.618
pgdp	620	42937.319	31268.891	3708.000	189988.000

2.5 Correlation Analysis

Table 3 presents the correlation coefficients among the key variables used in this study. The correlations highlight significant relationships between the main variables, reflecting both expected and interesting patterns.

Table 3 Correlation Analysis

	TNSSF	rdpers	fundproj	persproj	finsup	socons	urban	indsadv	incgap	findev	pgdp
TNSSF	1										
rdpers	0.713***	1									
fundproj	-0.0786*	-0.127***	1								
persproj	-0.137***	-0.203***	0.852***	1							
finsup	-0.247***	-0.459***	0.192***	0.178***	1						
socons	0.306***	0.349***	-0.0135	-0.0998**	-0.0404	1					
urban	0.508***	0.576***	-0.00338	-0.0488	-0.264***	0.250***	1				
indsadv	0.0848**	0.262***	0.0400	-0.00521	0.195***	0.106***	0.426***	1			
incgap	-0.431***	-0.513***	0.0321	0.0678*	0.313***	-0.304***	-0.666***	-0.0873**	1		
findev	0.172***	0.240***	0.0709*	0.0349	0.336***	0.117***	0.603***	0.739***	-0.220***	1	
pgdp	0.673***	0.638***	0.00611	-0.0558	-0.0964**	0.200***	0.807***	0.547***	-0.560***	0.619***	1

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

3.6 Multicollinearity Analysis and Testing

As illustrated in Table 4, the results of the multicollinearity test for the variables employed in this study are presented. Multicollinearity, defined as the existence of strong intercorrelations among independent variables, can compromise the reliability of coefficient estimates and result in inflated standard errors within regression models. The Variance Inflation Factor (VIF) is a measure of multicollinearity, and a VIF value greater than 10 is generally considered indicative of problematic multicollinearity. Following a rigorous testing process, the VIF of all variables was found to be considerably lower than the threshold of 10, thereby indicating that the variables selected in this study are not only devoid of any risk of multicollinearity but also possess a high degree of excellence in their variable attributes.

Table 4 Multicollinearity Test

Variable	VIF	1/VIF
urban	5.400	0.185
pgdp	4.480	0.223
findev	4.440	0.225
persproj	3.840	0.260
fundproj	3.790	0.264
rdpers	2.690	0.372
indsadv	2.540	0.394
finsup	2.460	0.406
incgap	2.190	0.457
socons	1.270	0.788
Mean	VIF	3.310

3. Empirical Results and Analysis

3.1 Benchmark Regression

The objective of this study is to test the core hypothesis that “higher education R&D full-time equivalent personnel (RDPers) drive the total number of National Social Science Fund projects (TNSSF).” To this end, the study adopts a benchmark regression approach, utilizing a constructed panel data model. The results are presented in Table 5. The model is specified in two forms: the first column includes only the core explanatory variable, “RDPers”; the second column incorporates all control variables, accounting for provincial and time fixed effects. This methodological approach helps eliminate potential interference from regional characteristics and macro-temporal shocks. The regression results reveal three key findings.

Core variable effect: In the initial model (column 1), the coefficient of RDPers is 0.004*** ($t = 6.23$), which is significant at the 1% level. After adding control variables in column 2, the coefficient of RDPers decreases slightly to 0.003*** ($t = 7.44$), while remaining significant at the 1% level. This result suggests a positive correlation between the number of National Social Science Fund projects and the increase in higher education R&D full-time equivalent personnel, with an average increase of 0.003–0.004 units for every one-unit increase in RDPers. The consistency in coefficient direction and statistical significance indicates that RDPers are a reliable positive driver of R&D result conversion efficiency. This aligns with the theoretical expectation that “human capital promotes innovation output.”

Fundproj effect: The fundproj variable, which compares funding per project, has a positive coefficient of 0.000* ($t = 1.89$), significant at the 10% level. This suggests that moderate increases in funding per project can marginally promote project output. The coefficient for the Persproj (Personnel Project Comparison) model is -0.009** ($t = -2.70$), significant at the 5% level, indicating that excessive allocation of R&D personnel per project (e.g., redundant staffing) may reduce conversion efficiency due to resource waste. Finsup (financial support intensity) shows a substantial negative impact of -187.208** ($t = -2.62$), likely due to ineffective utilization of financial resources in certain regions (such as inflexible fund management, which restricts R&D adaptability). Other variables, including SOCONS (social consumption level) and URBAN (urbanization rate), show no significant impact. This suggests that their effects on TNSSF are already indirectly captured by core variables or other controls.

Model fit: The model demonstrates a high degree of explanatory power. The adjusted R^2 for column (1) is 0.872, and for column (2) it rises to 0.889, meaning the model explains nearly 89% of the variation in TNSSF. This high level of fit confirms that the selected variables effectively capture the key factors affecting R&D result conversion efficiency.

Table 5 Benchmark Regression Results

	(1)	(2)
	TNSSF	TNSSF
rdpers	0.004*** (6.23)	0.003*** (7.44)
fundproj		0.000* (1.89)
persproj		-0.009** (-2.70)
finsup		-187.208** (-2.62)
socons		-10.151 (-0.17)
urban		-23.578 (-0.29)
indsadv		-18.927 (-0.83)

	(1)	(2)
	TNSSF	TNSSF
incgap		-5.476 (-0.29)
findev		2.653 (0.29)
pgdp		0.001 (1.62)
_cons	-18.951 (-0.94)	55.027 (0.78)
<i>N</i>	620	620
R^2	0.883	0.899
adj. R^2	0.872	0.889

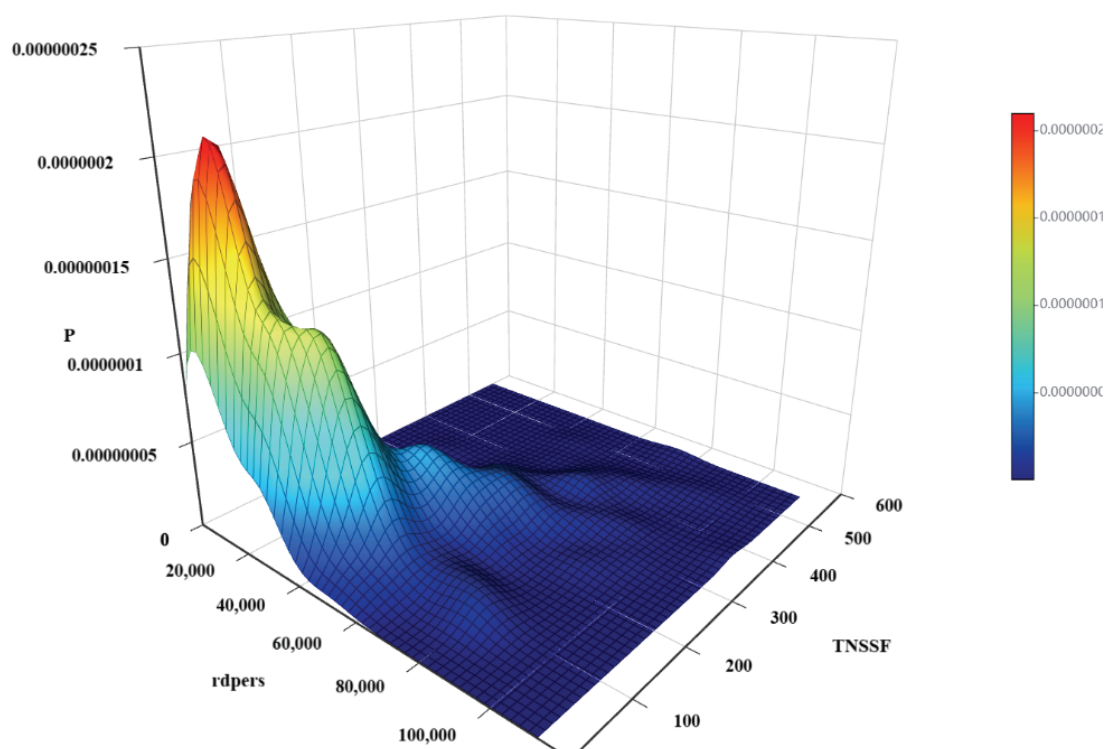
t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The model's compatibility with the given parameters is as follows: The model demonstrates a high degree of explanatory power. The adjusted R^2 of Column (1) is 0.872, and that of Column (2) rises to 0.889, meaning the model explains nearly 89% of the variation in TNSSF. This high fit degree confirms that the selected variables effectively capture the key factors affecting R&D results conversion efficiency.

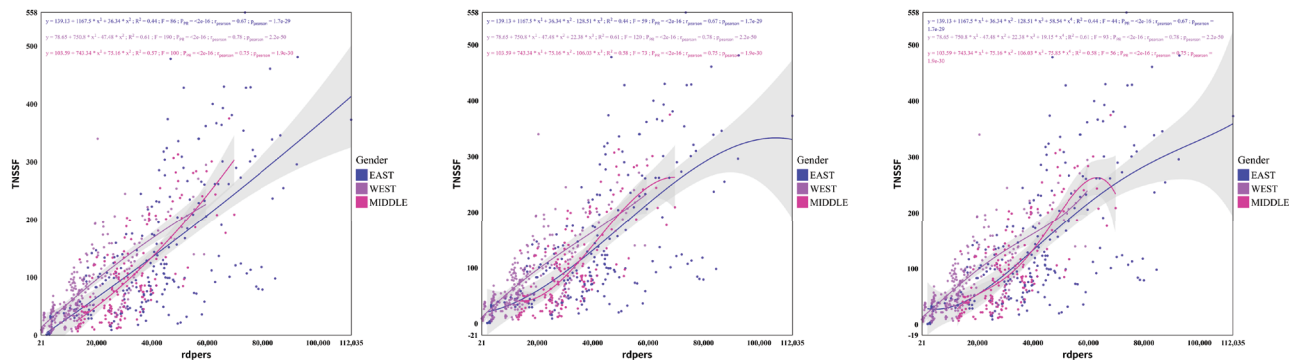
3.2 Characteristic Fact Analysis

Figure 1 .Three-Dimensional Kernel Density Plot



To intuitively reflect the distribution characteristics of core variables and their correlation, this study uses three-dimensional kernel density plots (Figure 1) and Polynomial coefficient regression plot (Figure 2, from left to right the highest items are square, cube, and square)for characteristic fact analysis.

Figure 2 .Polynomial coefficient regression plot



3.3 Endogeneity Handling

A potential endogeneity problem in this study is reverse causality: regions with more National Social Science Fund projects (higher TNSSF) may attract more higher education R&D personnel (higher rdpers), rather than rdpers driving TNSSF. To address this, this study uses lagged core explanatory variables (lag1: first-order lag, lag2: second-order lag) for regression, as lagged variables are not affected by current TNSSF and can effectively alleviate reverse causality. Table 6 presents the regression results with lagged variables. The key findings are as follows:

Current and lagged rdpers effects: Stable positive significance. Column (1)-(2) replicate the benchmark regression results (current rdpers coefficient 0.004***–0.003***); Column (3) uses rdpers_lag1 as the core variable, with a coefficient of 0.004*** (t=6.98); Column (4) uses rdpers_lag2, with a coefficient of 0.004*** (t=6.59). Both lagged variables remain significant at the 1% level, and the coefficient magnitude is consistent with the current variable. Robustness of lagged effects: Columns (5)-(6) further include the lagged explained variables (TNSSF_lag1, TNSSF_lag2) to control for the path-dependent effect of R&D results. The coefficient of rdpers is still 0.004*** (t=7.16–6.49), confirming that the driving effect of rdpers on TNSSF is not due to reverse causality but a genuine causal relationship. Sample and fit consistency: Although the sample size decreases slightly with lagged variables (from 620 to 589–558), the adjusted R² remains at 0.887–0.890, close to the benchmark regression. This indicates that the model still maintains high explanatory power after addressing endogeneity.

Table 6 Regression Results with Lagged Variable

	(1)	(2)	(3)	(4)	(5)	(6)
	TNSSF	TNSSF	TNSSF	TNSSF	TNSSF_lag1	TNSSF_lag2
rdpers	0.004*** (6.23)	0.003*** (7.44)			0.004*** (7.16)	0.004*** (6.49)
rdpers_lag1			0.004*** (6.98)			
rdpers_lag2				0.004*** (6.59)		
N	620	620	589	558	589	558
R ²	0.883	0.899	0.899	0.901	0.899	0.901
adj. R ²	0.872	0.889	0.888	0.890	0.887	0.890

t statistics in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01

4. Robustness test

4.1 Placebo Test

To rule out the possibility that the positive driving effect of rdpers on TNSSF is caused by random chance or unobserved confounding factors, this study conducts a placebo test by constructing “pseudo core explanatory variables”. The specific steps are: (1) Randomly shuffle the cross-sectional order of rdpers (breaking the genuine correlation between rdpers and regional TNSSF); (2) Repeat the benchmark regression 500 times with the shuffled pseudo rdpers; (3) Plot the distribution of pseudo coefficients and compare it with the genuine coefficient.

Figure 5 .Placebo Test

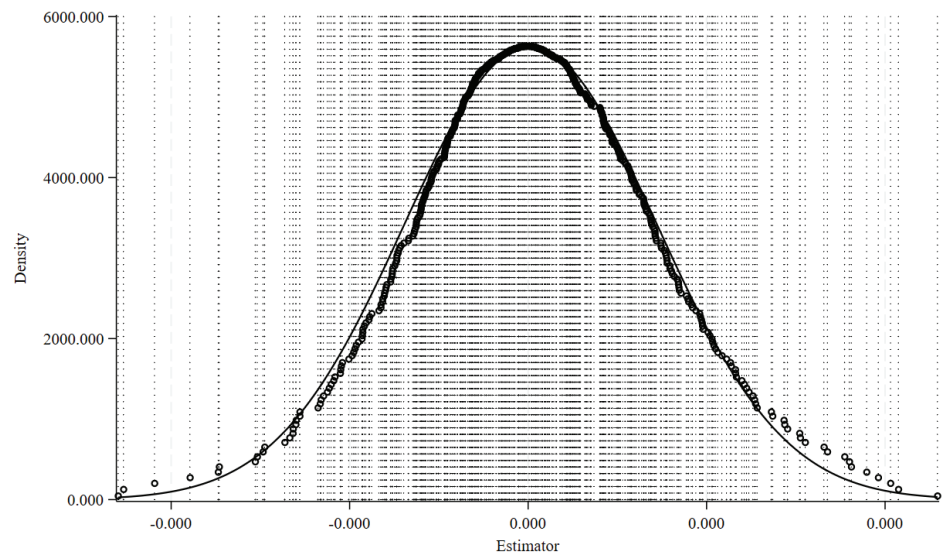


Figure 5 (Placebo Test Density Plot) shows the results: the distribution of pseudo coefficients is approximately normally distributed around 0, with a mean close to 0; the genuine coefficient of rdpers (0.003–0.004) is far outside the 95% confidence interval of the pseudo coefficient distribution. This indicates that the positive driving effect of rdpers on TNSSF is not a random result but a stable causal relationship, further verifying the robustness of the core conclusion.

4.2 Substitution of Explanatory Variables

In order to ascertain whether the core conclusion is contingent upon the measurement method of the core explanatory variable, this study employs “higher education R&D personnel density” (rdpers_density, calculated as rdpers divided by regional population) as the substitute variable for rdpers and re-runs the regression. The underlying logic is that personnel density can more accurately reflect the relative abundance of R&D resources in a given region, thereby complementing the absolute scale indicator (rdpers).

Table 7 Substitution of Explanatory Variables

	(1)	(2)
	TNSSF	TNSSF
rdpers	0.003*** (7.44)	0.000*** (3.71)
fundproj	0.000* (1.89)	0.000 (0.39)
persproj	-0.009** (-2.70)	-0.004 (-1.42)
finsup	-187.208**	-177.650**

	(1)	(2)
	TNSSF	TNSSF
	(-2.62)	(-2.18)
socons	-10.151	38.199
	(-0.17)	(0.58)
urban	-23.578	106.075
	(-0.29)	(1.12)
indsadv	-18.927	-29.143
	(-0.83)	(-1.28)
incgap	-5.476	2.596
	(-0.29)	(0.12)
findev	2.653	-5.435
	(0.29)	(-0.49)
pgdp	0.001	0.000
	(1.62)	(0.41)
_cons	55.027	84.759
	(0.78)	(1.21)
<i>N</i>	620	620
<i>R</i> ²	0.899	0.890
adj. <i>R</i> ²	0.889	0.878

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7 presents the results of the explanatory variable substitution test. The first column replicates the benchmark regression, which yielded an original *rdpers* coefficient of 0.003*** and a t-statistic of 7.44. The second column uses *rdpers_density* as the core variable, with a coefficient of 0.000*** and a t-statistic of 3.71, which remains significant at the 1% level. Despite fluctuations in the magnitude of the coefficient, attributable to divergent variable units, the positive direction and statistical significance remain constant. Furthermore, the adjusted *R*² of Column (2) is 0.878, which is proximate to the benchmark regression's 0.889. This finding suggests that the model's explanatory power remains largely unaltered by variable substitution. This outcome validates the notion that the positive impact of higher education R&D personnel on TNSSF is not contingent on the particular method of measuring the core variable.

4.3 Sample Period Adjustment Test

To verify whether the core relationship between RDPers and TNSSF is affected by temporal structural changes (such as policy shocks or economic cycle fluctuations), this study divides the full sample (2003–2022) into three sub-periods: post-2007, post-2012, and post-2017. The choice of these time points is based on pivotal policy and economic events. The year 2007 marked the launch of the “National Medium- and Long-Term Science and Technology Development Plan (2006–2020),” while 2012 saw the initial implementation of the “Innovation-Driven Development Strategy.” The year 2017 represented a deepening of supply-side structural reform, each potentially influencing the efficiency of R&D result conversion. Table 8 presents the results of the sample period adjustment test. The following key findings were derived from the analysis: The core effect demonstrates stability during the early and mid-sub-periods. In the post-2007 sub-period (column (1)), the coefficient of

RDPers is 0.003*** ($t = 6.78$), which is significant at the 1% level. In the post-2012 sub-period (column (2)), the coefficient is 0.002*** ($t = 4.58$), which also remains significant at the 1% level. The positive driving effect of RDPers remains stable in these two periods, and the coefficient magnitude is close to the benchmark regression (0.003–0.004), indicating that policy shocks in 2007 and 2012 did not alter the core relationship. A weakening effect is observed in the latest sub-period. In the post-2017 sub-period (column (3)), the coefficient of RDPers decreases significantly, reaching 0.000 ($t = 0.65$), which is statistically insignificant. This phenomenon may be attributed to two main factors. First, the sample size for this sub-period is the smallest (186 observations), reducing statistical power. Second, after 2017, the focus of higher education R&D shifted from “scale expansion” to “quality improvement,” resulting in the marginal contribution of personnel quantity (RDPers) to project output (TNSSF) diminishing, while unmeasured quality factors (e.g., the academic level of R&D personnel) became increasingly important.

Table 8 Sample Period Adjustment Test

	(1)	(2)	(3)
	TNSSF	TNSSF	TNSSF
rdpers	0.003*** (6.78)	0.002*** (4.58)	0.000 (0.65)
fundproj	0.000 (1.54)	0.000 (1.13)	0.000 (0.50)
persproj	-0.005* (-1.93)	-0.000 (-0.15)	-0.018 (-0.42)
finsup	-150.086** (-2.46)	4.865 (0.11)	-102.060* (-1.90)
socons	18.095 (0.22)	48.531 (0.86)	68.903 (0.41)
urban	-73.910 (-0.27)	-242.744 (-1.18)	-70.140 (-0.21)
indsadv	-16.677 (-0.79)	-26.383 (-1.43)	-6.355 (-0.23)
incgap	18.580 (0.67)	28.892 (1.01)	89.638* (1.99)
findev	-1.808 (-0.25)	-2.403 (-0.42)	19.681** (2.53)
pgdp	0.001 (0.83)	0.000 (0.14)	0.000 (0.66)
_cons	53.104 (0.30)	182.681 (1.13)	-123.125 (-0.48)
<i>N</i>	496	341	186
R^2	0.918	0.942	0.948
adj. R^2	0.908	0.932	0.931

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5. Further analysis

5.1 Moderating Effect Test

Temporal factors (e.g., policy adjustments, technological progress) may change the strength of the relationship between rdpers and TNSSF—this is the time moderating effect. To clarify this dynamic characteristic, this study constructs an interaction term between rdpers and year dummies (2005-2022, with 2004 as the reference year) and incorporates it into the model. The moderating effect model is specified as follows:

$$y_{it} = \alpha_1 + \beta_1 \cdot x_{it} + \sum_{t=2004}^{2022} \delta_t \cdot (x_{it} \times i.year_t) + \theta \cdot i.year_t + \gamma_1' \cdot \text{Control}_{it} + \mu_i + \lambda_t + v_{it}$$

Table 9 presents the results of the moderating effect test. The key insights are:

Gradual enhancement of moderating effect: The interaction coefficients of RDPers with year dummies show an overall upward trend. For example, the 2007 interaction coefficient is 0.001* (t = 1.87, significant at 10%), the 2010 coefficient is 0.002*** (t = 3.56, significant at 1%), the 2017 coefficient is 0.003*** (t = 3.20, significant at 1%), and the 2022 coefficient is 0.002*** (t = 2.89, significant at 1%). This indicates that after 2007, the driving effect of RDPers on TNSSF has been gradually strengthened by time factors, which is consistent with the promotion of national innovation policies (e.g., the 2006 Science and Technology Development Plan, the 2012 Innovation-Driven Strategy) that optimize the allocation of R&D personnel and improve conversion efficiency. **Early non-significant moderating effect:** The 2005 interaction coefficient is -0.000 (t = -0.19) and the 2006 coefficient is 0.000 (t = 1.02), both insignificant. This reflects that in the early stage of the sample period (2003–2006), the institutional environment for R&D result conversion was relatively immature, and time factors failed to effectively enhance the role of RDPers. **Model fit improvement:** The adjusted R² of the moderating effect model is 0.901, higher than the benchmark regression's 0.889, indicating that incorporating time interaction terms better explains the variation in TNSSF.

Table 9 Moderating Effect Test Results

	(1)	(2)		(1)	(2)
	TNSSF	TNSSF		TNSSF	TNSSF
rdpers	0.003*** (7.44)	0.001 (0.39)	2010.year#c.rdpers		0.002*** (3.56)
2005.year#c.rdpers		-0.000 (-0.19)	2011.year#c.rdpers		0.002*** (2.80)
2006.year#c.rdpers		0.000 (1.02)	2017.year#c.rdpers		0.003*** (3.20)
2007.year#c.rdpers		0.001* (1.87)	2018.year#c.rdpers		0.002** (2.25)
2008.year#c.rdpers		0.001 (1.69)	2022.year#c.rdpers		0.002*** (2.89)
N	620	620	N	620	620
R ²	0.899	0.913	R ²	0.899	0.913
adj. R ²	0.889	0.901	adj. R ²	0.889	0.901

t statistics in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

5.2 Heterogeneity Matrix Linear Regression Analysis

To further explore intra-regional differences in the driving effect of higher education R&D full-time equivalent personnel (rdpers) on the total number of National Social Science Fund projects (TNSSF), this study conducts matrix linear regression for provinces within the eastern, central, and western regions respectively. Table 10 reports the regression coefficients of rdpers for each province, and Figures 4-6 present the corresponding regression combination plots (including correlation coefficients [ρ], significance levels [p], and goodness of fit [R^2]), aiming to capture the nuanced differences in the “rdpers-TNSSF” relationship at the provincial level.

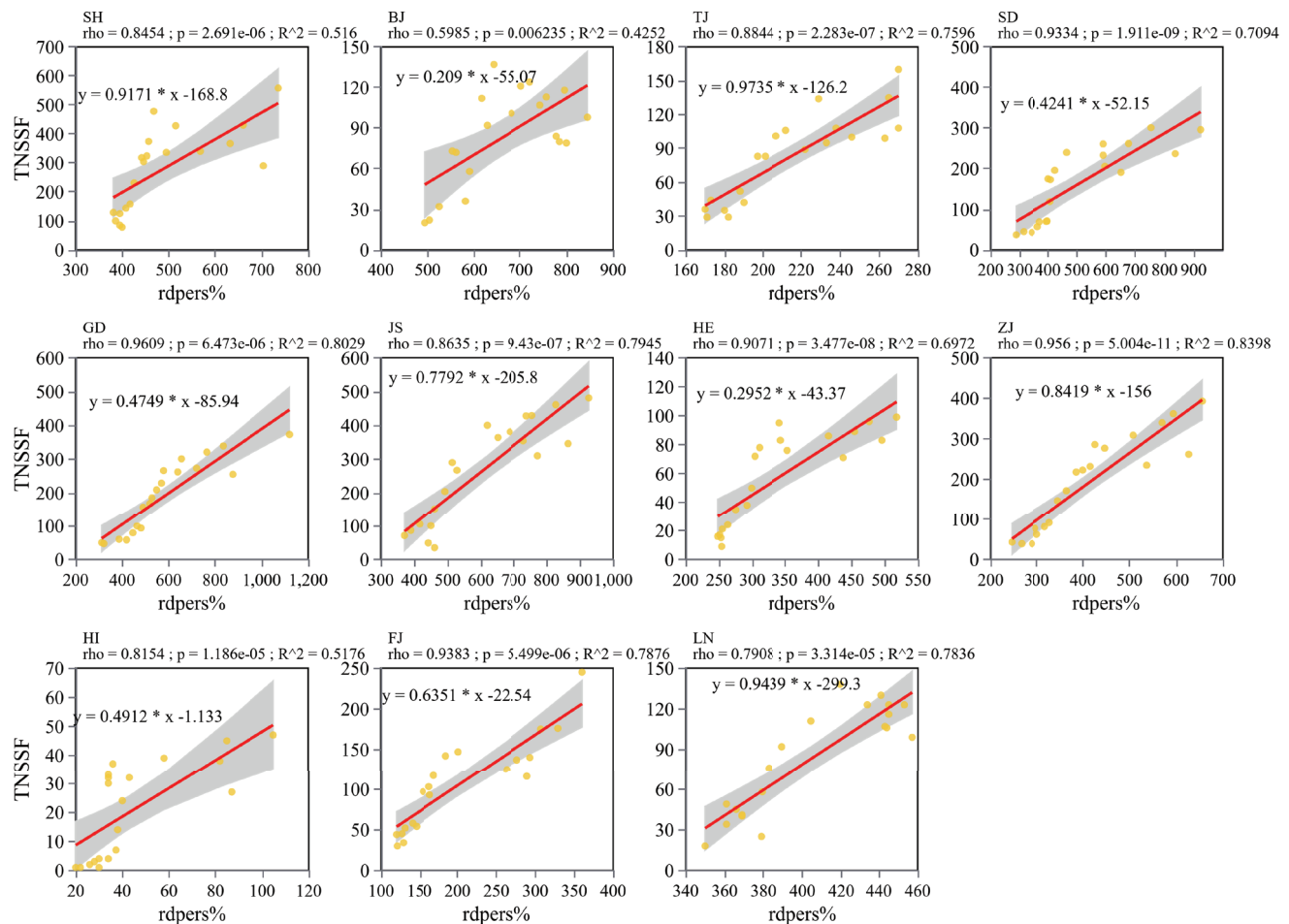
Table 10 Cross-regional matrix linear regression coefficient table

EAST	coefficient	MIDDLE	coefficient	WEST	coefficient
SH	0.9171	AL	0.7102	YH	1.128
JS	0.209	AN	0.2707	NM	0.5694
TJ	0.9735	AS	0.1847	GE	0.5423
ZJ	0.4241	JK	0.5037	XN	0.4915
GD	0.4749	HA	0.3032	GX	0.4924
HB	0.7792	HB	0.906	XJ	0.8976
HE	0.2952	HQ	0.6382	GD	1.302
ZZ	0.8419	PL	0.5256	XZ	2.488
HN	0.4912			GO	0.6309
FJ	0.6351			CO	1.218
LN	0.9439			RM	0.6247
				SM	2.523
Avg	1.0756	Avg	0.5053	Avg	0.6350
Sd	0.7273	Sd	0.2447	Sd	0.2722

5.2.1 Eastern Region: High Coefficient Stability and Strong Driving Effect

As shown in Table 10 and Figure 4, the eastern region exhibits two prominent characteristics: High average coefficient and low dispersion. The average regression coefficient of RDPers in eastern provinces is 1.0756, significantly higher than in the central (0.5053) and western (0.6350) regions; the standard deviation (0.7273) reflects moderate intra-regional differences, indicating a consistently strong driving effect of RDPers across eastern provinces. Provincial-level excellence in effect strength and significance is also evident: Provinces such as Shanghai (SH, coefficient = 0.9171) and Tianjin (TJ, coefficient = 0.9735) show high coefficients, and their regression plots (Figure 4) confirm strong statistical reliability—for example, SH has $\rho = 0.8454$ ($p = 2.691\text{e-}06$, $R^2 = 0.5100$), and TJ has $\rho = 0.8844$ ($p = 2.283\text{e-}07$, $R^2 = 0.7596$). Even provinces with relatively lower coefficients (e.g., Hebei [HE, 0.2952]) maintain a positive driving direction, and their regression models are statistically significant ($\rho = 0.9071$, $p = 0.6972$). This pattern stems from the eastern region’s mature R&D ecosystem: high-quality higher education resources (e.g., top-tier universities in Jiangsu and Zhejiang), sufficient supporting resources (high FINDEV and PGDP), and efficient institutional mechanisms for R&D result conversion collectively amplify the driving effect of RDPers.

Figure 4 .Eastern Region Matrix Linear Regression Combination Plot



5.2.2 Central Region: Low Average Coefficient and Volatile Significance

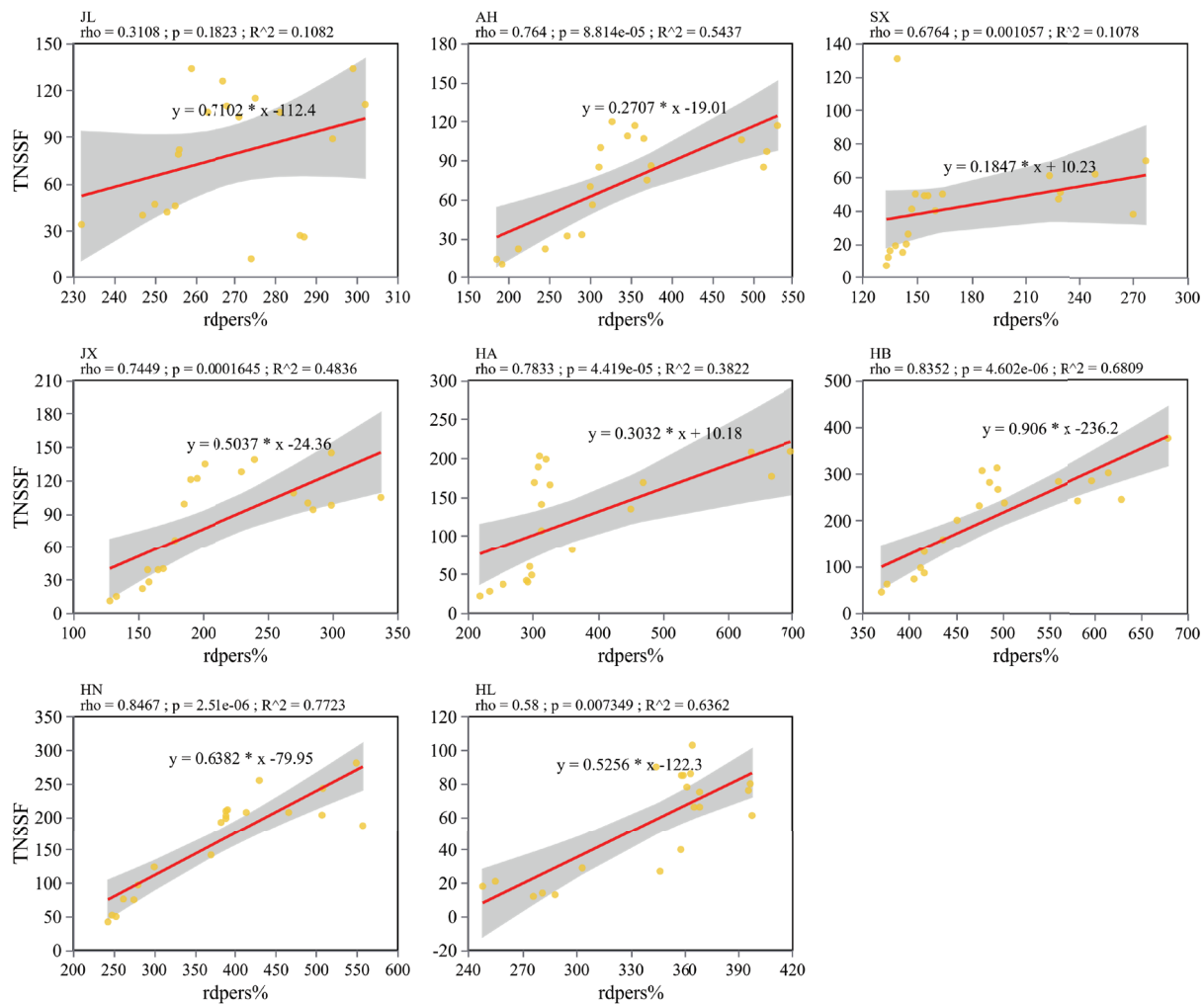
Table 10 and Figure 5 reveal the central region's “weak and unstable” driving effect of RDPers: The lowest average coefficient and minimal dispersion. The average coefficient of central provinces is 0.5053, the lowest among the three regions, and the standard deviation (0.2447) is the smallest, indicating that intra-regional differences are not the main issue—instead, the overall driving strength is weak. Provincial-level instability in effect direction and significance is also observed: Anhui (AN, coefficient = 0.2707) and Jiangxi (JX, coefficient = 0.5037) show positive but low coefficients, with their regression plots (Figure 5) indicating weak correlation (e.g., AN: $\rho = 0.764$, $p = 8.814e-05$, $R^2 = 0.5437$); Hubei (HB) is an outlier with a high coefficient (0.906) and strong significance ($\rho = 0.8352$, $p = 4.602e-06$, $R^2 = 0.6809$), which may be attributed to its concentration of key universities (e.g., Wuhan University) and robust R&D infrastructure. In contrast, provinces like Heilongjiang (HL, coefficient = 0.5256) have low coefficients and marginal significance ($\rho = 0.58$, $p = 0.007349$), reflecting insufficient translation of RDPers into TNSSF. The central region's predicament lies in the “resource mismatch”—while it has a certain scale of RDPers, it lacks supporting resources (e.g., lower FINSUP and FINDEV than the east) and efficient R&D collaboration mechanisms, leading to weak overall driving effects.

5.2.3 Western Region: Moderate Average Coefficient and Extreme Intra-Regional Differences

The western region's performance (Table 10, Figure 6) is characterized by a “moderate average but extreme intra-regional polarization”: Moderate average coefficient, high dispersion. The average coefficient (0.6350) is higher than in the central region but lower than in the east, while the standard deviation (0.2722) is higher than in the central region, indicating pronounced intra-regional differences in the driving effect of RDPers. There is polarization between provinces with high and low coefficients: Tibet (XZ, 2.488) and Sichuan (SM, 2.523) have extremely high coefficients, with their regression plots showing strong significance (e.g., XZ: $\rho = 0.8504$, $p = 2.042e-06$, $R^2 = 0.6641$)—this may be due to targeted national support policies (e.g., special R&D funds for ethnic regions) that amplify the role of RDPers. In contrast, Gansu (GE, 0.5423)

and Ningxia (NX, 0.4915) have low coefficients and weak significance (e.g., NX: $\rho = 0.3935$, $p = 0.08607$, $R^2 = 0.3286$), as their underdeveloped economic foundations and scarce R&D resources limit the effectiveness of RDPers. This polarization reflects the western region's uneven development of higher education R&D—provinces with policy support or resource concentration (e.g., Sichuan, Tibet) can leverage RDPers effectively, while most provinces struggle with resource constraints.

Figure 5. Central Region Matrix Linear Regression Combination Plot

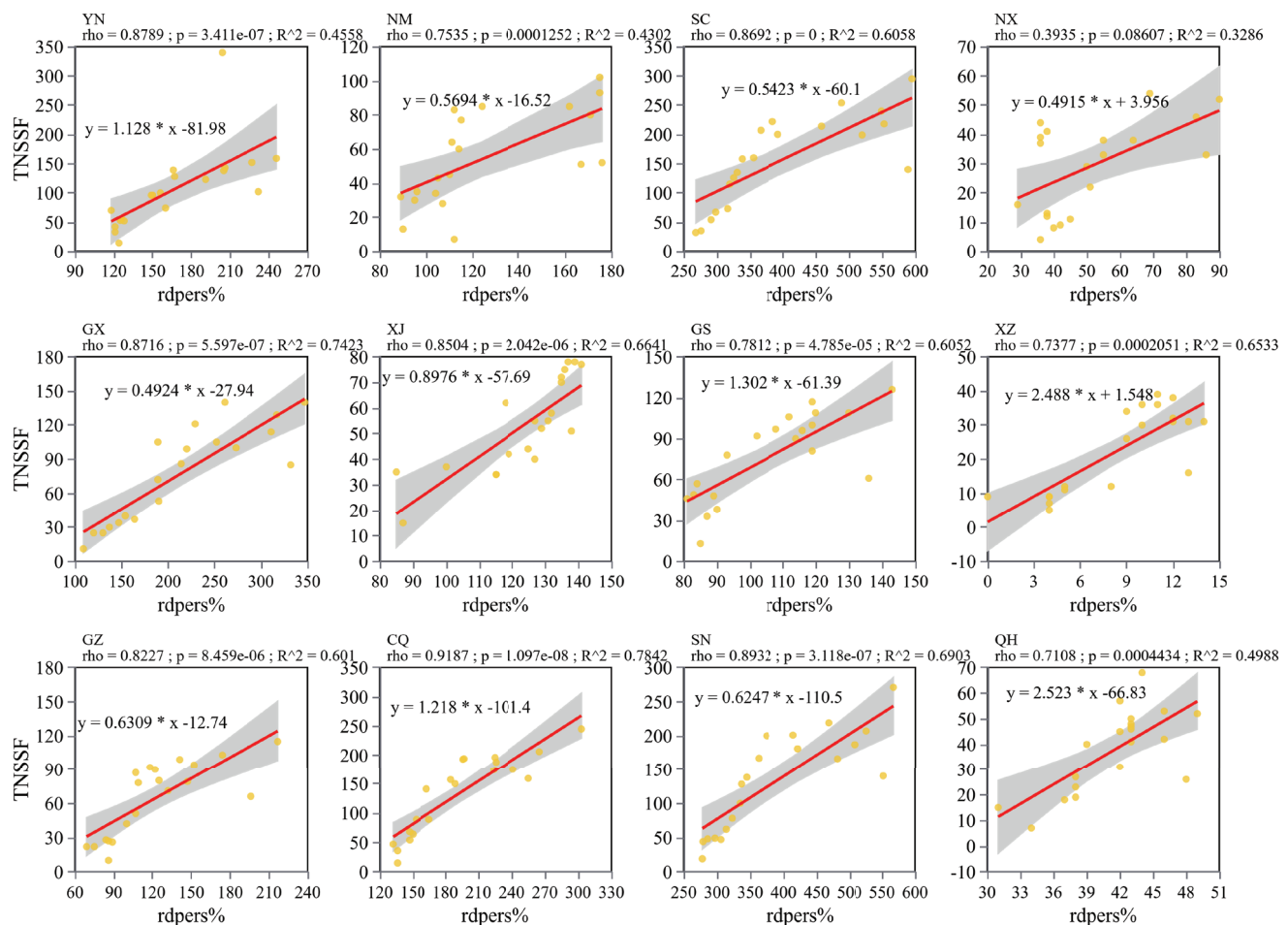


6. Discussion

The empirical results indicate that higher education R&D full-time equivalent personnel (RDPers) function as a stable and significant driver of the total number of National Social Science Fund projects (TNSSF). This finding supports the core premise of human capital theory, which asserts that R&D personnel, as carriers of professional knowledge and technical capabilities, directly facilitate the generation and transformation of research outcomes^{[8][9]}. However, this positive impact exhibits marked temporal and spatial heterogeneity. Regarding temporal heterogeneity, time-interaction analyses demonstrate that the driving effect of RDPers has progressively strengthened since 2007, notably after the introduction of the 2012 “Innovation-Driven Development Strategy.” The shift is largely attributable to improved policy-level optimization of R&D resource allocation and enhanced institutional environments promoting research translation, university-industry linkages, and streamlined project approval processes^{[10][11]}. Regionally, the data reveal a clear “east > west > central” pattern in the marginal effects of RDPers on TNSSF outcomes. The eastern region benefits from a mature innovation ecosystem, with advanced support infrastructure and effective mechanisms for outcome transformation^[12]. In contrast, the western region demonstrates intermediate performance, often buoyed by targeted national policy incentives in select provinces. The central region consistently underperforms, a condition attributed to “resource mismatch,” where R&D personnel are present but poorly supported by complementary resources such as institutional incentives, financial autonomy, and administrative capacity^{[13][14]}.

Moreover, control variables such as financial support intensity (finsup) exhibit a statistically significant negative relationship with TNSSF, which may reflect inefficiencies in fund utilization. In some regions, rigid fund management systems or suboptimal project allocation may undermine the potential of R&D funding—creating a “resource curse” effect where inputs fail to convert into substantive outputs^[15]. This study contributes to the literature by addressing endogeneity through lagged variable design and performing robustness checks including placebo tests and time-sample segmentation. It also explores intra-regional disparities via matrix linear regression, illustrating patterns such as polarization in the western region and sustained efficiency in the east^[16]. Nonetheless, limitations remain. The TNSSF variable captures only the quantity—not quality—of social science output. Furthermore, while the use of year dummies captures macro-temporal trends, it fails to distinguish the causal effects of individual policy shocks. Future research may consider richer output indicators (e.g., citations, completion rates), integrate mediating variables (e.g., knowledge collaboration networks), and develop explicit policy intensity indices to improve explanatory power and causal inference^{[17][18]}.

Figure 6. Western Region Matrix Linear Regression Combination Plot



Conclusion

To address the gap of insufficient attention to human capital and regional disparities in studies of regional social science strength—using the total number of National Social Science Fund Projects (TNSSF) as the core measure—this study analyzes panel data from 2003 to 2022 for 31 Chinese provinces. TNSSF is used as the key indicator of regional social science development, while higher education R&D full-time equivalent personnel (RDPers) serves as the main proxy for social science human capital input. Employing a high-dimensional fixed-effect model and multi-method validation (including endogeneity mitigation via lagged variables and robustness tests such as placebo and variable substitution), the key findings are as follows: First, RDPers consistently drives regional social science strength in a positive manner, with a validated coefficient of 0.002–0.004 ($p < 0.01$), confirming its role as a core driver. Second, a time-moderating effect emerges: after 2007 (especially following the 2012 “Innovation-Driven Development Strategy”), the interaction coefficient of RDPers and

year dummies rises to 0.001–0.003 ($p < 0.05$), reflecting the enhanced impact of policies on RDPers' role. Third, regional heterogeneity is significant: across regions, the driving effect follows “East (avg. coefficient = 1.076) > West (0.635) > Central (0.505)”; within regions, the East demonstrates stable efficiency, the West shows polarization (e.g., Sichuan: 2.523 vs. Gansu: 0.542), and the Central region faces a “resource mismatch.” Fourth, financial support intensity (FINSUP) has a negative effect (−187.21, $p < 0.05$) due to inefficient use, while financial development (FINDEV) has recently shown a positive effect (19.68, $p < 0.05$). Theoretically, this study enriches research on the drivers of regional social science by confirming the role of human capital and refining understanding of intra-regional disparities. Practically, it proposes targeted strategies such as regionalized personnel allocation, reform of social science fund management, and inter-regional collaboration. Limitations include TNSSF's focus on quantity rather than quality and unexplored mechanisms; future research may develop multi-dimensional indices and introduce mediating variables. This study provides empirical insights for optimizing social science resource allocation and promoting balanced national development.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Pathway Design, Implementation, and Effectiveness Evaluation of the Grand Canal Cultural Heritage Resources in Geographic Science Education

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Abstract: The organic integration of cultural heritage geographical resources into geographical science education can enhance students' comprehensive understanding of history, geography, and social development, thereby promoting interdisciplinary thinking and scientific literacy. Taking China's ancient Grand Canal as a typical case, this study systematically explores the pathway design, implementation process, and effectiveness evaluation of transforming the geographical resources of the Grand Canal's cultural heritage into carriers for geography science education. Through a literature review, case analysis, and teacher practice observation, the study reveals: 1) effective strategies for embedding the historical and geographical background of the canal, its spatial network, and regional economic elements into the curriculum; 2) the role of immersive, contextualized, and inquiry-based instructional design in improving students' geographical cognition, inquiry abilities, and sense of social responsibility; and 3) a framework for effectiveness evaluation based on multiple assessment dimensions and an operational indicator system. The research results hold theoretical and practical significance for secondary geography science education curriculum reform, teacher professional development and cultural heritage conservation education. They provide applicable curriculum packages and evaluation tools, facilitating promotion and application in different regions. The limitations of this research lie in the regional specificity of the case and data availability; future studies should expand to cross-regional comparative studies and long-term follow-up assessments.

Keywords: Cultural Heritage; Human Geography; Science Education; Beijing-Hangzhou Grand Canal

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1.Introduction

As one of the most important hydraulic engineering projects in Chinese history, the Grand Canal not only played a crucial economic, cultural, and transportation role in ancient times, but today it continues to hold great value in cultural heritage, ecological protection, and modern development. In recent years, the nation has been increasing its efforts to promote scientific literacy. The Outline of the National Scientific Literacy Action Plan (2021-2035) emphasizes the need to enhance public scientific understanding through various science popularization activities, especially in areas such as environmental protection and the construction of ecological civilization, aiming to improve scientific literacy and environmental awareness across society. The social significance and necessity of conducting geographical science popularization: Geography is both

an ancient and young science. It is the study of the structure, features, and evolutionary patterns of the environment in which humans live, as well as the relationship between humans and the geographical environment^[1]. However, the scope of human geography is vast and its content is diverse. To make science popularization education simpler, easier to understand, more interesting and representative, this article selects the ancient Grand Canal of China as an example to explore effective teaching methods for popular science in human geography.

2. Analysis of the Value of Integrating the Geographical Resources of the Grand Canal Cultural Heritage into Human Geography Teaching

The study of human geography resources can feel unfamiliar to students, and with limited instructional time, it is often challenging for learners to grasp the content quickly, which can diminish the effectiveness of science popularization. By contrast, the Grand Canal, a World Heritage site, embodies a wealth of historical, cultural, and geographic information and possesses distinctive features such as typicity, accessibility, and relevance to contemporary life. These qualities confer unique advantages for science popularization and education. Since the 1990s, global research on World Heritage preservation and the worldwide strategy for heritage management have advanced, giving rise to important international trends. In particular, cultural landscapes have increasingly become focal points for conservation efforts among scholars and policymakers^[2]. Integrating the Grand Canal into human geography popularization enables students to deepen their understanding of the spatial characteristics of regional geography and the dynamic interactions between geography and human activity. Through case-based learning, students enhance their comprehension and application of geographic knowledge, thereby improving the effectiveness of science popularization. By examining concrete examples along the canal, learners gain insight into how historical processes shape present-day landscapes and how economic, social, and ecological dimensions interact. Incorporating multimodal resources—such as maps, imagery, field observations, and data visualization—can boost engagement and learning transfer. In sum, embedding the Grand Canal into human geography popularization not only enriches students' understanding of regional geography and human-environment relations but also provides a practical pathway to improve public scientific literacy, cultural heritage conservation, and sustainable development.

2.1 Enrich Geographic Awareness and Deepen Historical Understanding

Human geography education can cultivate students' philosophical literacy by integrating "time, space, and people," as well as foster in them a correct view of population, a dialectical view of resources, a harmonious view of the relationship between humans and nature, and a scientific outlook on development. It can also help them develop good behavioral habits^[3]. The diversity of the Grand Canal's geographical resources provides abundant materials and case studies for popular science education in human geography^[4], enhancing the classroom's interest and accessibility. This better motivates classroom engagement and promotes exchange and discussion between teachers and students. By integrating the resources of the Grand Canal into popular science education, students can gain a more intuitive understanding of the relationship between geographical spatial distribution and human activities. For example, by studying the route of the Grand Canal and the temporal and spatial evolution of traditional settlements along its path, students learn how the natural environment influences social development and how ancient people used their wisdom to overcome natural obstacles to accomplish this great project. This, in turn, enhances their understanding of historical culture and strengthens their sense of national identity.

2.2 Enhance inquiry skills and foster integrative thinking

As a historic project, the Grand Canal involves knowledge from multiple academic disciplines. During the learning process, students need to analyze or reflect on issues from various perspectives, activating their existing knowledge to connect abstract geographical concepts with the real world and developing interdisciplinary comprehensive thinking skills. By incorporating cooperative inquiry and group discussion sessions into teaching, students not only learn how to think independently but also draw from others' viewpoints through collaboration, fostering a more well-rounded way of thinking.

2.3 Enhance awareness of protection and strengthen sense of responsibility

Amid rapid urbanization, there is a clear trend of cultural evidence disappearing and unique cultural characteristics being lost along the Grand Canal; in some areas, even cultural discontinuity has emerged, making the scientific protection and active transmission of Grand Canal culture an important task^[5]. By integrating ecological issues related to the Grand Canal

into teaching—for example, the Sanwan issue in Yangzhou—students can understand how human activity impacts cultural heritage and the ecological environment. This also allows them to deeply appreciate the urgency and responsibility of protecting cultural heritage, helping to cultivate responsible citizens for the future.

3. Example of popular science teaching design: “The Ancient Grand Canal of China”

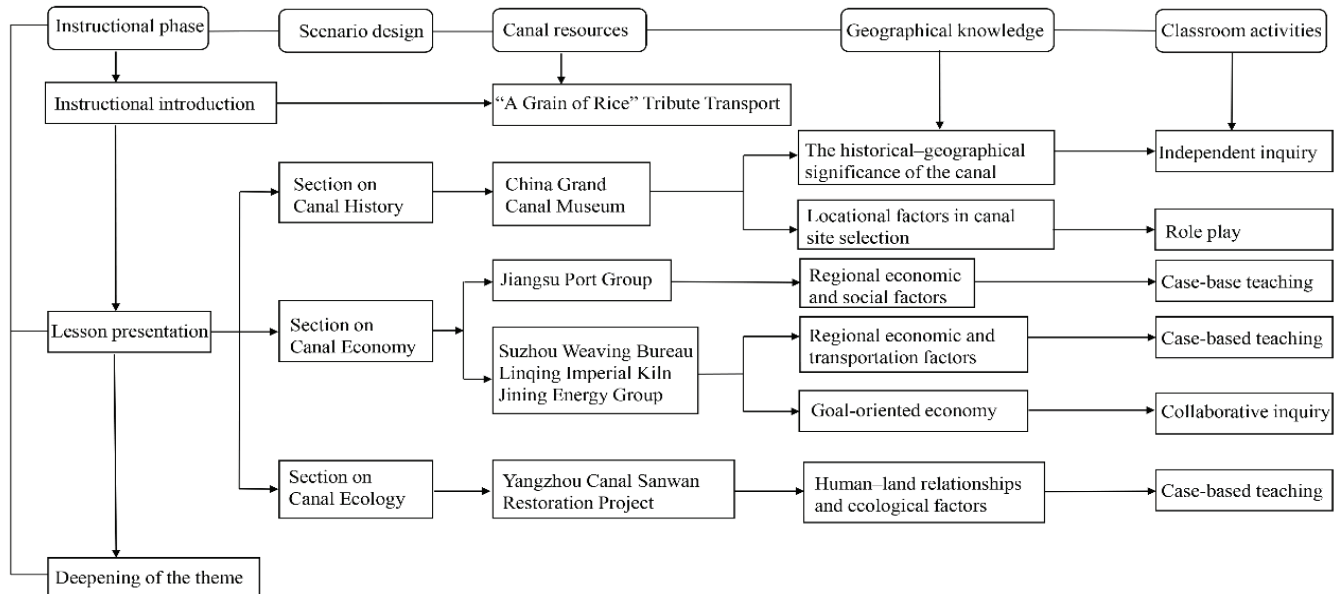
3.1 Teaching objectives

With reference to materials on the development of the Grand Canal, understand the historical background, economic impact, and cultural value of the Grand Canal, and comprehend its unique position in China’s geography and history; analyze the influence of economic, social, transportation, and natural factors in the regions along the Grand Canal, and summarize the various types of targeted economies that emerged from the Canal; examine the changes in the ecological environment since the development of the Grand Canal, analyze the mutual influences between human activities and ecological factors, enhance ecological protection awareness, and foster a perspective of sustainable development.

3.2 Course design strategy

This popular science teaching program uses the cultural heritage of the Grand Canal as a vehicle to conduct story-based situational teaching, helping students understand the value of the Grand Canal from multiple dimensions such as geography, history, culture, economy, and environment. The program adopts an immersive “story-based situational teaching” approach to create an online study environment, enhancing the fun and appeal of geography lessons [6]. The teaching is divided into modules on the history of the canal, the canal’s economy, and the canal’s ecology, progressing step by step and forming a coherent whole. At the same time, the curriculum incorporates knowledge about the Grand Canal’s historical background, geographical resources, and ecological protection, blending activities such as virtual tours, case studies, cooperative inquiry, and role-playing. Through interactive learning, students deepen their understanding of the Grand Canal and its cultural heritage (see Figure 1).

Figure 1. Course design strategy



3.3 Course teaching process

3.3.1 Introduction to new lesson

Introduce the curation theme of the Sui and Tang Grand Canal Museum—“A Grain of Rice” and its transportation by canal. In the early Tang Dynasty, during the Wude and Zhenguan periods, “canal affairs were simple,” and most tribute grain came from the traditional tax bases, specifically the middle and lower reaches of the Yellow River. During the reigns of Emperor Gaozong and Empress Wu, as central expenditures increased dramatically, canal transportation further developed [7]. From the perspective of seeing the big picture through small details, understand how the Grand Canal played the role of a “ship” in the grain transport system. Allow students to immerse themselves in and experience the bustling activity along the canal’s banks

and the technology of a “delivery across a thousand miles.”

3.3.2 Teaching the New Lesson Section One

The History of the Canal teaching method was discussed in this section. Embark on an immersive cloud tour of the Sui and Tang Grand Canal Museum to learn about the historical and geographical significance of the ancient Grand Canal’s construction, as well as the factors influencing its site selection (Table 1).

Table 1. Teaching process of the history of Grand Canal

Knowledge	Teacher activity	Student activity
The historical and geographical significance of the canal	<p>Case study — Understanding the deeper meaning of the canal as a north–south bridge</p> <p>[Demonstration] Overlay of the Chinese terrain map with the canal route</p> <p>Material I: On the map of China, the Great Wall and the canal align to form a giant character “人” (person). The Great Wall extends from the northwest to the southeast—a defensive boundary; the canal runs from Beijing to Hangzhou—a channel for economic and cultural exchange. This single “人” character embodies five thousand years of the Chinese nation’s survival wisdom.</p> <p>Material II: In 360 BCE, the Warring States period saw the construction of a canal between the Yellow River and the Huai River—the Hong Gou. The Hong Gou connects the Yellow River in the north to the Huai River in the south, leveraging the Yellow River’s water flow to sustain bustling navigation and substantial grain transport into the Guanzhong region. Today, its name is memorialized in the Chinese chessboard as the Chu–Han boundary (楚河汉界).</p> <p>[Problem-driven prompt] Observe the map and describe the spatial configuration formed by the Great Wall and the canal as a “人” shape. Why is the canal considered the single vertical stroke (the “捺”) of the character? What is the significance of this stroke for the development of the Chinese nation?</p>	Observe the map, read the materials, and think about the canal’s unique position within the fabric of Chinese civilization; actively participate in the discussion.
Driving factors of site selection	<p>Cooperative Inquiry — Investigating the Natural and Human Factors in Canal Site Selection</p> <p>[Display] Map of the Grand Canal (Beijing–Hangzhou) route with sectional profiles</p> <p>[Task-driven] Divide students into a “Natural Geography Group” and a “Historical–Cultural Group”</p> <p>Natural Geography Group: Analyze how the canal route utilizes natural waterways, avoids mountainous terrain, and connects the five major water systems</p> <p>Historical–Cultural Group: Analyze how the canal connects important capitals (Beijing, Luoyang, Hangzhou) and key economic centers</p>	<p>Group inquiry: analyze the advantages of canal siting from two perspectives—natural geography and the humanities/historical context.</p> <p>Group representatives present their research findings. The activities aim to cultivate students’ holistic thinking and regional awareness, train them to analyze the locational factors of major engineering projects from multiple angles, and deepen their understanding of human–environment interactions.</p>

Chapter two is Canal Economy. This study systematically explores differences in site selection among enterprises along the Grand Canal by visiting representative firms, and analyzes the economic types and development models embodied by these firms. Through examination of each firm’s growth context and regional conditions, the analysis reveals the role of locational factors in shaping corporate competitiveness and how geographical and economic elements jointly mold regional industrial patterns. The aim is to provide structured evidence and theoretical interpretation to support subsequent comparative research and to inform cross-regional economic coordination and urban planning decisions (Table 2).

Table 2 Teaching process of Canal Economy

Knowledge Point	Teacher Activities	Student Activities	Design Rationale
Regional economy and social factors	Case study: investigate the decisive influence of policy on canal economic activity. Display materials related to Ming–Qing canal transport and Yangzhou salt trade. Material 3: Transport of granaries was the economic lifeline of the Ming–Qing state; the court appointed a Grand Supervisor to manage it, establishing a rigorous system for requisition, transport, and storage, with escort by transport troops. Material 4: Yangzhou salt merchants monopolized the transport and sale rights of the Two Huai salt trade. Under the Ming Salt Administration’s “Salt Subsidy” policy, merchants were invited by the government to transport grain, exchange for salt drafts, and use drafts to purchase and sell salt at designated locations. Their rise benefited entirely from the state’s “Salt Draft” system, leveraging the canal to move sea salt to designated areas and accumulating substantial wealth.	In groups, undertake a task-based inquiry to understand the process of the salt-draft system and evaluate policy impacts on regional economy.	Through historical policy cases, cultivate students’ ability to analyze how social factors influence regional economic development and understand the role of policy in economic growth.
Regional economy and transportation factors	Explore the canal as a transportation artery and its role in regional economic growth. Display Ming–Qing era waterway maps for Linqing and Yangzhou. Material 5: Linqing, located at the junction of Hui and Wei rivers on the Grand Canal, was a key northern grain transfer and commercial hub.	Conduct case-based inquiry, analyze the canal’s role in commodity circulation and regional development, and discuss guiding questions.	Develop students’ ability to analyze the impact of transportation on regional economy and understand the importance of transport corridors in economic planning.
Directional industry	Collaborative inquiry: identify different types of directional industries.	Read and analyze materials; work in groups to investigate the industry orientation, summarize leading factors, location selection principles, and spatial layouts; group representatives report findings.	Foster teamwork and a systematic understanding of how the canal promotes various industries, and clarify the characteristics and location logic of directional economies.

Chapter three is Canal Ecology. This chapter examines the Yangzhou “Three Bays” restoration project to explore how human–environment and ecological relationships interact, and to understand the ecological development and changes along the Grand Canal. The study focuses on hydrological regulation, biodiversity conservation, and wetland restoration, analyzing how restoration measures reconcile the functional demands of the historic water network with contemporary ecological needs. By employing a combination of quantitative indicators and qualitative observations, it assesses the integrated effects on flood safety, water quality, ecological tourism, and community engagement, and aims to provide transferable theory and practical guidance for ecological governance in the canal watershed (Table 3).

Table 3 Teaching process of Canal Ecology

Knowledge Point	Educational Activity	Student Activity
Human–environment relations and ecological factors	Case study: Analyzing the transformation of Yangzhou’s Sanwan from an “industrial scar” to an “urban green lung” as a case of evolving human–environment relations in environmental governance ^[12] .	In groups, design and analyze an “Ecological Restoration Flowchart,” tracing the transformation from environmental degradation to restoration; use the case to illustrate how human–environment relations shift from conflict to coordination.

Knowledge Point	Educational Activity	Student Activity
[Display] Sanwan before-and-after visuals	Present historical vs. current landscape comparison images of Sanwan, highlighting the shift from heavily polluted industrial areas to ecologically rich wetlands and parks.	Use the visuals to identify key indicators of ecological improvement and generate questions for further inquiry.
[Problem-driven] Implications of ecological transformation	Pose and discuss the implications of Sanwan's environmental transition for ecology, society, and governance.	In groups, synthesize the essential elements of ecological restoration and compose concise, evidence-based conclusions.

3.3.3 The Historical Wisdom and Modern Mission of the Grand Canal

Classroom Summary: The Grand Canal Cultural Belt embodies not only historical, cultural, and socio-economic value but also aesthetic and educational significance. From the initial excavation in the Sui dynasty to later restoration and expansion, the construction and maintenance of the canal have mobilized countless artisans, scholars, merchants, and diverse talents in a collective effort. Innovation and wisdom are the enduring keys that keep the canal luminous across millennia; it symbolizes not only the ingenuity and courage of ancient Chinese people but also their spirit of striving for a better life under challenging conditions. Youth in the new era should also contribute to the development and transmission of the Grand Canal.

Rationale: As a UNESCO World Heritage Site, the Grand Canal's geographic resources integrated into human geography education can help students deeply appreciate the far-reaching significance of cultural heritage conservation.

4. Conclusions

Integrating the Grand Canal into science education does more than enrich a single subject; it broadens geographic pedagogy, deepens interdisciplinary understanding, and strengthens cultural self-confidence across generations. By making the canal a living presence in the classroom, students move beyond rote memorization of locations to an exploration of the dynamic interactions between physical geography and human decision-making. They observe how riverine pathways shape settlement patterns, trade networks, and urban development, and how these patterns reflect broader social, political, and economic forces across different historical periods. This experiential approach reveals the canal not merely as a historical artifact but as a living system whose presence continues to influence contemporary urban life, regional planning, and environmental policy. The process invites learners to consider multiple scales—from local watershed management to national economic strategy—and to see how small-scale decisions can have long-term, wide-reaching consequences.

Moreover, studying the Grand Canal underscores the richness of cultural exchange and economic resilience along a major waterway. Students encounter narratives of artisans, merchants, engineers, and travelers whose interactions facilitated shared technologies, languages, and cultural practices. These stories illuminate how culture is created, transmitted, and reinvented through infrastructure projects, daily labor, and collective memory. As economies along the canal expand and diversify, learners gain a nuanced understanding of resilience: how communities adapt to changing trade routes, how governance mechanisms balance competing interests, and how sustainable development requires careful resource stewardship, inclusive policy-making, and collaborative leadership. In this context, ecological considerations become inseparable from economic and cultural objectives, highlighting the imperative to harmonize development with conservation, and to recognize the value of traditional ecological knowledge in informing contemporary stewardship.

Ultimately, Grand Canal geographic literacy serves as a powerful instrument for nurturing informed citizenship. It prompts reflection on ethical dimensions of progress—how to pursue development without erasing local identities or degrading ecological integrity, how to honor indigenous knowledge and community voices, and how to safeguard cultural heritage for future generations. By foregrounding the convergence of geography and history, educators can cultivate critical thinking about change and continuity, enabling students to analyze how technological innovations, climate variability, and globalization intersect with enduring cultural identities. The curriculum thus encourages a balanced perspective that honors legacy while imagining sustainable futures, guiding students to envision concrete actions they can take as responsible citizens. Through inquiry-based learning, data-driven reasoning, and collaborative problem-solving, learners develop transferable

competencies—analytical reasoning, evidentiary argumentation, cross-cultural communication, and ethical deliberation—that empower them to contribute meaningfully to heritage preservation, environmental stewardship, and sustainable development. In this sense, integrating the Grand Canal into science education is not merely about transmitting facts; it is about fostering a sense of belonging to a shared human story and cultivating the courage to act as stewards of that story. By understanding the intersection of geography and history, students glimpse the power of civilization and recognize the potential within themselves to shape a more informed, compassionate, and resilient society. In taking concrete actions to safeguard cultural heritage and ecological integrity, they assume citizen-level duties and commitments—today, tomorrow, and for generations to come.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Ethical Risks and Point-of-Use Governance of AI in IPE: Insights from Interviews with 17 Instructors

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Abstract: This study examines ethical risks and workable governance for artificial intelligence in university ideological and political education in China. Semi-structured interviews with 17 instructors from five universities in Chongqing conducted from March to June 2025 were analyzed using reflexive thematic analysis. Six themes characterize current practice: privacy and consent remain fragile in attendance, proctoring, and analytics; the teacher role shifts from authority to curator and ethical gatekeeper; recommendation and moderation shape visibility and the continuity of deliberation; assessment integrity benefits from process-based evidence and explicit disclosure; metric-driven activity targets can crowd out value reasoning; and governance and accountability depend on institutional capacity and consistent rules. The findings indicate that responsible integration requires governance at the point of use across classroom, platform, and institution, including course-level disclosure and granular consent, explainable moderation with instructor overrides and traceability, process-based assessment with AI-use disclosure, curated corpora linked to retrieval-augmented generation with citation binding, routine audits, and faculty training.

Keywords: Generative Artificial Intelligence (AI); Ideological and Political Education (IPE); Chinese Higher Education; Ethical Risks and Governance; Thematic Analysis

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1.Introduction

Artificial intelligence (AI) integration in education is rapidly expanding under policy impetus and institutional experimentation, driven by data-intensive learning ecosystems, widening access goals, and expectations for responsive governance. In China, national policy has positioned AI as a strategic driver of educational modernization and of IPE (Fuxiang & Shuangli, 2023). The New Generation Artificial Intelligence Development Plan (2017) set out a system-level blueprint for AI's role in public services and governance, including education (China's State Council, 2017). The General Offices of the CPC Central Committee and the State Council later issued the Opinions on Deepening the Reform and Innovation of Ideological and Political Theory Courses in the New Era (2019), calling for modern information technologies to be embedded in IPE to enhance depth, affinity, and effectiveness (General Office of the CPC Central Committee & General Office of the State Council, 2019). Recent directives continue this push: the Ministry of Education reports steady progress on the National

Education Digitalization Strategy Action, and a 2025 multi-agency opinion specifies accelerating education digitalization with intelligent technologies (Ministry of Education, 2024; Ministry of Education et al., 2025). Within this policy context, Chinese scholarship describes a shift in IPE from technology insertion to technology integration, supported by data, algorithms, and immersive scenarios that promise personalized pathways and expanded learning spaces. Rather than asserting structural necessity, this article offers context-bound empirical evidence from instructor interviews on how these trends translate into point-of-use practices and governance.

Despite these opportunities, embedded AI also introduces risks that are magnified by the epistemic and value characteristics of IPE. Studies warn that recommendation logics can narrow horizons, displace value-oriented dialogue, and erode teachers' discursive leadership, while datafication may crowd out humanistic work in the classroom (Slade & Prinsloo, 2013; Mittelstadt et al., 2016). IPE-specific analyses further document tensions between tool rationality and value rationality, concerns about privacy and algorithmic bias, and shifts in teacher–student relations as AI becomes a quasi-subject in interaction (Baker & Hawn, 2022; Holmes et al., 2022; Guilherme, 2019). Empirical work in “intelligent IPE” notes risks of information cocoons, fairness challenges tied to data provenance, and value drift when platforms prioritize engagement metrics over deliberative learning (Baker & Hawn, 2022; Gebru et al., 2021; Bender & Friedman, 2018). At the model level, large language models exhibit well-known tendencies toward hallucination and compressed reasoning chains, which are misaligned with IPE's demand for conceptual precision, historical sequencing, and cross-text consistency (Bender et al., 2021; Ji et al., 2023). These technical limits reinforce calls to anchor AI-supported IPE in authoritative, compliant corpora and to combine automation with teacher-led value guidance.

A clear research gap remains. Policy and conceptual essays have proliferated, yet systematic evidence from frontline IPE instructors on how ethical risks materialize and how safeguards can be made workable across classroom, platform, and institutional layers is comparatively limited. Existing reviews identify the promise of whole-process enhancement and the need for governance, but they seldom specify conditions under which AI helps or harms value formation in actual IPE settings (Zawacki-Richter et al., 2019; UNESCO, 2023). Field studies in China have begun to surface issues such as narrowed exposure, weakened affective engagement, and corpus heterogeneity, but they call for richer qualitative accounts to explain context, mechanisms, and boundary conditions. Recent qualitative work specifically on IPE underscores that credibility and authority are fragile without curated knowledge bases, retrieval-augmented citation binding, and auditability—yet these provisions are uneven across institutions and platforms.

The present study responds to this gap with an empirical investigation using thematic analysis of interviews with 17 university IPE instructors. First, the study delineates how teachers perceive and delimit ethical risks and value boundaries in AI-supported IPE, clarifying where instrumental gains meet pedagogical limits. Second, it explains mechanisms that generate these risks in context, including the interaction of data practices, recommendation logics, corpus governance, and classroom discourse. Third, it contributes an integration framework that centers teacher leadership, theoretical anchoring, and compliance safeguards, and it specifies operational elements such as retrieval-augmented generation with verifiable citation, process-based assessment integrity, and continuous audits for privacy and bias. This contribution directly addresses weaknesses identified in the literature by linking classroom practice to platform design and institutional policy within China's active policy environment.

2. Methods

This study adopted an interpretivist stance to understand how university IPE teachers make sense of AI in teaching and assessment. An interpretivist approach was appropriate because the research questions concern meanings, judgments, and practical reasoning in context. We used a qualitative exploratory design and applied reflexive thematic analysis to identify patterned meanings across participants' accounts. We followed the six-phase procedure described by Braun and Clarke: familiarization with the data, generation of initial codes, construction of candidate themes, review of themes, definition and naming of themes, and production of the report (Braun & Clarke, 2006; Braun & Clarke, 2021).

2.1 Participants and sampling

Participants were 17 IPE teachers from five universities. Teaching experience ranged from 3 to 21 years. We used purposive sampling to recruit instructors who had recent exposure to AI-supported teaching or management tools in IPE. We then used snowball sampling to expand the pool. Each participant was assigned an anonymous identifier from T01 to T17. We sought variation in institutional tier, course types, and prior AI tool experience so that the sample could capture a range of practices and views.

2.2 Data collection

Data were collected from March to June 2025 through semi-structured interviews with IPE instructors. Each participant completed one interview of 60 to 90 minutes. The interview guide covered AI use scenarios in IPE, perceived benefits and risks, data governance and privacy practices, assessment and academic integrity, teacher–student interaction, and institutional support. With written informed consent, interviews were audio-recorded and transcribed verbatim. Direct identifiers were removed during transcription, and role or context details were generalized when needed to reduce re-identification risk.

2.3 Data analysis technique

We employed reflexive thematic analysis to interpret participants' accounts (Braun & Clarke, 2006). Transcripts were read repeatedly to build immersion, and initial coding proceeded inductively at both semantic and latent levels. NVivo 12 was used to organize excerpts, memos, and iterative code sets. Codes were collated into candidate themes by comparing meanings within and across cases, and themes were refined by checking internal coherence and clear distinctions against the whole corpus. Theme salience reflected qualitative judgment rather than frequency counts; we considered three criteria: coverage across cases and contexts, explanatory reach for the research questions, and clarity of the mechanisms described by the data. We judged the analysis to be interpretively sufficient when later coding cycles added nuance without altering core patterns. We did not calculate inter-coder reliability because reflexive thematic analysis treats coding as an interpretive act; instead, we held regular analytic meetings, kept reflexive journals, and maintained an audit trail to support credibility and transparency (Nowell et al., 2017). The team had prior experience in IPE teaching and educational technology; we documented assumptions about AI benefits and risks before coding and revisited them during analysis, and reflexive memos recorded how our positionality shaped attention and the resolution of interpretive tensions.

2.4 Ethics

Before data collection, all participants received information about the study purpose, procedures, potential risks, and their rights, including voluntary participation and the option to withdraw at any time without penalty. Written informed consent was obtained for participation and audio recording. Personal identifiers were removed during transcription. Audio files and transcripts were stored on an encrypted drive with access limited to the research team. Data were used only for academic research and teaching improvement. The study protocol received approval from the authors' institutional research ethics committee.

3. Findings

3.1 Demographic characteristics

Among the 17 university instructors of ideological and political education in this study (see Table 1), 13 were female and 4 male; eight held the rank of lecturer, six were at associate professor level or above, and three were teaching assistants. Participants ranged in age from 27 to 57 years and had 2–21 years of IPE experience. Course responsibilities were distributed as follows: two taught Ideological–Moral Cultivation and Legal Foundations, four taught Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics, three taught Outline of Modern Chinese History, five taught Current Affairs and Policies, and three taught Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. Regarding prior use of AI/AI-enabled tools, 12 instructors reported some use and 5 reported none; reported tools centered on LMS analytics dashboards ($n = 4$) and platform recommendation/moderation (including override/appeal features; $n = 4$), with additional mentions of a generative assistant for classroom prompting ($n = 1$), an automated quiz engine ($n = 1$), workflow automation for pacing/scheduling ($n = 1$), and biometric access control for platform log-ins ($n = 1$).

Table 1: Social demography of participants ($n = 17$)

ID	Gender	Age	Rank/Role	Main Course	Prior AI Use (Yes/No; tool)	Years in IPE
T01	Female	57	Associate professor or above	Current Affairs and Policies	No; None reported (addressed AI-assisted answers via process-based assessment)	4
T02	Female	41	Associate professor or above	Outline of Modern Chinese History	Yes; LMS analytics dashboards (plus permitted generative brainstorming with disclosure)	3
T03	Female	46	Lecturer	Ideological–Moral Cultivation and Legal Foundations	Yes; Generative assistant for classroom prompting (source-tracing prompts)	10
T04	Female	42	Lecturer	Current Affairs and Policies	Yes; Platform moderation & bias-check settings (trained via targeted clinics)	21
T05	Male	33	Teaching assistant	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	Yes; Platform biometric login (facial/voice) for access control	2
T06	Male	38	Lecturer	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	No; None reported (used version history + brief viva; non-AI feature)	7
T07	Male	51	Lecturer	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	Yes; LMS analytics dashboards (weekly targets)	3
T08	Female	30	Teaching assistant	Current Affairs and Policies	Yes; Platform recommender/curation features	4
T09	Female	53	Associate professor or above	Outline of Modern Chinese History	No; None reported (issued privacy/consent notice)	10
T10	Female	31	Lecturer	Introduction to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	Yes; Automated quiz engine	4
T11	Female	27	Teaching assistant	Ideological–Moral Cultivation and Legal Foundations	Yes; Platform moderation & appeal workflow	4
T12	Female	41	Associate professor or above	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	Yes; LMS analytics dashboards (shared screenshots)	9
T13	Male	43	Associate professor or above	Current Affairs and Policies	No; None reported (affected by provider terms change)	21
T14	Female	55	Lecturer	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	Yes; Moderation override with rule/keyword display	12
T15	Female	34	Associate professor or above	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	Yes; Automation for pacing/task flow (auto-quizzes/scheduling)	6
T16	Female	40	Lecturer	Outline of Modern Chinese History	Yes; LMS analytics dashboards (rebalanced via reflection tasks)	7
T17	Female	50	Lecturer	Current Affairs and Policies	No; None reported	9

Note: “Prior AI Use” reflects tools directly used in teaching/learning as evidenced in instructor interviews. LMS analytics/targets and platform recommendation/moderation are counted as AI-enabled features. Version history and ordinary document tools are not counted as AI.

3.2 Thematic findings

Analysis of interviews with 17 IPE teachers generated six connected themes that capture how AI is used, evaluated, and governed in practice. Themes are ordered by salience in the corpus. Illustrative interview excerpts are formatted with anonymized identifiers (T01–T17).

Theme 1: Privacy and consent

Attendance, proctoring, and analytics tools collect biometric and behavioral data. Consent is often presented once at first login with few item-level opt-out options. Retention and secondary use are not always clear. Concerns increase when engagement screenshots or rankings circulate beyond the course. Some instructors use plain-language notices, itemized consent choices, and masked identifiers in exported reports.

Access to core functions required facial capture and voice activation. Consent appeared once at first login and most students clicked through to enter class. (T05)

Analytics screenshots were later shown in a college meeting. Students asked whether the initial consent covered this second use. (T12)

A course notice listed collected items, retention time, and an opt-out for facial capture. Questions became more specific and several students opted out while staying engaged. (T09)

We got an email saying our data would be shared with a “third-party partner” for “analytics purposes.” What partner? What purpose? It feels like we’re the product, and I don’t know who they’re selling us to. (T10)

The popup had a huge block of text and then “I Agree.” To get to the course materials, I had to agree. It mentioned eye-tracking, keyboard analysis, all of it. What if I was okay with the camera but not with them tracking my keystrokes? There was no way to say that. It was all or nothing, so I just clicked. (T11)

Theme 2: Teacher role

Teachers reported efficiency in preparation, examples, and feedback. Discussion sometimes shifted from dialogue to answer seeking. Many accounts described a move from sole authority to curator and ethical gatekeeper when students brought fluent but superficial outputs. The shift was smaller when AI use stayed in preparation and seminars emphasized argumentation.

Students arrived with compact answers from the assistant. Initial discussion focused on unpacking assumptions and rebuilding the chain of reasoning. (T01)

Automation supported pacing and task flow. Value clarification still depended on presence, tone, and carefully chosen stories. (T15)

Framing the model as a claim to test and using prompts such as justify and trace sources helped sustain teacher leadership. (T03)

For me, the role is the same. I use AI for prep materials, but the seminar is all about human debate. The AI isn’t part of that, so my role as facilitator hasn’t really shifted. (T08)

A student brought in a flawless summary, but when I asked about a key assumption, they couldn’t answer. The AI gave them the polish without the reasoning, and we had to reconstruct it together in class. (T11)

Theme 3: Recommendation and moderation

Recommendation and moderation shaped what students saw and what persisted. Repeated clicks on historical cases produced narrowing and theoretical readings with competing views surfaced less. Flags and removals without reasons interrupted threads and discouraged follow-up, especially near assessments. Brief explanations and instructor overrides with an audit trail were linked to fewer disruptions and higher trust.

Students who preferred historical cases kept receiving similar items. Theoretical texts with contested viewpoints were harder to surface. (T08)

A post about debate boundaries was marked sensitive without explanation. The appeal took a week and the thread lost

momentum. (T11)

When the platform showed the matched rule and keywords and allowed instructor restore with a reason, complaints fell and posts returned faster. (T14)

We had a great discussion thread going with study tips for the final. Two days before the exam, the whole thing was locked for a ‘code of conduct violation.’ No one knew why. Suddenly our main resource for last-minute questions was gone. The panic was real. (T17)

In my class seminar, the system is much better. It’ll flag a post but it tells me and the student exactly why. I have a dashboard where I can review it and hit ‘restore’ in seconds. Because the process is transparent, students are more willing to tackle sensitive topics instead of shying away. (T06)

Theme 4: Assessment integrity

Automated scoring and rapid feedback increased pace and coverage. The same tools enabled AI-assisted paraphrasing and answer generation when grading focused only on final products. Many courses used process-based evidence such as drafts, version histories, planning memos, source trails, and short oral defenses to make authorship and learning visible. Limited and disclosed brainstorming followed by in-class defense was seen as consistent with integrity once expectations were clear.

Automated quizzes saved time. Regenerated short answers made ownership difficult to judge from the final script alone. Process evidence became necessary. (T10)

Combining version history with a brief viva revealed whether arguments were understood and owned. (T06)

Allowing AI for brainstorming with mandatory disclosure and in-class defense kept efficiency while aligning with integrity. (T02)

We used a mandatory ‘Research Plan Memo’ to capture the student’s own thesis and source ideas before they drafted the paper. (T16)

In the oral defense, I just ask about their counterarguments and source choices. It quickly makes genuine ownership clear. (T09)

Theme 5: Metrics and values

Activity dashboards and weekly targets supported monitoring and pacing. They could displace value reasoning when treated as the main goal. Counts of clicks, posts, or minutes online did not show whether students could reason through value conflicts, engage opposing views, or justify a position. Reported countermeasures included reflective journals, short position statements with textual evidence, and rubrics that assessed stance clarity, engagement with counter-arguments, and quality of justification. Courses that displayed indicators of breadth and depth, such as diversity of sources, reported a more balanced focus.

High activity numbers did not show whether students could reason through value conflicts or hold a position with reasons. (T02)

Weekly targets produced visible activity but not necessarily conviction. Students learned to complete steps without engaging value questions. (T07)

Adding a reflection component and discussing excerpts publicly rebalanced the dashboard’s influence. (T16)

Our rubric for the position statements was simple: ten points for a clear thesis, ten for using textual evidence, and ten for seriously addressing one counter-argument. It shifted their focus from post count to argument quality. (T05)

Theme 6: Governance and accountability

Institutional capacity and policy coherence shaped responsible use. Participants described uneven digital and ethical literacy, inconsistent guidance across departments, and reliance on vendor defaults. They also noted sudden changes to export formats or consent terms. Helpful supports included short clinics on privacy controls, bias checks, and appeal workflows. A standing cross-unit group aligned teaching affairs, IT security, legal counsel, and student affairs. An internal policy listed permitted, restricted, and prohibited coursework uses.

Procurement language, platform terms, and course rules pointed in different directions. When dilemmas arose, it was unclear which rule prevailed. (T07)

A change in provider terms affected data access and consent language. The institutional response lagged behind classroom needs. (T13)

Targeted clinics on privacy controls, bias checks, and moderation appeals made a practical difference. Instructors felt more confident in daily decisions. (T04)

Our policy has a ‘Restricted Uses’ section. For example, AI can generate feedback on drafts, but only if the final grade is determined by the instructor and students are notified of the tool’s use in the syllabus. (T15)

The Teaching Center runs 30-minute clinics every month. The one on ‘Checking for Algorithmic Bias’ was really useful. It gave us a simple checklist to use when choosing new software. (T01)

4. Discussion

This study asked how university IPE teachers perceive and delimit ethical risk when using AI, what mechanisms generate these risks in teaching practice as reported by instructors, and what measures are workable at the course, platform, and institutional levels. Thematic analysis identified six findings. First, privacy and consent are fragile because access to core functions depends on bundled, one-time consent and because secondary use of data is not always transparent. Second, the teacher role shifts from sole authority to curator and ethical gatekeeper, especially when students arrive with fluent yet shallow outputs. Third, algorithmic recommendation and moderation shape what becomes visible and discussable, which narrows exposure and produces contestable takedowns. Fourth, assessment integrity is challenged by AI-assisted authorship, and can be supported by process evidence and bounded, disclosed use. Fifth, activity metrics can displace value formation unless courses adopt indicators that capture depth and justification. Sixth, responsible use depends on institutional capacity, including clear rules, training, cross-unit coordination, and timely responses to vendor changes.

These results are important because they link policy goals with classroom practice. National plans call for deep integration of intelligent technologies in education and IPE to expand access and improve quality (China’s State Council, 2017; General Office of the CPC Central Committee & General Office of the State Council, 2019; Ministry of Education et al., 2025). The findings indicate that such integration is effective only when governance mechanisms are embedded at the point of use. Course-level data notices and itemized consent make privacy control substantive. Brief justifications for moderation decisions, together with instructor overrides, preserve space for reasoned disagreement. Process-based assessment and disclosure maintain efficiency while supporting credible authorship. Rubrics that emphasize clarity of stance, engagement with opposing views, and use of evidence align student activity with the mission of IPE to cultivate judgment and commitment rather than mere participation counts.

The findings not only corroborate prevailing calls to move from isolated applications toward comprehensive enablement in educational uses of artificial intelligence, but also clarify the internal logic that such a shift requires. A pathway of holistic enablement must proceed in a coordinated manner across classroom practice, scholarly construction, and governance. At the classroom level, the priority is to preserve the irreplaceable work of affect and conviction; immersive and interactive experiences supported by artificial intelligence yield durable value only when teacher guidance and value clarification are present, which is consistent with evidence that education depends on human relationships and purpose rather than technical delivery alone (Biesta, 2009). At the level of scholarly construction, it is necessary to move beyond statistical association and to re-anchor instruction in the dialectical and historical specificity of theory. This requires designs that use controlled vocabularies, temporal mapping, and cross textual comparison to counter models’ tendencies toward conceptual simplification and compressed chains of reasoning, a pattern well documented in research on hallucination and brittle reasoning in large language models (Bender et al., 2021; Ji et al., 2023). At the level of governance, capacity rests on building authoritative and compliant corpora together with mechanisms that enable retrieval augmented generation and verifiable citation, supported by transparency instruments such as datasheets for datasets and model cards, as well as privacy protection and auditability in educational contexts (Lewis et al., 2020; Gebru et al., 2021; Mitchell et al., 2019; Slade & Prinsloo, 2013; UNESCO, 2021). Without a curated whitelist knowledge base, retrieval augmentation, and citation binding, platform applications struggle to ensure content quality and remain vulnerable to drift in canonical formulations that can dilute the effectiveness of mainstream

discourse (UNESCO, 2021; OECD, 2021).

In sum, to advance responsible integration of artificial intelligence in university ideological and political education, coordinated action is required across government, institutions, and classrooms. Government should promulgate domain-specific standards for data governance, privacy, and algorithmic accountability; fund an authoritative, continuously updated Chinese corpus aligned with curricular standards and vetted for ideological and scholarly integrity; and institute certification and periodic auditing of educational models and platforms. Universities should translate national guidance into enforceable rules by defining permitted, disclosure-required, and prohibited uses; establishing a curated, pre-approved knowledge base connected to retrieval and citation verification services; and implementing access control, logging, and incident reporting. Faculty development should prioritize algorithmic literacy, prompt design, supervision of student use, and assessment integrity, supported by toolkits such as controlled vocabularies, historical timelines, and cross-text comparison templates. Instructors should retain leadership in value guidance and theoretical interpretation while using artificial intelligence for organization, presentation, and feedback. Recommended practices include requiring process evidence, such as prompts, dialogue excerpts, version histories, and reflective notes; aligning generated materials with course glossaries and historical sequences; using cross-text triangulation to prevent conceptual simplification or temporal misalignment; explicitly teaching about recommendation mechanisms and bias; and converting immersive resources into value-oriented dialogue through guided questioning and brief oral defenses.

5. Limitations and future recommendations

This study draws on semi-structured interviews with 17 IPE instructors from five universities in Chongqing. The reliance on instructor self-reports and the single-region sample limit the transferability of the findings beyond similar institutional and policy contexts. No classroom observations or student-produced artifacts were collected, which constrains triangulation across data types and may leave some mechanisms inferred rather than witnessed in situ. The cross-sectional design also precludes claims about change over time or causal effects on learning outcomes and academic integrity behaviors.

Future work should broaden the sampling frame across regions and institutional types to test the scope conditions of the themes identified here. Mixed-methods designs that pair interview data with classroom observations and process evidence from student work would strengthen credibility and enable richer mechanism tracing. Where feasible, quasi-experimental or quantitative evaluations could estimate effects on higher-order thinking, integrity-related behaviors, and teacher–student interaction. Finally, instructional trials that integrate an approved institutional knowledge base with retrieval-augmented generation—and that report transparent prompts, outputs, and audit trails—can assess the quality and stability of AI-supported content. Together, these steps would help validate and refine a teacher-led, theory-grounded, compliance-aware integration framework and support movement from small pilots to coherent, system-level adoption.

Conclusion

In conclusion, the study sheds light on a critical intersection of educational modernization and value-oriented teaching. The findings underscore the practical challenges faced by instructors who are expected to integrate intelligent tools while protecting privacy, sustaining dialogue, and upholding academic integrity. These challenges call for a coordinated response that combines clear classroom protocols, transparent and controllable platform functions, and institution-level safeguards and training. With these supports in place, AI can contribute to access and efficiency while remaining aligned with the core aims of ideological and political education.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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The Contemporary Expression of Nationalized Comedy: Observing the Innovative Practices of the Chinese Animation School through Nobody

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Abstract: Taking the latest production of the Shanghai Animation Film Studio (hereafter referred to as SAFS), *Nobody*, as a case study, this paper explores the innovative practice of nationalized comedy within the contemporary Chinese animation school. Building upon the creative experience of Yao-Chinese Folktales, the film employs a combination of two-dimensional ink wash hand-drawing and digital craftsmanship. Narratively, it deconstructs the classic Journey to the West motif from the perspective of “small demons,” transforming the grand narrative into a humorous expression of grassroots experience through the structural device of “pretending to join the pilgrimage—repeatedly being exposed.” The film’s comedic mechanisms emerge from a fusion of identity dislocation, trick deconstruction, and self-ridicule, where the humor relies not only on semantics but also on the interplay of audiovisual rhythm and the audience’s shared knowledge. On the aesthetic level, the integration of ink-wash blank space, rich color schemes, and operatic music turns nationalized style into an intrinsic emotional resource for narration. From a vertical comparative perspective, the film shifts the “hero-centered” focus toward the “ordinary condition,” thereby moving from “deification” to “humanization.” From a horizontal comparative perspective, it demonstrates how the SAFS comedy tradition is inherited while simultaneously infused with modern terms and social metaphors to enhance audience resonance. Furthermore, by paying tribute to SAFS’s own classics, the film links stylistic memory with contemporary sentiment. This study argues that *Nobody* continues the creative ethos of “neither repeating oneself nor imitating others,” and illustrates that the integration of national aesthetics with contemporary terms and comedic strategies represents a feasible pathway for the Chinese animation school to move toward a “new classic.”

Keywords: Nationalized Comedy; Chinese Animation School; Two-Dimensional Ink-and-Wash; Journey to the West Motif

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1. Introduction

In the summer of 2025, the Shanghai Animation Film Studio (SAFS) released its feature-length animated film *Nobody* in cinemas. The film continues the creative spirit of the web animation Yao-Chinese Folktales, rewriting the Journey to the West motif from the perspective of “small demons” and transforming the grand “pilgrimage” narrative into an absurd adventure of grassroots characters. Upon its release, the film sparked heated discussion, not only because its humor and ink-and-wash

style evoked memories of SAFS classics, but also because its metaphors of real-life conditions resonated across different generations. Chang Guangxi, an expert from the SAFS Art Committee, noted that the film demonstrates the enduring spirit of “neither imitating others nor repeating oneself” that SAFS has long upheld, now extended into a new era. He pointed out that while the film carries traditional Chinese styles, it also addresses contemporary social sentiments through a mode of comedy “tinged with sadness, and sadness suffused with hope,” embodying the creative power of the Chinese animation school in a new context. Zhou Keqin stressed that SAFS has consistently adhered to the production principle of being “suitable for both the old and the young.” Nobody achieves a balance between entertainment and thought, making it appropriate for family audiences while also provoking deeper reflection among younger viewers. Ling Shu went even further in praise, observing that the film “connects Journey to the West with ordinary people’s lives,” bringing the nationalized motif closer to everyday experience.

The starting point of this study lies precisely in such a contemporary context: as Chinese animation reaffirms the path of nationalization amid the multiple challenges of globalization and digitalization, Nobody raises a question—how can it achieve a verifiable innovative practice through humor, hand-drawn style, and national aesthetics without replicating the classics or blindly following trends? This paper will address three central issues: first, how does the film inherit and renew the tradition of nationalized comedy in its narrative, art, music, and comedic strategies? Second, in what ways does it contrast with the “Journey to the West lineage” of SAFS and other nationalized comedies? Third, what insights does this creative trajectory offer for the future development of the Chinese animation school? Through close textual analysis of the film itself, vertical comparison with classical works, horizontal comparison with other SAFS productions, as well as reference to interviews with the creators and opinions of Art Committee experts, this paper seeks to demonstrate the continuity and transformation from “national style” to “contemporary expression,” thereby illustrating how the Chinese animation school can establish a “new classic” within the context of the new era.ⁱⁱ

Figure 1. Poster of the animated film *Nobody* (Yu Shui, 2025)



2. Research Status

The concept of the Chinese animation school originated from the artistic consciousness of the mid-20th century. It is both a creative tradition and a cultural stance. At its core lies not the repetition of established forms but the continual exploration of new modes of expression grounded in national aesthetics, emphasizing a creative spirit of “taking ourselves as the principal subject.” This spirit has run through the entire course of Chinese animation’s development, maintaining its independent posture even amid the shock of globalization and marketization, and serving as a crucial marker that distinguishes Chinese

animation from other systems. ^[1] Nationalization is not merely the reproduction of visual symbols; rather, it is closely tied to a consciousness of cultural subjectivity, responding to social life through images and narratives. Such an orientation toward reality and audiences has endowed the Chinese animation school with sustained vitality in the international context. 6 ^[2] Theoretical retrospectives since the 20th century indicate that nationalization has been regarded as a key path to resisting cultural homogenization and safeguarding artistic independence. It is under this shared consensus that many animators have embraced the creative belief of “neither imitating others nor repeating oneself” ^[3].

In studies focusing on the integration of nationalization and comedy, existing research has revealed their profound compatibility. The national aesthetic emphasis on “depicting the spirit through form” is reflected not only in the expressive treatment of design and color, but also in its transformation on the narrative level into techniques such as exaggerated movement, role dislocation, and ironic emotion, thereby endowing comedy with a distinctive rhythm and tension. ^[4] The value of nationalization lies not in the piling up of decorative symbols, but in fostering genuine connections between animation, social emotions, and audience experiences. Comedy happens to be the genre best suited to touch upon such experiences: it dissolves tension through humor while simultaneously conveying a universal sense of emotional identification. In this process, opera conventions provide unique resources. Their stylized rhythms and Banqiang structures naturally align with comedic pacing, enabling nationalized comedy to demonstrate a strong sense of rhythm and cultural identity through the integration of sound and image.

As we entered the 21st century, with the rise of digital media and network platforms, the exploration of nationalization by the Chinese animation school has entered a new stage of transformation. The Shanghai Animation Film Studio has shown a distinct attitude of “upholding fundamental principles and breaking new ground” in new creative practices, seeking contemporary expression with the audience through digital craftsmanship and new media environments. In the discussion of cultural subjectivity, the significance of nationalization lies not only in preserving traditions but also in innovating to transform them into emotions and values that audiences can share, thereby establishing cultural confidence in the context of globalization. ^[5] The perspective of cultural ecology further indicates that the Chinese animation school can continue to play a role in different historical stages precisely because it constantly seeks new balance points between tradition and the present. ^[6] In recent years, the success of Yao-Chinese Folktales and the launch of Nobody have exemplified this path: directors and creators have transformed the exploratory experience of experimental short films into an artistic mosaic for online dissemination and continued and expanded this in theatrical feature films, integrating national aesthetics, contemporary terms, and digital craftsmanship to create new audience experiences.

Figure 2. Poster of the animation Yao-Chinese Folktales (Chen Liaoyu, 2023)



In summary, the work *Nobody* not only continues the aesthetic experiments of Yao-Chinese Folktales but also demonstrates and inherits the core spirit of “neither imitating others nor repeating oneself” in its two-dimensional ink-wash style and comedic expression. Therefore, it provides a highly representative case for exploring the innovative practices of the Chinese animation school in the new era.

3. Historical Context of the Shanghai Animation Film Studio

The formation of the Chinese animation school is not only related to the exploration of nationalized aesthetics but also closely connected to its internal creative mechanisms and atmosphere. Since its establishment in the 1950s, the Shanghai Animation Film Studio has established a relatively relaxed creative system. In an interview, Teacher Chang Guangxi recalled that the Art Committee of the studio was not a rigid administrative body but a “tolerant artistic mechanism.” It had value judgments while maintaining a loose and free characteristic. Once a script was put forward, the Art Committee would convene screenwriters, directors, and even experts from different fields such as puppetry and special effects for joint discussions, often in the form of a “free-talk gathering.” This so-called “free-talk gathering,” proposed by Te Wei after 1964, means that “everyone is a deity and can speak freely.” In such a creative atmosphere, artists of different generations and specialties can collectively brainstorm and generate unique ideas. This tradition has continued to this day, and even the factory director does not make decisions unilaterally but invites senior experts and young directors to discuss the creative direction together. This mechanism not only avoids the single-mindedness of formalism but also ensures that the spirit of “not imitating others and not repeating oneself” is truly implemented.^[7]

At the same time, the Shanghai Animation Film Studio carried out a series of experimental explorations from the 1960s to the 1980s, the most representative of which was ink-wash animation. *Baby Tadpoles Look for Their Mother* (1961) first introduced the expressive brushstrokes in the style of Qi Baishi into animation, emphasizing the expressiveness of “capturing the spirit through form”; *Mu Di* (1963) showcased the harmonious relationship between humans and nature through ethereal brushwork and lyrical music; *Feelings from Mountain and Water* (1988) went even further, integrating the blank spaces of ink-wash landscapes with storytelling, and completed a dialogue between Chinese and Western art through the sound of the zither and the artistic conception of the painting. These works were not only innovative in form but also demonstrated the depth of national exploration—they transformed the philosophical spirit of Chinese painting into the narrative language of animation, establishing a unique aesthetic path for the Chinese animation school that is distinct from that of Europe, America, and Japan.

Figure 3. Still from the animation Feelings from Mountains and Waters (Te Wei / Yan Shanchun / Ma Kexuan, 1988)



It is important to emphasize that these works are not solely aimed at children, but rather embody a dual orientation toward both “children and the general public.” Since the Yan’an Forum on Literature and Art, Chinese animation has consistently positioned its audience as “serving the working masses.” Children and adolescents have been regarded as the primary group, while animation has also borne the function of social and cultural communication.^[8] Therefore, the studio’s nationalized comedies were not merely children’s entertainment consumption, but cultural allegories directed at society as a whole. *Three Monks*, for example, appears to tell a simple story of monks carrying water, yet it conveys a social metaphor about cooperation and division of labor; *Twelve Mosquitoes and Five People* uses absurd satire to reflect contradictions within collectivism. This tradition of being “enjoyable for both young and old” has made nationalized comedy an important path that distinguishes Chinese animation from others: it offers intuitive humor accessible to children while also carrying cultural metaphors that adults can appreciate, thereby achieving multi-layered resonance across different audience groups^[9].

Therefore, from the creative atmosphere of the “Artistic Committee,” to the formal exploration of ink-wash experimental films, and further to the cultural context of the “dual orientation toward children and the general public,” the Chinese animation school gradually developed a nationalized path that combined both institutional support and aesthetic depth^[10]. This path not only established the creative credo of “neither imitating others nor repeating oneself,” but also laid a solid foundation for the later epic explorations of *Journey to the West*-themed works and their transformation toward comedy^[11].

With the transformation of the social context, classic nationalized comedies gradually entered a new stage of reinterpretation. In the 1990s, Chinese animation faced difficulties under the impact of the market. Entering the 21st century, however, digital media and online dissemination opened up new spaces for nationalized comedies. *Yao-Chinese Folktales* successfully broke through boundaries by adopting a short film format, introducing the perspective of “small demons” into mainstream narratives and demonstrating the possibility of deconstructing classics from marginal viewpoints. As Teacher Chang Guangxi has noted, such creations “do not preach grand principles, but evoke resonance after viewing; they carry a touch of sorrow within comedy, a sense of hope within sorrow, and maintain positivity in reality.” In this sense, they seem to allow audiences to once again glimpse the traditions of the Studio, ensuring the continuation of its cultural lineage. Building on this foundation, *Nobody* extended short-film characters such as the “little pig demon,” experimenting with feature-length production by combining two-dimensional ink painting with digital craftsmanship, while creating new viewing experiences across cinema and online platforms. On the one hand, the film pays tribute to the visual traditions of classics such as *Havoc in Heaven*, *Monkey King Conquers the Demon*, *Piggy Eats Watermelon*, and *Monkeys Fish the Moon*; on the other hand, it responds to contemporary realities with a renewed vocabulary, continuing the spirit of the Chinese animation school’s nationalized comedy. This indicates that, from the concept of nationalization to comedic tradition and finally to contemporary reinterpretation, the Chinese animation school has established a clear historical trajectory, with its core consistently centered on creative nationalized expression rather than mechanical reproduction of tradition.

4. The Contemporary Expression of Nationalized Comedy in *Nobody*

As one of the Shanghai Animation Film Studio’s recent flagship feature films, *Nobody* serves as a developmental extension of the series of online shorts *Yao-Chinese Folktales*, while also representing a systematic exploration of nationalized comedy. In its creation, the film continues the studio’s tradition by reinterpreting the classic *Journey to the West* motif into the grassroots experiences of the little demons, thereby revitalizing national style and comedic expression within a contemporary context. On the surface, it appears to parody and playfully mock the classic; in reality, however, it delivers a contemporary expression of identity, courage, and community, navigating between laughter and tears, absurdity and warmth.

4.1 Grassroots Narrative and Humor Mechanisms: Displacement, Deconstruction of Classics, and Self-Mockery

The most distinctive feature of the film’s narrative is its transformation of the sacred pilgrimage of the “scripture-seeking troupe” into a farcical story of “little demons impersonating the master and his disciples.” The traditional model of the “Monkey King subduing demons and saving all beings” is downplayed, replaced instead by the petty struggles of the little demons. They imitate the gestures and manners of the classic characters, yet risk being exposed at any moment. For instance, Monkey King’s golden cudgel is reduced to a crude wooden stick, Piggy’s nine-tooth iron rake becomes a clumsy farm tool,

and Sand Monk's treasured staff degenerates into an ordinary iron shovel. These "mismatched props" render their disguises absurd and comical, setting up a narrative tone of displacement.

The film's humor mechanism operates on three levels. First is the absurd situation created by identity displacement: the little demons must perform the roles of the "master and disciples," yet constantly reveal flaws in their act. Second is the "deconstruction of classic set phrases," such as in the almsgiving scene where the little demons recite lines as if reading from a script, only to be instantly exposed by a child's blunt remark: "You're fake." Third is the meta-narrative self-mockery, exemplified by the film's repeated jokes that "Sand Monk only has two lines." This not only satirizes the marginalization of the character in the original text but also enables the audience to experience a sense of intellectual complicity with the creators amid their laughter.

This humor is not merely a "stacking of gags," but is generated through the interplay of "old allusions" and "new language." Lines such as "Tang Monk is an investor" or "high standards and strict requirements for clients" directly translate religious rituals into modern workplace metaphors, allowing audiences to recognize the Journey to the West context while simultaneously smiling at its projection onto contemporary society. This dual orientation makes the comic moments both a deconstruction of the classic and a satire of present-day reality.

It is worth noting that the film's comic texture does not shy away from tragedy; rather, it highlights social meaning through a "laughter mixed with tears" approach. The helplessness of the little demons when pursued and humiliated reflects the predicament of marginalized individuals caught in the cracks of the social order. Their cynical wisdom of "siding with whoever is stronger" reveals their passivity and powerlessness, yet the film ultimately transforms this into a tender gesture of "continuing together even in failure." This shift from absurdity to warmth allows the film to transcend mere entertainment and convey a value of "courage in character."

4.2 Reusing and Subverting the Classics: True-False Mirroring and Traditional Irony

Nobody is not merely a grassroots reinterpretation of the Journey to the West motif; it also continuously establishes a "resonance-subversion" relationship with the classic at the level of detail. The most typical example is its reworking of the "True and False Monkey King" image. In the original classic and in the Studio's traditional works, the "True and False Monkey King" concerns the recognition of mythical identities, embodying the logic of good-evil confrontation and the restoration of order. In Nobody, however, the theme of "true and false" is transformed into outright satire: the little demons impersonating the scripture-seeking troupe are "false" from the outset; their disguises repeatedly fall apart, yet no true hero arrives to correct them. Instead, the narrative is carried forward through their failures, humiliations, and persistence. Here, the logic of "true and false" is subverted into the contrast between "false performances" and "real predicaments," reflecting the "identity anxiety" familiar to contemporary audiences.

Figure 4. Still from the animated film *Nobody* (Yu Shui, 2025)



A similar contrast can be drawn with the Studio's paper-cut animation *Pigsy Eats Watermelon*. That work, through Pigsy's comically gluttonous image and the simplicity of paper-cut aesthetics, created humor in the style of a traditional fable. In *Nobody*, however, the treatment of Pigsy is more satirical: his weapon, the nine-tooth iron rake, is downgraded into a clumsy farm tool, and his image is rendered more as that of a "ridiculous yet pitiable little figure." This difference reveals a shift from allegorical satire to grassroots sympathy, reflecting the evolving social concerns embodied in nationalized comedy across different historical stages.

The film continuously engages in a dialogue with classics through a method of "tribute and displacement." The imagery of the setting sun echoes the visual tradition of *Monkeys Fish the Moon*, yet it is re-envisioned through digital light and shadow. The "object parody" inherits the humorous logic of *Three Monks*, but further intensifies the satirical implication. These details enable the film to evoke the audience's memory of the classics while generating new meanings within a new context.

4.3 Art, Sound, and Thematic Implications: The Warm Reincarnation of Digital Ink Painting

On the artistic front, the film continues and renews the ink-wash experimental tradition of Shanghai Animation Film Studio. The exploration of "ink-wash animation," which began with films like *Baby Tadpoles Look for Their Mother*, *Mu Di*, and *Feelings from Mountain and Water*, emphasized the national pursuit of "capturing the spirit through form." *Nobody* extends this experimental spirit into the contemporary era by combining two-dimensional hand-drawing with digital craftsmanship: the use of negative space, the permeation of ink, the fluidity of lines, and the rich coloring of Dunhuang murals are layered together, achieving both an expressive quality and a modern texture.

The integration of sound and music also reflects inheritance and transformation. The film employs a polyphonic strategy that combines traditional Banqing in opera with modern orchestration. In conflict scenes, the use of gongs and drums propels the tension, while in lyrical segments, traditional Chinese musical melodies are laid out to evoke emotion. Electronic timbres and pop music elements are incorporated to give the film a contemporary feel. Particularly in comedic scenes, sudden breaks between sound and image or rhythmic contrasts directly create laughter, subtly connecting with the rhythmic comedy tradition of *Three Monks*.

Ultimately, the film's thematic implications transcend mere imitation or tribute. Through the absurdity and perseverance of the "little demons," it transforms the divine status of the Monkey King into a symbolic representation of "ordinary people having the courage to set out." "Connecting Journey to the West with the lives of ordinary people" is a precise summary of this idea. The film conveys to the audience that even amidst failure and absurdity, everyone carries within them a "Monkey King who dares to be themselves." This transformation from mythological epic to grassroots fable is not only an update in narrative strategy but also a renewed growth of the spirit of the Chinese animation school in the new era.

5. Vertical Comparison: Classic Journey to the West and Contemporary Rewriting

As a motif in Chinese classical literature, *Journey to the West* has been continuously adapted into animations, TV series, and films since the 20th century. Shanghai Animation Film Studio, in particular, has accumulated a wealth of experience in exploring this subject matter. From the 1960s works such as *Havoc in Heaven*, *Monkey King Conquers the Demon*, and *Pigsy Eats a Watermelon*, to the 21st-century *Yao-Chinese Folktales* and *Nobody*, a "Journey to the West lineage" spanning several decades has been formed. If the early works responded to the national spirit with an epic demeanor, then contemporary rewritings focus more on real-life experiences and grassroots narratives. The transformation trajectory can be clearly revealed through three aspects: vertical context, horizontal comparison, and lineage positioning.

5.1 Vertical Context: The Shift from Epic to Fable

Havoc in Heaven stands as a milestone in the history of Chinese animation. Through the use of Peking Opera conventions and meticulous visual design, the film shaped the image of Monkey King as a rebel against authority, merging nationalized arts with the heroic epic. Its logic is expansive: punishing evil and promoting good, restoring order, and symbolizing the national spirit. Later, *Monkey King Conquers the Demon* continued this model, emphasizing Monkey King's power to vanquish demons and highlighting the sense of justice embodied by the mythical hero. These works envelop the character with a divine aura, transforming tales of gods and spirits into national epics.

In contrast, *Nobody* deliberately departs from this epic logic. The film has a group of little demons impersonate the

pilgrimage disciples, establishing an identity misplacement from the very beginning. The hero is no longer the “Monkey King,” but rather a fumbling “little demon.” They possess no overwhelming divine powers to subdue demons, yet in the face of repeated exposure and failure, they continue to journey together. This narrative strategy signals a shift from “deification” to “humanization”: instead of witnessing a transcendent savior, the audience finds, amid laughter, the persistence and courage of ordinary people confronting adversity.

Yao-Chinese Folktales has already laid the groundwork for this grassroots perspective, telling stories of small characters closely tied to reality. Nobody turns the allegory of “little demons” into a feature-length narrative, enabling viewers to perceive contemporary social undertones within familiar classical motifs.

5.2 Horizontal Comparison: From Rhythmic Action to Pragmatic Self-Mockery

The comedy tradition of the Shanghai Animation Film Studio is equally evident. Shorts such as *Three Monks* generate laughter through rhythmic contrasts and character mismatches; *Twelve Mosquitoes* and *Five People* relies on repetition and exaggeration to create absurdity; while *Super Soap* turns everyday objects into comical props, imbuing them with a strong allegorical quality. The humor of these early comedies was largely rooted in kinesics and rhythm, depending on visual beats and exaggerated movements.

By contrast, *Nobody* shifts toward “pragmatics” and “self-mockery.” Its humor often stems from linguistic dislocation and procedural failure, for instance, the phrase “high standards and strict requirements for clients” reframes the pilgrimage as a metaphor for modern workplace. Another example is the running gag that “Sand Monk only has two lines,” which turns a marginal detail from the classic text into a reflexive joke. This humor relies not simply on physical action, but on the audience’s familiarity with the classics and their recognition of contemporary contexts to spark knowing.

This shift in humor signifies the evolution of nationalized comedy from “action—rhythm” to “pragmatics—self-mockery.” Laughter is no longer triggered merely by the characters’ comical gestures, but by the audience’s recognition of themselves in the language and situations. This also aligns with a more segmented viewing structure: while children may be drawn to slapstick actions, young adult audiences can find resonance in the semantic metaphor.

5.3 Lineage Positioning: A New Node Bridging Past and Future

Placing *Nobody* within the “Journey to the West lineage” reveals a clear trajectory of development. *Havoc in Heaven* represents the pinnacle of nationalized aesthetics, emphasizing epic grandeur and heroic spirit; *The Monkey King Conquers the Demon* continues the model of opposition between the supernatural and justice; *Yao-Chinese Folktales* introduces the “little demon perspective” through an anthology of shorts, bringing grassroots experiences into mainstream narratives; and *Nobody*, building on this foundation, advances the experiment of feature-length storytelling, placing small characters at the center of the narrative and establishing an expressive mode that both inherits tradition and resonates with contemporary reality.

Figure 5. Still from the animated film *Nobody* (Yu Shui, 2025)



This intermediary position makes *Nobody* not an isolated work, but a new node within the lineage. It neither imitates the epic model of earlier films nor repeats the experimental playfulness of shorts. Instead, through the digital reincarnation of ink painting and murals, and through the tension between humor and pathos, it realizes a contemporary expression of the Chinese animation school's spirit of "neither imitating others nor repeating itself."

6. Conclusion and Insights

Looking back at the development of Chinese animation, the Shanghai Animation Film Studio has consistently played a vital role in both pioneering and carrying forward the tradition. From former studio director Te Wei's proposal to "explore the path of national forms and knock on the door of comic style," to the theatrical release of *Nobody* today, this trajectory makes it clear: nationalized comedy is not merely a stylistic experiment, but also a cultural stance. It calls on creators to uphold the spirit of national art while responding to the shifting contexts of contemporary society with humor and wisdom.

It is worth noting that this spirit did not emerge out of thin air, but was closely tied to the unique creative atmosphere and institutional arrangements of the Studio. One such tradition was the "Art Committee" and the so-called "Free-talk gathering." The Art Committee, a loose yet authoritative platform for creative discussion, brought together artists of different generations and specialties to debate and review links such as scripts and character design, with real decisions relying on collective deliberation. This system ensured that "diversity" became a fundamental safeguard of creation. Te Wei's idea of the "Free-talk gathering" was an even more informal mechanism of open exchange: creators could, like "immortals," speak freely and share perspectives on a given topic. Such an open atmosphere enabled young directors to learn from the critiques and demonstrations of masters, while also ensuring that the creative process continually sustained a tension toward "innovation."

The value of this mechanism lies in its ability to ensure the creative credo of "neither imitating others nor repeating oneself" was truly put into practice. Every new work had to undergo the rigorous scrutiny of the Art Committee, where creators were required to present genuinely groundbreaking ideas in order to gain collective recognition. As a result, the classic works of the Shanghai Animation Film Studio not only carried forward the consistency of national aesthetics but also continually sought variation in style and technique, from the epic grandeur of *Havoc in Heaven*, to the allegorical comedy of *Three Monks*, and to the experimental ink-wash films *Baby Tadpoles Look for Their Mother*, *Mu Di*, and *Feelings from Mountain and Water*, thus sustaining an enduring drive for innovation.

In today's digital era, such mechanisms of collective discussion and diverse critique still carry practical significance. Although the organizational structures of creative teams have changed, the spirit of "open debate and collective gatekeeping" can be connected to contemporary project-based models and cross-disciplinary collaboration, serving as an institutional resource that safeguards innovation while upholding tradition. *Nobody* was born against this institutional backdrop and in continuation of the cultural lineage. Its success not only signifies a breakthrough in a single work but also demonstrates that contemporary Chinese animation can still sustain its creative vitality in a national style through the combination of institutions and spirit.

In summary, from Te Wei's original proposal to today's practice, "exploring the path of national forms and knocking on the door of comic style" has evolved beyond a mere creative slogan to become a continuous and evolving cultural lineage of the Shanghai Animation Film Studio. Its connotations have been enriched over different stages, from epics to fables, from family entertainment to segmented audiences, and from handcrafted ink painting to digital reincarnation, always maintaining a creative tension. Whether the Chinese animation school can continue to hold a unique voice in the future largely depends on its ability, guided by this spirit, to find new balances between tradition and contemporary reality, and to create works at the intersection of nationalization and globalization that are both authentically Chinese and capable of engaging in dialogue with the world. *Nobody* is the latest testament to this exploration. Its success demonstrates that nationalized comedy carries not only the depth of history, but also the warmth of reality, and, even more, the possibilities of the future.

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Asia Pacific Economic and Management Review is an international, peer-reviewed and open access journal which focuses on theoretical and applied studies of corporate and financial behavior. Aiming to promote the research in fields of business economics and management, it covers mainly but not limits to the following areas: accounting and financial management, economics, human resource management and organizational behavior, information management, international business, strategy and innovation, management science and operations management, marketing and retailing, finance.



Critical Humanistic Social Theory is an journal that publishes papers specifically using quantitative or qualitative research methods for social science research. The journal encourages scholars to conduct social science theory research from the perspective of social critical theory and emphasizes research concerned with issues or methods that cut across traditional disciplinary lines.



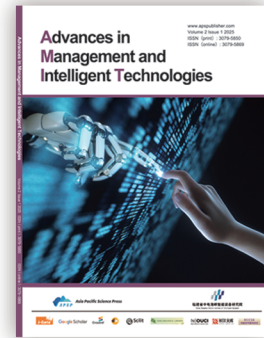
Journal of Educational Theory and Practice is an international, peer-reviewed and open access journal which is to promote the evaluative, integrative, theoretical and methodological research on contemporary education; shape a novel, broader view of issues in contemporary education; enhance the caliber of humanities research through active use of best domestic and foreign practices; and integrate the achievements of various sciences and knowledge areas with unconventional approaches.



Journal of Advances in Engineering and Technology is an international, peer-reviewed and open access journal which publishes original articles, reviews, short communications, case studies and letters in the field of electronic research and application.



Advances in Management and Intelligent Technologies is an international, peer-reviewed, open-access academic journal, hosted by the Fujian Strait Institute of Intelligent Equipment and managed and published by Asia-Pacific Science Press. It focuses on the latest research in the fields of management and intelligent technologies, and aims to advance both theoretical and applied research in management, technological innovation, and intelligent development.



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Asia Pacific Journal of Educational Research is an international, peer-reviewed, open-access academic journal focusing on educational theory and practice. It publishes high-quality research on educational reform, teaching methods, educational equity, and policy studies. The journal addresses practical needs and institutional changes in the education systems of the Asia-Pacific region, advocating a balance between theoretical inquiry and practical experience. It encourages original studies from multicultural, comparative, and interdisciplinary perspectives, aiming to support educational innovation and policy development across the region.



Asia Pacific Economic and Social Development is an international, peer-reviewed, open-access academic journal openly distributed to the global academic community. The journal is committed to publishing original research with theoretical depth and practical value in the fields of economic and social development. It focuses on issues such as economic behavior, social structure transformation, policy innovation, and regional coordinated development in the Asia-Pacific region. The journal encourages interdisciplinary perspectives and promotes the integration of economics, sociology, management, and related disciplines.

