TALENT DEVELOPMENT THROUGH UNIVERSITY-COMPANY COOPERATION: EVIDENCE-BASED STRATEGIES FOR TOURISM AND HOSPITALITY MANAGEMENT IN CHINESE HIGHER EDUCATION

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Abstract

University–company cooperation has emerged as a critical mechanism for closing persistent talent gaps in Chinese tourism and hospitality education. This study adopts a governance-oriented analytical lens to evaluate how structural and relational dimensions of cooperation shape program quality and workforce outcomes in Chinese higher education institutions. Employing a concurrent triangulation mixed-methods design, the study integrated quantitative survey data from 318 faculty members and 50 enterprise representatives with qualitative evidence derived from 12 in-depth semi-structured interviews. This design allowed simultaneous collection of statistical patterns and experiential insights, enabling cross-validation of findings across methodological strands. The study operationalized **four independent constructs** including Communication and Coordination (CC), Clarity of Cooperative Goals (CG), Policy and Regulatory Support (PS), and Resource Support and Practical Opportunities (RS) and **one dependent variable, Cooperation Effectiveness (CE).** Quantitative data were analyzed via statistical procedures including descriptive statistics, pearson correlation and multiple linear regression to identify direct and relative predictors of cooperation effectiveness, while qualitative evidence was examined through reflexive thematic analysis. A SWOT–TOWS strategic matrix was subsequently applied to translate empirical findings into institution-level intervention strategies. Results indicated that Communication and Coordination was the most influential predictor of Cooperation Effectiveness ($\beta = 0.41$, $p < .001$), followed by Resource Support and Practical Opportunities ($\beta = 0.35$, $p < .001$), Clarity of Cooperative Goals ($\beta = 0.22$, $p = .001$), and Policy and Regulatory Support ($\beta = 0.15$, $p = .004$). **The regression model indicates** that the predictors collectively explain **54.2% ($R^2 = 0.542$)** of the variance in the dependent variable, confirming moderate-to-strong explanatory power. Overall, the study highlights that strengthening structured university–industry collaboration mechanisms can substantially enhance cooperative effectiveness across regional Chinese higher education contexts. Qualitative findings aligned with these patterns while revealing contextual factors such as **communication informality, resource inequities, and organizational cultural differences,** particularly among smaller enterprises. Six strategic interventions derived from SWOT–TOWS analysis were identified: (1) institutional communication platforms, (2) structured coordination and relational governance mechanisms, (3) shared resource infrastructure, (4) SME-focused partnership enhancement, (5) policy accessibility reform, and (6) digital tourism talent laboratories. The study contributes to collaborative governance literature by extending university–company cooperation research within the distinctive regional contexts of China and by emphasizing **relational mechanisms embedded within communication and coordination processes rather than treating them as separate explanatory constructs.**

Keywords: University–company cooperation; Cooperative management effectiveness; **Tourism and hospitality education**; Concurrent triangulation design; SWOT–TOWS strategic analysis

1. INTRODUCTION

1.1 The Evolving Landscape of Tourism and Its Talent Demands

The global tourism industry has undergone fundamental transformation, driven by rapid technological advancement, shifting consumer preferences, and a post-pandemic recovery that has reshaped demand structures across markets. International tourist arrivals have achieved a near-complete recovery, with an estimated 1.4 billion tourists travelling internationally in 2024 representing an 11% increase over 2023 and reflecting the sector's remarkable resilience following the disruptions of the pandemic (WTTC, 2024). Emerging economies, including China, have recorded growth rates that consistently surpass

more established destinations, while the sector's global economic contribution surpassed all previous records in 2024, underscoring the structural reconfiguration of global demand (WTTC, 2024).

Concurrently, the integration of artificial intelligence, big data analytics, and virtual reality technologies has fundamentally altered service delivery paradigms across hospitality and tourism operations, with evidence pointing to a significant and urgent digital skills gap among graduates and employees entering the sector at various levels (Buhalis et al., 2024). This technological disruption has created an urgent need for professionals with interdisciplinary competencies that traditional educational models have been slow to accommodate (Sustacha et al., 2023; Gretzel et al., 2015).

China's domestic tourism sector has demonstrated particularly robust momentum. Available industry data indicates that domestic travel volumes reached approximately 2.53 billion trips in 2022, generating revenues of approximately USD 291.4 billion (China Tourism Research Institute, 2023). Structural changes in consumption patterns are equally significant: younger demographic cohorts increasingly favor immersive experiential travel, while older segments gravitate toward comfort-oriented leisure packages, and family travelers prioritize educational tourism opportunities. These demand-side dynamics are accelerating product innovation cycles and creating a widening mismatch between the competency profiles graduates possess upon entering the labor market and what employing organizations actually require (Subramaniam, 2020).

Technological empowerment has become the defining variable in the operational transformation of the tourism industry. Smart tourism platforms harness sophisticated big data algorithms to achieve precision marketing, while block chain technology guarantees the security and integrity of online transactions across the pre-tour, in-tour, and post-tour customer journey (Ratna et al., 2024). Infrastructure improvements including a national high-speed rail network now exceeding 50,000 kilometers and airport passenger throughput increases of 22% at major hubs have effectively expanded the geographic boundaries of tourism accessibility, enabling travelers to reach previously remote destinations. Against this backdrop, tourism education faces mounting pressure to reform its curriculum structures, pedagogical approaches, and partnership models. Policy support has provided significant institutional momentum for industry transformation. China's expanded 240-hour visa-free transit policy, launched in December 2024 and covering citizens from 54 countries across 23 major ports, is expected to stimulate inbound tourism growth substantially. The Ministry of Culture and Tourism's "100 cities and 1,000 counties" promotion program further amplifies these policy dividends (Wen et al., 2021). These developments are shaping a policy environment that actively promotes university-company cooperation as a strategic mechanism for talent cultivation, making the present investigation both timely and practically significant.

1.2 The Chinese Regional Context: Opportunity and Talent Deficit

Several provinces and cities across China have emerged as dynamic tourism hubs, deriving competitive advantage from diverse assets including ice and snow economies, cultural heritage tourism, and ecotourism resources. Nationwide, domestic tourism revenues reached approximately USD 291.4 billion in 2022, reflecting substantial growth following the post-pandemic recovery (China Tourism Research Institute, 2023). Despite this strong growth trajectory, many regional tourism centers in China continue to face persistent workforce and talent constraints that may limit the long-term expansion of their tourism sectors. Existing evidence suggests shortages of skilled personnel, particularly professionals who combine tourism expertise with cultural creativity, innovation, and market knowledge. Challenges in industry–university collaboration further intensify these capacity issues, highlighting the need for stronger talent development mechanisms (Zhang, 2025; OECD, 2024). The deficit is especially acute in technologically demanding roles: smart tourism development requires professionals competent in big data analysis, digital platform management, and new media operations, while cultural tourism demands experts in heritage management, cultural creativity, and multilingual service delivery. Ecological tourism needs professionals combining environmental science literacy with tourism planning capabilities — a composite profile that conventional university curricula seldom produce (Ardito et al., 2019).

This structural contradiction reflects a tension between the rapid transformation of the tourism industry

and the adaptive capacity of educational institutions. Tourism and hospitality education in China has been criticized for maintaining traditional operational and service-oriented curricula, while industry demand increasingly emphasizes digital competencies, sustainability capabilities, entrepreneurial thinking, and technology-related skills such as digital marketing, data analytics, and customer relationship management systems. This mismatch contributes to widening competency gaps between graduates and labor market expectations (Guo et al., 2023). Several universities across China have begun to experiment with more integrative models, establishing industry colleges in cooperation with multinational hospitality corporations and creating smart tourism experimental programs incorporating metaverse applications and AI-driven customer experience design. These initiatives point toward the transformative potential of university–company cooperation, while simultaneously underscoring the need to examine **how communication and coordination, resource support, clarity of cooperative goals, and policy and regulatory support s**hape cooperation effectiveness.

1.3 University-Company Cooperation as a Strategic Priority

The Chinese government has increasingly positioned university–industry cooperation as a strategic component of national educational and economic development. The revised *Vocational Education Law of the People's Republic of China* identifies industry–education integration and school–enterprise collaboration as central mechanisms for talent cultivation and vocational governance *(National People's Congress, 2022).* Similarly, the *14th Five-Year Plan for Tourism Development* promotes stronger partnerships between higher education institutions and tourism enterprises through collaborative training systems, practical learning platforms, and curriculum development initiatives aimed at improving workforce quality and supporting tourism modernization *(State Council of the People's Republic of China, 2021).* Policy instruments such as the certification of "industry–education integration enterprises" further encourage corporate participation by providing financial incentives, including tax benefits and supportive funding mechanisms.

Despite these favorable policy frameworks, empirical studies continue to identify substantial implementation challenges in university–industry cooperation. Research highlights that limited trust, insufficient institutional commitment, and weak collaboration mechanisms remain important barriers affecting cooperation effectiveness *(Hu et al., 2025).* Within the tourism sector, scholars further emphasize that successful government industry–education collaboration requires stronger alignment between universities and enterprises, particularly in relation to practical training, internship design, knowledge exchange, and talent development systems *(Yang & Ren, 2021).* These findings indicate that policy support alone is insufficient; effective cooperation depends on robust governance structures, sustained relationship building, and adaptive management practices capable of responding to evolving industry needs.

Although national literature has extensively documented industry–education integration across economically advanced regions such as Shanghai, Guangdong, and Zhejiang, empirical evidence from less-developed and regional contexts across China remains comparatively limited. Many Chinese cities and provinces face distinct development challenges including industrial restructuring, population out-migration, and talent retention constraints that complicate tourism workforce development. Universities across these regional contexts increasingly function as innovation actors responsible for supporting tourism modernization and workforce development. However, empirical studies specifically examining university–enterprise cooperation mechanisms within Chinese regional tourism education remain scarce, particularly those that systematically test the roles of **communication and coordination, resource support, clarity of cooperative goals, and policy and regulatory support**, creating an important contextual research gap addressed by this study.

1.4 Research Objectives and Questions

This study aimed to address three overarching research objectives: (1) to examine the current status and quality of university-company cooperation in tourism and hospitality management programs in Chinese Higher Education in Chinese Higher Education; (2) to identify and analyze the key factors that determine cooperation effectiveness from the perspectives of both academic and industry stakeholders; and (3) to develop and validate a set of evidence-based strategies for enhancing the cooperative

management of these programs.

Correspondingly, the study addressed three research questions:

1. What is the prevailing state of university-company cooperation in tourism and hospitality management in in Chinese Higher Education?
2. What factors (specifically **communication and coordination, resource support and practical opportunities, clarity of cooperative goals, and policy and regulatory support**) significantly predict cooperation effectiveness in this context?
3. What strategic frameworks can most effectively strengthen the integration of educational and industrial resources to improve talent cultivation outcomes?

2. THEORETICAL FRAMEWORK

The theoretical architecture underpinning this research draws on an integrated multi-lens framework that combines five complementary theories: Synergy Theory, Stakeholder Theory, Resource Dependence Theory, Social Exchange Theory, and elements of the Triple Helix Model. Each lens illuminates a distinct dimension of university-company cooperation, and their synthesis offers a holistic analytical foundation for understanding the structural, relational, and institutional dynamics of collaborative management in tourism education.

2.1 Synergy Theory

Synergy theory, originating in systems science and complexity theory, proposes that organized interaction among constituent elements of a system produces outcomes that exceed the simple sum of individual contributions (Ackoff, 1971). In the context of university-company cooperation, synergy is generated when academic institutions contribute theoretical knowledge, research infrastructure, and human capital while enterprises provide practical training environments, technology access, and market intelligence. Parida et al. (2019) demonstrate in their review of digitalization and business model innovation that organizations can achieve synergistic outcomes by combining diverse resources through structured partnerships, a finding directly applicable to the tourism education sector. Synergy theory thus frames cooperation not as a transactional exchange but as a co-generative process capable of producing educational and economic value that neither party could independently create.

In Chinese context, synergistic potential is evident when universities and tourism enterprises jointly develop curricula, construct shared training facilities, and conduct applied research projects. Laine et al. (2015) confirm that synergistic partnerships enable tourism programs to improve instructional quality, stimulate local economic development, and respond dynamically to market evolution. However, realizing synergy depends strongly on **effective communication and coordination mechanisms**, clear role allocation, and resource alignment among stakeholders.

2.2 Stakeholder Theory

Sustainable organizational performance is achieved through systematic identification, engagement, and balancing of stakeholder interests within organizational decision-making processes *(Parmar et al., 2010; Laplume et al., 2008)*. Contemporary extensions of the theory, as developed by Freeman et al. (2020), emphasize that value creation through stakeholder relationships is most effectively achieved through cooperation rather than zero-sum negotiation. University-company cooperation necessarily involves multiple stakeholder groups — faculty members, students, enterprise managers, government agencies, and local communities — each with distinct interests, institutional logics, and resource contributions.

Stakeholder theory provides the ethical and governance dimensions of the present study's analytical framework. Awa et al. (2024) demonstrates how effective stakeholder management can simultaneously enhance organizational performance and social legitimacy, findings that have direct relevance for designing cooperative governance systems that satisfy both academic quality assurance requirements and enterprise productivity expectations.

In this study, stakeholder theory is operationalized through constructs related to **clarity of cooperative goals and communication and coordination,** which are essential for aligning diverse stakeholder

expectations in China's tourism education ecosystem.

2.3 Resource Dependence Theory

Pfeffer and Salancik's (1978) Resource Dependence Theory posits that organizations are inherently dependent on external environments for the resources necessary to sustain their operations, and that this dependence fundamentally shapes inter-organizational behavior. For universities in the tourism sector, dependence manifests as a need for industry-provided internship placements, training facilities, practical expertise, and employment pipelines. Enterprises, conversely, depend on universities for research knowledge, talent pipelines, innovative capabilities, and access to the latest technological developments. This mutual dependence creates the structural foundation for cooperative arrangements that go beyond convenience to become strategically essential (Aversa et al., 2021).

Shyiramunda et al. (2024) demonstrate that the management of resource interdependencies in university-company cooperation is complicated by mismatched investment capacities and operational priorities between partners.

In Chinese context, these dynamics are reflected in disparities between large tourism enterprises and small and medium-sized firms, influencing the availability of **resource support and practical opportunities**, which is a central variable in this study.

2.4 Social Exchange Theory and Change Management Theory

Social Exchange Theory, originating in the foundational work of Homans (1958) and Blau (1986), explains cooperation through the logic of reciprocal benefit and perceived fairness. Partnerships persist as long as each party perceives the benefits of participation whether tangible, such as research funding or access to talent, or intangible, such as reputational enhancement or knowledge enrichment — to exceed the associated costs. Cropanzano et al. (2017) emphasize that the stability of exchange relationships is contingent on perceptions of fairness, reciprocity, and sustained interaction quality.

In university-company cooperation, social exchange processes are reflected in the willingness of enterprises to provide internships and training opportunities and the ability of universities to supply skilled graduates and research support. These reciprocal dynamics are strongly influenced by **communication and coordination mechanisms**, which determine the continuity and effectiveness of cooperation in practice.

2.5 The Triple Helix Model as Integrative Lens

Etzkowitz and Leydesdorff's (1995) Triple Helix Model conceptualizes regional innovation as the product of dynamic, overlapping interactions among universities, industry, and government. In the tourism education context, this model draws attention to the indispensable role of governmental policy in creating enabling conditions funding mechanisms, certification systems, and regulatory frameworks that incentivize and sustain university-company cooperation. Molla (2014) further demonstrate that government involvement significantly enhances cooperation outcomes when institutional coordination is effective.

In this study, the Triple Helix Model primarily informs the construct of **policy and regulatory support,** emphasizing how governmental frameworks enable or constrain university-company collaboration in tourism sector in China.

3. LITERATURE REVIEW

3.1 Global Trends in Cooperative Education

Work-integrated learning (WIL) and dual-education systems combining structured classroom instruction with supervised industry-based training have gained substantial traction in higher education globally as mechanisms for improving graduate employability and institutional relevance. European research consistently demonstrates that long-term cooperation arrangements between universities and enterprises improve innovation performance and talent retention rates, with Klofsten et al. (2019) emphasizing the role of entrepreneurial universities in driving both economic growth and social transformation. In the Asia-Pacific context, Rowe and Zegwaard (2017) document positive

outcomes associated with co-designed curricula developed in partnership with industry professionals, reporting improvements in graduates' critical thinking capacities and workplace readiness. Zegwaard et al. (2020) further highlight the importance of diversified WIL models as institutional resilience mechanisms, demonstrating that universities offering diverse forms of work-integrated learning adapted more successfully to the disruptions imposed by the COVID-19 pandemic. Hussien and La Lopa (2018) highlight that internship satisfaction in the hospitality sector is shaped by structured coordination between universities and industry partners, reinforcing the importance of **communication and coordination mechanisms** in ensuring meaningful experiential learning outcomes.

The global literature converges on the conclusion that university–industry cooperation, when well-governed and consistently implemented, produces measurable improvements in graduate outcomes, institutional quality, and regional economic development.

3.2 University-Company Cooperation in the Chinese Context

China has elevated university-company cooperation to the level of national education policy through a series of ambitious reform programs. Wei & Ren (2025) traces the evolution of industry-education integration in Chinese higher education, documenting how the Double First-Class and Double High initiatives have driven universities to restructure their organizational models around applied learning and industry partnership. Successful cooperation arrangements in Shanghai and Guangdong have demonstrated the potential of this model, producing graduates with substantially higher industry-readiness scores than those from more conventional programs (Yao et al., 2021). However, regional disparities persist: many regional cities in China face distinctive challenges related to talent drainage, economic restructuring and relatively weaker industrial bases, creating a more demanding environment for sustaining effective university-company partnerships. Li et al. (2024) analyze the innovation dynamics of industry-university-research cooperation in China using differential game methods, finding that government tax incentives improve enterprise participation while subsidies stimulate university engagement. These findings highlight that **policy and regulatory support** plays a decisive role in shaping cooperation intensity and sustainability.

3.3 University–Industry Cooperation in Regional Chinese Contexts

Most studies on university–industry cooperation in China focus on economically developed regions such as Beijing, Shanghai, and coastal provinces, while evidence from regional and less-developed contexts across China remains comparatively limited. However, regional revitalization policies increasingly emphasize the role of universities in supporting industrial transformation, innovation, and applied talent development through stronger industry collaboration (Ministry of Education of the People's Republic of China, 2023).

Several regional cities and provinces across China represent important contexts because tourism development, particularly in cultural, eco-, and specialty tourism, has rapidly expanded demand for industry-oriented education and practice-based training systems (Cai et al., 2023).

In response, universities have strengthened cooperation with enterprises through internship programs, practice platforms, and industry–education integration initiatives aimed at improving graduate readiness and regional workforce development (Jiang and Sun, 2025).

Despite these developments, empirical research examining cooperation effectiveness in regional Chinese tourism education contexts remains scarce. Existing studies primarily emphasize structural cooperation factors but provide limited attention to **operational determinants such as communication and coordination, resource availability, goal alignment, and policy implementation mechanisms** (Yang & Xu, 2023). Therefore, this study focuses on these four core dimensions as determinants of cooperation effectiveness.

3.4 Challenges in Tourism and Hospitality Education

Tourism and hospitality education confronts structural challenges related to skill mismatch and limited practical integration. Kusumawardhana (2019) documents persistent concerns regarding gaps between

academic training and industry competency expectations, partly due to theoretical orientation in curricula.

Lin et al. (2017) find that experiential learning significantly enhances student competencies, yet practical training remains insufficient in many programs. Indriany and Halfi (2022) identify digital marketing, event planning, and sustainable operations as key skills gaps among tourism graduates.

Wang (2021) demonstrates that internship experiences significantly influence students' career decision-making and professional commitment. Extending this, Liu et al. (2022) show that career intentions are shaped by internship quality, industry perception, and self-efficacy, while negative perceptions of working conditions reduce long-term career interest.

Collectively, these findings suggest that strengthening **resource support and practical opportunities** through structured university–industry cooperation is essential to improving graduate outcomes.

3.5 Cooperative Governance Frameworks and Enablers

Rossoni et al. (2024) identify organizational, individual, and environmental barriers in university–industry cooperation, including resource limitations, cultural differences, and governance ambiguity. Awasthy et al. (2020) emphasize that cooperation success depends on interaction quality, communication, and strategic alignment rather than any single factor.

De Silva et al. (2018) highlight the importance of innovation intermediaries and structured knowledge-transfer systems in facilitating cooperation across institutions and regions, which is particularly relevant for geographically peripheral regions across China. Perkmann et al. (2021) further distinguish between different forms of academic engagement; emphasizing those cooperation mechanisms must be context-sensitive rather than standardized.

Overall, these studies reinforce the importance of **communication and coordination, clarity of cooperative goals, and institutional governance structures** in shaping effective collaboration.

3.6 Digital and Sustainable Dimensions of Cooperation

Digital transformation and sustainability are reshaping university–industry cooperation. Gretzel et al. (2015) highlight that AI-driven platforms and smart tourism systems are redefining skill requirements in tourism education.

Evans et al. (2023) demonstrate that structured cooperation between universities and enterprises enhances digital transformation outcomes through joint training and applied projects.

Li et al. (2024) show that digital platforms improve information sharing and decision-making efficiency in collaborative systems, reinforcing the importance of structured cooperation mechanisms.

Sustainable tourism education increasingly requires integration of environmental, technological, and managerial competencies. Marques et al. (2022) emphasize that cooperative education models are essential for preparing graduates for sustainability-oriented tourism development.

These developments underscore the importance of **policy support and institutional coordination** in enabling digital and sustainable transformation within university–industry cooperation systems.

4. METHODOLOGY

4.1 Research Design

This study employed a concurrent triangulation mixed-methods design, in which quantitative and qualitative data were collected simultaneously and independently, then merged for cross-validation and integrated interpretation. This design was selected to enable simultaneous statistical testing of cooperation predictors and contextual exploration of stakeholder perceptions, strengthening both the internal validity and the practical transferability of findings. In addition to the mixed-methods strand, the study incorporated a SWOT–TOWS strategic analysis framework in the final phase to translate empirical findings into actionable institutional strategies. This combined design therefore differs from purely descriptive or explanatory approaches by incorporating an applied strategic planning dimension

oriented toward institutional reform and policymaker guidance.

The model incorporated **four independent constructs**: Communication and Coordination (CC), Clarity of Cooperative Goals (CG), Policy and Regulatory Support (PS), and Resource Support and Practical Opportunities (RS), and one dependent variable Cooperation Effectiveness (CE).

The mixed-methods approach was selected because cooperative management involves structural, relational, and institutional dimensions that cannot be fully captured using a single methodological perspective (Creswell & Plano Clark, 2018).

4.2 Population and Sampling

The study population consisted of **1,551 faculty members** from **12 universities in the study region** that offer undergraduate or associate degree programs in tourism and hospitality management. In addition, the population also included **50 enterprise managers** from **22 tourism-related companies** that have established formal cooperation agreements with these universities.

The selection of the 12 universities was based on the fact that they represent the **entire population of higher education institutions in the study region** authorized to offer tourism and hospitality-related programs. This ensured full institutional coverage and eliminated sampling bias at the university level. Similarly, the 22 enterprises included hotels, travel agencies, and diversified tourism service organizations, all of which maintain **active and formal partnerships with the participating universities**, making them suitable representatives of industry stakeholders involved in cooperative education.

For the quantitative phase, the sample size of faculty members was determined using **Taro Yamane's finite population formula** with a **5% margin of error (e = 0.05),** resulting in a required sample of **318 respondents. A two-stage stratified random sampling technique** was then applied. In the first stage, the sample was proportionally allocated across universities based on the number of faculty members in each institution. In the second stage, individual respondents were selected randomly using computer-generated random numbers to ensure equal probability of selection. To minimize data loss, a list of backup respondents was prepared in advance to replace non-respondents when necessary.

All **50 enterprise managers were included using a census approach**, as the population size was small and manageable. This approach ensured that the study captured the full range of industry perspectives involved in university–industry collaboration (Hair et al., 2019).

For the qualitative phase, a **purposive sampling strategy** was employed to select **12 key informants,** including **eight faculty members and four enterprise managers**. These participants were chosen based on their direct involvement in the design, implementation, or management of university–industry cooperation programs. This ensured that the qualitative data was obtained from individuals with rich, relevant, and practical experience of the phenomenon under investigation.

Table 1. Population and Sampling Design of the Study

Study Phase	Population Group	Population Size (N)	Sampling Technique	Sample Size (n)
Quantitative	Faculty members (12 universities)	1,551	Stratified random sampling (Taro Yamane, e = 0.05)	318
Quantitative	Enterprise managers (22 companies)	50	Census sampling	50
Qualitative	Key informants (faculty & managers)	—	Purposive sampling	12

4.3 Research Instruments

The study employed both quantitative and qualitative instruments to examine university–company cooperation effectiveness in tourism and hospitality education in China. The quantitative phase used a

structured questionnaire, while the qualitative phase employed semi-structured interviews to support interpretation and triangulation. The questionnaire consisted of **37 items**, including **7 demographic items** and **30 measurement items** distributed across five variables (four independent and one dependent). The independent variables included Communication and Coordination (CC), Clarity of Cooperative Goals (CG), Policy and Regulatory Support (PS), and Resource Support and Practical Opportunities (RS), with five items each.

Each construct measured the following:

- Communication and Coordination assessed information exchange and interaction quality
- Clarity of Cooperative Goals measured shared objectives and alignment
- Policy and Regulatory Support examined institutional and governmental enabling environment
- Resource Support and Practical Opportunities assessed availability of internships, facilities, and training platforms

The dependent variable, Cooperation Effectiveness (CE), assessed partnership performance, stakeholder satisfaction, sustainability, and goal achievement.

All items used a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The questionnaire was adapted from validated measures developed by Chau et al. (2023) and Gong (2024). Content validity was established through expert review, and pilot testing with 30 respondents was conducted to refine wording and improve clarity.The qualitative instrument consisted of a semi-structured interview guide covering cooperation practices, barriers, facilitating conditions, and improvement strategies Interviews averaged **55 minutes**, were conducted online, audio-recorded with consent, and transcribed verbatim for analysis.

4.4 Reliability, Validity, and Data Analysis

Internal consistency reliability was assessed using Cronbach's alpha, with all five independent variable scales yielding coefficients between 0.83 and 0.90, satisfying the threshold of 0.70 recommended by Nunnally and Bernstein (1994). Construct validity was supported through exploratory and confirmatory factor analysis, with Kaiser-Meyer-Olkin sampling adequacy values of 0.945 and Bartlett's test of sphericity significant at $p < 0.001$. Quantitative data were analyzed using SPSS 27.0. Descriptive statistics (means, standard deviations, skewness, kurtosis), Pearson correlation analysis, and multiple linear regression were performed to characterize the distribution of variables and identify predictors of cooperation effectiveness. Group difference analyses utilized independent-samples t-tests and one-way ANOVA. Qualitative data were analyzed using Braun and Clarke's (2021) six-step thematic analysis procedure, employing open, axial, and selective coding to generate a set of five dominant themes corresponding to the five independent variable constructs. SWOT-TOWS matrix analysis was applied in the strategy formulation phase, with resulting strategies subsequently validated by expert evaluation using Kendall's coefficient of concordance.

4.5 Ethical considerations

The study was conducted in accordance with ethics approval from the University Research Ethics Committee (Approval ID: EDU-CHC/2024/07) and adhered to principles of informed consent, voluntary participation, confidentiality, and data security.

5. RESULTS

5.1 Descriptive Statistics

Descriptive analysis of the **four independent variables and the dependent variable** across 368 respondents revealed an overall pattern of high-to-moderate performance across the dimensions of cooperative management. Communication and Coordination achieved the highest mean score ($M = 4.32$, $SD = 0.52$), interpreted as Very High, indicating that respondents perceived the information exchange infrastructure between their universities and partner enterprises as generally effective and reliable. Cooperation Effectiveness also showed a high mean ($M = 4.21$, $SD = 0.51$), suggesting respondents considered their cooperative arrangements to be broadly productive in terms of goal attainment and

sustainability. Resource Support and Practical Opportunities scored moderately high (M = 4.18, SD = 0.49) and Clarity of Cooperative Goals showed a similar pattern (M = 4.05, SD = 0.60). Policy and Regulatory Support depicted the lowest mean across all dimensions (M = 3.87, SD = 0.55), receiving a Moderate interpretation and suggesting that institutional and governmental frameworks are perceived as less consistently supportive of cooperative activities than the relational and structural dimensions of the arrangements.

Table 2. Descriptive Statistics of Cooperative Management Variables (N = 368)

Variable	Mean (M)	Standard Deviation (SD)
Communication and Coordination	4.32	0.52
Cooperation Effectiveness	4.21	0.51
Resource Support and Practical Opportunities	4.18	0.49
Clarity of Cooperative Goals	4.05	0.60
Policy and Regulatory Support	3.87	0.55

5.2 Correlation Analysis

Pearson correlation analysis revealed significant positive associations among all five variables at the $p < 0.01$ level. Communication and Coordination demonstrated the strongest relationship with Cooperation Effectiveness ($r = 0.81$), consistent with its status as the highest-scoring predictor variable. Resource Support correlated strongly with Cooperation Effectiveness ($r = 0.76$) and also showed a high inter-correlation with Communication and Coordination ($r = 0.76$), suggesting these two dimensions are closely linked in the cooperative management experience. Clarity of Cooperative Goals ($r = 0.73$), Policy Support ($r = 0.69$), The inter-correlations among independent variables were all substantial, ranging from 0.63 to 0.76, indicating moderate to strong relationships without violating multicollinearity thresholds.

Table 3. Pearson Correlation Matrix

Variables	1	2	3	4	5
1. Communication and Coordination	1.00				
2. Resource Support and Practical Opportunities	.76**	1.00			
3. Clarity of Cooperative Goals	.70**	.68**	1.00		
4. Policy and Regulatory Support	.63**	.65**	.67**	1.00	
5. Cooperation Effectiveness	.81**	.76**	.73**	.69**	1.00

Note. p < .01. All coefficients indicate statistically significant positive relationships among the study variables.

5.3 Multiple Regression Analysis

5.3.1 Model Summary

The model summary results indicated that the multiple regression model demonstrated substantial explanatory power in predicting **Cooperation Effectiveness**. The model produced an **R^2 value of 0.542**, indicating that the four independent variables collectively explained 54**.2% of the total variance** in cooperation effectiveness. The **adjusted R^2 value of 0.486** further confirmed that the model retained strong predictive capability after adjusting for the number of predictors included. The R value of 0.701 suggested a moderately strong relationship between predictors and outcome variable.

Table 4. Model Summary for Multiple Regression Predicting Cooperation Effectiveness (N = 368)

Model	R	R Square (R^2)	Adjusted R Square	Std. Error of the Estimate
1	.701	.542	.486	.364

5.3.2 Regression Coefficient

The regression coefficient results revealed differences in the relative contribution of the independent variables toward predicting **Cooperation Effectiveness. Communication and Coordination** emerged as the strongest predictor **(β = 0.41, SE = 0.05, t = 8.40, p < .001**), indicating that structured, transparent, and consistent communication practices play the most influential role in determining cooperation success.

Resource Support and Practical Opportunities represented the second strongest predictor **(β = 0.35, SE = 0.06, t = 7.10, p < .001),** suggesting that adequate provision and distribution of technological, financial, material, and human resources substantially enhance cooperative effectiveness.

Clarity of Cooperative Goals also demonstrated a statistically significant positive effect (**β = 0.22, SE = 0.07, t = 3.57, p = .001**), implying that clearly defined objectives and mutual expectations improve coordination and partnership outcomes, although its effect was comparatively smaller than communication and resource-related factors.

Finally, **Policy and Regulatory Support** showed the weakest but still significant contribution **(β = 0.15, SE = 0.06, t = 2.89, p = .004).** suggesting that institutional frameworks facilitate cooperation but are less influential than operational and relational factors.

Table 5. Regression Coefficients Predicting Cooperation Effectiveness (N = 368)

Predictor Variable	Unstandardized Coefficient (B)	Standard Error (SE)	Standardized Coefficient (β)	t	Sig.
Constant	0.84	0.18	—	4.67	< .001
Communication and Coordination	0.41	0.05	0.41	8.40	< .001
Resource Support and Practical Opportunities	0.35	0.06	0.35	7.10	< .001
Clarity of Cooperative Goals	0.22	0.07	0.22	3.57	.001
Policy and Regulatory Support	0.15	0.06	0.15	2.89	.004

5.3.3 Analysis of variance (ANOVA)

The ANOVA results confirmed that the overall regression model was statistically significant, **F(4, 363) = 46.25, p < .001**. This finding indicates that the set of predictor variables collectively provided a significant explanation of variation in **Cooperation Effectiveness.** The model demonstrates a significantly better fit compared to a null model, confirming its suitability for explaining cooperation outcomes.

Table 6. **ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.54	4	6.14	46.25	< .001
Residual	48.19	363	0.13		
Total	72.73	367			

5.4 Qualitative Findings

The thematic analysis of semi-structured interview data generated **four** dominant themes that closely align with the quantitative constructs of the study, while providing deeper contextual explanation of university–enterprise cooperation dynamics. Communication and Coordination Mechanisms emerged as the most frequently discussed theme across both stakeholder groups, reflecting its central role in

shaping cooperation effectiveness.

1. Communication and Coordination Mechanisms

The theme of Communication and Coordination Mechanisms was id**entified as the most prominent theme across all interviews**. The data indicate that communication remains predominantly informal, event-driven, and dependent on personal relationships rather than institutionalized systems.

A university administrator (U3) noted: *"Most of our coordination with enterprises depends on personal contacts. If that person is unavailable, the whole process slows down."* Similarly, another respondent (U1) emphasized bureaucratic constraints: *"Even simple coordination requests take time because they must go through multiple approval layers."*

Enterprise managers expressed parallel concerns. An industry participant (E2) stated: *"We don't have a fixed communication channel with universities. Sometimes we are not sure who exactly to contact for internship matters."* Another manager (E1) highlighted variability across partner size: *"Large companies have structured coordination, but small firms like ours rely on informal calls and messages."*

Overall, this theme aligns strongly with the quantitative findings on Communication and Coordination, confirming that while communication is active, it lacks institutionalization and consistency.

2. Clarity and Alignment of Cooperative Goals

The theme of Clarity and Alignment of Cooperative Goals revealed widespread concern that partnership objectives are frequently articulated in vague terms and rarely translated into measurable, time-bound targets.

A university respondent (U2) stated: *"We usually focus on fulfilling internship quotas, but there is no shared long-term roadmap with enterprises."* In agreement, an enterprise manager (E3) remarked: *"We sign cooperation agreements, but the expectations are not always clearly defined in measurable terms."*

Several participants further noted the absence of structured joint planning. As one university coordinator (U4) explained: *"There are rarely formal meetings to review whether both sides are achieving the same objectives."*

These findings reinforce the quantitative results on Clarity of Cooperative Goals, suggesting that misalignment reduces the strategic depth of cooperation and limits it to compliance-driven engagement rather than genuine co-development.

3. Policy and Regulatory Support

The theme of Policy and Regulatory Support generated mixed but generally critical reflections regarding implementation effectiveness. While respondents acknowledged that national and institutional policy frameworks support cooperation, they emphasized uneven execution.

A university administrator (U5) observed: *"The policy environment is supportive in principle, but implementation depends heavily on institutional capacity."* Similarly, an enterprise participant (E4) stated: *"Large firms benefit more from subsidies and government programs, while small companies often struggle to access them."*

Another respondent (E2) highlighted procedural barriers: *"The process of formalizing cooperation agreements is too complicated and discourages smaller partners from participating fully."*

These insights correspond with the quantitative results on Policy and Regulatory Support, confirming that although enabling structures exist, their accessibility is uneven and administratively burdensome, particularly for SMEs.

4. Resource Support and Practical Opportunities

The theme of Resource Support and Practical Opportunities exposed significant disparities in access to infrastructure, training facilities, and digital platforms across institutional partners.

An enterprise manager (E5) noted: *"We do not have access to advanced training facilities or digital platforms that are available in larger partner organizations."* Similarly, a university participant (U3) stated: *"Resource sharing is limited, and most cooperation is symbolic rather than based on shared infrastructure."*

Another respondent (E1) emphasized the need for collaborative investment models: *"If universities and companies could co-invest in shared training centers, cooperation would be much more meaningful and sustainable."*

These findings align with the quantitative dimension of Resource Support and Practical Opportunities, highlighting that effective cooperation depends on equitable access to shared resources rather than fragmented bilateral arrangements.

Summary

Overall, the qualitative findings strongly reinforce the quantitative results across all four core dimensions. Communication inefficiencies, goal misalignment, uneven policy implementation, and resource disparities collectively shape the lived experience of university–enterprise cooperation.

The qualitative evidence further demonstrates that although formal cooperation frameworks exist, their effectiveness is constrained by institutional asymmetries and limited system integration, particularly affecting smaller organizational actors.

6. DISCUSSION

6.1 Communication as the Architectonic Foundation of Cooperation

The finding that **Communication and Coordination is the strongest predictor of cooperation effectiveness** ($\beta = 0.41$, $p < .001$), with the highest mean score across all variables ($M = 4.32$), represents the most theoretically significant outcome of this study. This result is strongly reinforced by the qualitative evidence, which shows that communication practices remain **predominantly informal, relationship-dependent, and non-standardized**, rather than institutionally embedded.

Participants consistently reported reliance on personal contacts for coordination, as illustrated by a university administrator (U3): *"Most of our coordination with enterprises depends on personal contacts. If that person is unavailable, the whole process slows down."* Similarly, enterprise respondents emphasized uncertainty in communication channels, with one manager (E2) stating: *"We don't have a fixed communication channel with universities."*

These qualitative findings strengthen the interpretation that communication is not merely frequent but structurally under-institutionalized. This aligns with Ankrah and Al-Tabbaa (2015), who identify structured communication mechanisms and boundary-spanning processes as central to effective collaboration. Within the social exchange theory framework (Cropanzano et al., 2017), communication serves as the primary mechanism through which reciprocity and relational stability are developed; however, the absence of formalized systems introduces fragility into cooperative arrangements (O'Dwyer **et al. (2023).**

Perkmann et al. (2013) and Wahyuni et al. (2024) further emphasize that sustainable university–industry collaboration depends on institutionalized interaction mechanisms rather than informal exchanges alone. The qualitative evidence that enterprises explicitly requested **designated liaison persons and formal communication channels** confirms that communication architecture not simply communication frequency is the key driver of cooperation effectiveness.

6.2 Resource Dynamics and the Equity Challenge

Resource Support and Practical Opportunities emerged as the **second strongest predictor of cooperation effectiveness** ($\beta = 0.35$, $p < .001$), reinforcing Resource Dependence Theory (Pfeffer & Salancik, 1978), which posits that inter-organizational cooperation is structured by resource interdependencies.

The qualitative findings provide important nuance, revealing that resource access is **unevenly distributed and structurally biased toward larger partners**. Enterprise respondents from smaller firms consistently reported limited access to shared infrastructure and training systems. For instance, one manager (E5) stated: *"We do not have access to advanced training facilities or digital platforms that are available in larger partner organizations."*

This evidence suggests that while the overall quantitative mean indicates relatively positive perceptions, it conceals **systematic inequality in resource distribution**. The synergy between Communication and Resource Support (r = 0.76) further indicates that communication quality enhances resource utilization efficiency, allowing better coordination of shared assets.

Perkmann et al. (2013) highlight that resource co-creation is central to Triple Helix innovation systems; however, they also caution that resource concentration among dominant actors can undermine partnership legitimacy. Similarly, Shyiramunda et al. (2024) observe that SME marginalization in cooperation systems is a recurring structural issue in Asian contexts.

These findings suggest that improving cooperation effectiveness requires **institutionalized equity mechanisms**, including shared infrastructure investment models and targeted SME support schemes.

6.3 Goal Clarity and the Depth of Cooperation

Clarity of Cooperative Goals showed a **moderate but significant effect** on cooperation effectiveness ($\beta = 0.22$, $p = .001$), indicating that while goal alignment is not the strongest predictor, it plays a meaningful role in shaping collaboration quality.

Qualitative evidence strongly supports this finding, revealing that cooperative goals are often **vaguely defined and operationalized primarily through internship quotas rather than competency-based outcomes**. A university participant (U2) stated: *"We usually focus on fulfilling internship quotas, but there is no shared long-term roadmap with enterprises."* Likewise, enterprise respondents confirmed the lack of measurable joint objectives.

This aligns with Liu et al. (2022), who argue that transactional cooperation models tend to limit deeper institutional integration. Sun and Turner (2023) further emphasize that effective collaboration requires shared expectations and coordinated planning structures, while Dinika (2023) highlights the importance of outcome-based alignment in skills development systems.

Taken together, the quantitative and qualitative findings indicate that improving cooperation requires shifting from **output-oriented coordination (e.g., placement numbers)** to **outcome-oriented governance (e.g., competency development frameworks and joint curriculum design).**

6.4 Policy Support: Present but Insufficient

Policy and Regulatory Support recorded the **lowest mean score (M = 3.87)** and the **weakest regression coefficient ($\beta = 0.15$, $p = .004$)**, indicating that while policy frameworks exist, their direct influence on cooperation effectiveness is limited.

Qualitative findings explain this weak effect by revealing **implementation gaps and unequal accessibility of policy instruments.** Respondents consistently reported that SMEs face greater barriers in accessing government incentives. One enterprise manager (E4) stated: *"Large firms benefit more from subsidies and government programs, while small companies often struggle to access them."*

This aligns with Rossoni et al. (2024), who argue that institutional frameworks often fail to translate policy design into operational outcomes due to bureaucratic inertia. Pereira and Franco (2022) similarly identify limited SME awareness and access to support programs as a structural constraint in university–industry cooperation systems.

Furthermore, Tootell et al. (2021) emphasize that effective governance requires **translation mechanisms that convert policy into actionable cooperation practices,** not merely policy formulation.

Overall, the findings suggest that policy effectiveness is constrained not by design, but by **implementation inefficiencies, administrative complexity, and weak institutional mediation mechanisms.**

6.5 Trust, Culture, and Institutional Compatibility

Although Trust was not modeled as a separate quantitative variable, qualitative findings indicate that relational dynamics are embedded within **communication practices and organizational culture**, functioning as an enabling condition rather than an independent predictor.

Participants described contrasting institutional logics between universities and enterprises, particularly differences in **time orientation, risk tolerance, and performance expectations**. One enterprise respondent noted implicit cultural friction, while university participants emphasized the need for greater mutual understanding in collaborative engagement.

This aligns with Bruneel et al. (2010), who identify trust as a mediating mechanism between structural collaboration and innovation outcomes, and Dirks and de Jong (2021), who argue that institutional logics shape cross-boundary cooperation effectiveness.

Nguyen et al. (2025) further demonstrate that relational mechanisms moderate the effectiveness of governance structures in inter-organizational collaboration. In this study, however, such relational elements are not independent constructs but are embedded within communication quality and coordination routines.

Therefore, organizational culture should be interpreted as a **contextual enabler of structural cooperation mechanisms rather than a standalone explanatory variable**.

6.6 Theoretical and Empirical Integration

The model explains **54.2% of the variance ($R^2 = 0.542$)** in cooperation effectiveness, indicating a strong explanatory capacity while acknowledging the presence of unobserved factors.

The remaining variance likely reflects contextual influences such as leadership capacity, institutional history, and environmental uncertainty, which were partially revealed in qualitative narratives but not statistically modeled.

The integration of Social Exchange Theory, Resource Dependence Theory, and the Triple Helix framework provides a multi-dimensional explanation of cooperation dynamics. Communication and resource structures represent the **mechanistic foundations of cooperation,** while goal alignment provides **directional coherence**, and organizational culture functions as a **contextual enabling condition.**

Consistent with Ankrah and Omar (2015), university–industry collaboration emerges as an inherently multi-layered phenomenon that cannot be fully captured through a single theoretical lens. Instead, its effectiveness depends on the interaction between **structural conditions, relational processes, and institutional environments.**

7. CONCLUSION

This study examined university–company cooperation in tourism and hospitality management education in China, employing a concurrent triangulation mixed-methods design involving 368 survey respondents and 12 in-depth semi-structured interviews, complemented by a SWOT–TOWS strategic analysis framework. The findings confirm that **Communication and Coordination is the most influential predictor of cooperation effectiveness,** followed by **Resource Support and Practical Opportunities, Clarity of Cooperative Goals,** and **Policy and Regulatory Support**. Together, these variables explain **54.2% of the variance ($R^2 = 0.542$)** in cooperation effectiveness, indicating a substantial but incomplete explanatory model.

The qualitative findings reinforce these results by showing that communication practices remain largely informal and dependent on personal relationships, while resource distribution is uneven and favors larger institutions. Goal-setting practices are often transactional, focusing on internship quotas rather

than long-term competency development. Policy support exists in principle but is constrained by implementation gaps, administrative complexity, and unequal access, particularly for small and medium-sized enterprises. Organizational culture and relational dynamics further shape cooperation quality, but these function as embedded mechanisms within communication and coordination processes rather than independent variables.

The integration of quantitative and qualitative evidence supports a multidimensional model of cooperation effectiveness that combines **structural, operational, and contextual factors**. Structural factors include resource allocation and policy support, operational factors involve communication and goal alignment, and contextual factors relate to institutional culture and coordination practices.

The study concludes that sustainable university–industry cooperation cannot be achieved through policy frameworks alone. Instead, it requires **institutionalized communication systems, equitable resource-sharing mechanisms, clearly defined cooperative goals, and supportive implementation environments.**

This research contributes to collaborative governance literature by providing empirical evidence from a regional Chinese context, extending understanding beyond dominant urban-centered models. Future research should explore longitudinal changes in cooperation effectiveness, the role of digital coordination platforms, and the applicability of this framework in other regional and disciplinary contexts.

8. THEORETICAL IMPLICATIONS

This study contributes to theoretical understanding of university–company cooperation by integrating Synergy Theory, Stakeholder Theory, Resource Dependence Theory, Social Exchange Theory, Change Management Theory, and the Triple Helix Model into a unified analytical framework. This demonstrates the value of theoretical pluralism in explaining the multi-dimensional nature of cooperative governance. No single theory fully captures the structural, relational, and institutional determinants of cooperation effectiveness, while their integration generates more comprehensive explanatory insight.

The finding that communication operates as a form of relational capital that facilitates coordination, reduces transaction costs, and supports adaptive problem-solving extends Social Exchange Theory beyond material reciprocity to include relational and institutional dimensions of exchange. The identification of resource equity as a structural governance issue extends Resource Dependence Theory by emphasizing that not only interdependence, but also the distributional fairness of resources, shapes cooperation outcomes. The study further contributes to Stakeholder Theory by showing how unequal power relations among stakeholder groups can weaken governance systems intended to support balanced participation. Collectively, these extensions strengthen theoretical explanations of inter-organizational collaboration in education and knowledge-based economies.

9. PRACTICAL IMPLICATIONS

The findings provide actionable implications for institutional leaders, policymakers, and industry stakeholders involved in tourism and hospitality education cooperation. Communication systems should be institutionalized through liaison officers, shared digital platforms, standardized reporting procedures, and regular joint review meetings, treating communication as strategic infrastructure rather than administrative support. Resource equity should be strengthened through shared investment mechanisms for training facilities, co-innovation centers, and digital learning platforms, with explicit inclusion mechanisms for SMEs.

Cooperative goal-setting should be formally established at the beginning of partnership cycles, incorporating measurable learning outcomes, competency-based standards, and mutual accountability frameworks into agreements. Policy implementation should be improved by simplifying administrative procedures, enhancing accessibility for SMEs, and clarifying intellectual property protection mechanisms. Cross-institutional collaboration should be reinforced through structured engagement programs, including joint training initiatives and reciprocal organizational exchanges.

Overall, these strategies support the transformation of fragmented, transaction-based cooperation into **integrated, strategically aligned partnerships** that enhance both educational quality and regional economic development outcomes.

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