Business Environment and Enterprise Willingness to Participate in Industry-Education Integration: A Qualitative Study

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Abstract: *Against the backdrop of deepening industry-education integration and the increasing differentiation of local business environment policies, enterprise willingness to participate remains complex and uneven. Drawing on neoinstitutional theory, this qualitative study conducts semi-structured interviews with core decision-makers from eight manufacturing, technology, and small and medium-sized enterprises (SMEs) within the same prefecture-level city. Using NVivo-based thematic analysis, we investigate how enterprise decision-makers perceive, weigh, and narratively construct their participation in industry-education integration. Three main findings emerge. First, a "temperature gap" exists in policy perception: manufacturing and technology firms view participation as a legitimacy opportunity, whereas SMEs perceive it as survival pressure. Second, cost–risk evaluation is shaped by resource endowments, producing a continuum from a "strategic investment" orientation to a "survival cost" orientation. Third, value prioritisation and legitimation narratives diverge into three strategic types: "leaders", "co-creators", and "pragmatists". The study suggests that differentiated participation willingness results from the interaction between institutional pressures and organisations' strategic responses. These findings provide a theoretical foundation and practical guidance for local governments seeking targeted, context-sensitive policies to optimise the environment for industry-education integration.*

Keywords: *Business environment; industry-education integration; enterprise willingness; neoinstitutional theory; qualitative study*

1. Introduction

Deepening industry-education integration constitutes a key strategic initiative for developing the modern vocational education system and enabling high-quality economic and social development. As local "business environment optimisation" policies become increasingly differentiated and industry-education integration continues to deepen, enterprise willingness to participate exhibits complex unevenness. The persistent phenomena of "warm schools, cold enterprises" and "shallow integration without depth" remain fundamentally unresolved. Although the macro-institutional environment continues to improve, existing policies predominantly focus on the supply side or macro-governance frameworks, offering limited insight into the micro-level decision-making logics of the demand side—enterprises—within specific local business contexts. Enterprises are not homogeneous entities passively receiving institutional pressures; their decisions are substantially shaped by their own survival logics and resource endowments. Therefore, understanding how enterprises form differentiated willingness to participate in industry-education integration amidst varying business environment policies constitutes an urgent theoretical and practical question.

Existing research addressing this core issue proceeds mainly along two trajectories. The first concerns the behavioural dynamics of actors in industry-education integration. Scholars have analysed the action logics and governance pathways of sectoral industry-education integration communities (Liu & Xu, 2026), identified the phenomenon of strong willingness but limited cooperative model innovation (Zhao, Wang, & Zhang, 2026), and proposed solutions through ecosystem construction (Shen & Shi, 2026). The second trajectory focuses on the effects of the business environment. Extensive empirical evidence confirms that a favourable business environment reduces institutional transaction costs, promotes capital mobility (Cai & Chen, 2026), and enhances enterprise resilience

(Cheng, Du, & Yang, 2026), with digital infrastructure construction also receiving attention (Niu & Zhao, 2026). However, research at the intersection of these two trajectories remains scarce; systematic investigations of how the business environment specifically shapes enterprise decisions regarding industry-education integration are extremely limited.

Despite these contributions, existing research exhibits several gaps: (1) insufficient attention to enterprise heterogeneity—most studies treat enterprises as homogeneous or distinguish them only by ownership type, without systematically analysing differences in survival logics and resource constraints among manufacturing firms, technology firms, and SMEs; (2) a lack of micro-level focus—most research adopts macroeconomics or education management perspectives, neglecting the micro-process of "institutional pressure–perception–strategic response"; and (3) inadequate contextual adaptation—enterprise decisions are rarely examined within the specific local context of "differentiated business environment policy instruments". Accordingly, this study focuses on enterprise decision-makers' subjective perceptions and narratives, employing qualitative methods to explore enterprise willingness to participate in differentiated business environments.

2. Research Design

2.1 Theoretical Framework

This study adopts neoinstitutional theory as its core analytical framework. Its concepts of legitimacy, institutional pressures, and strategic organisational responses provide effective analytical tools and pathways for understanding "organisational diversity under institutional pressures". Enterprise participation in industry-education integration involves compliance with and reconciliation of multiple institutional logics, including education policy, industrial policy, and social responsibility. Accordingly, the core of this study lies in understanding how the macro-institutional environment is perceived, interpreted, and translated into concrete strategies by enterprise decision-makers.

2.2 Research Method

This study employs a qualitative research design, using semi-structured in-depth interviews as the primary data collection method and NVivo software for thematic analysis. This approach emphasises understanding the subjective experiences, meaning-making, and contextual logic underlying social phenomena through deep interaction between researcher and participant. It is well-suited to investigating the complex perceptions, trade-offs, and narratives of enterprise decision-makers regarding industry-education integration, thereby linking the macro-institutional environment with micro-enterprise behaviour and addressing neoinstitutional theory's concern with strategic organisational responses.

2.3 Data Collection

A combination of purposive and maximum variation sampling was used to select eight enterprises within a single prefecture-level city: two manufacturing firms, three technology firms, and three SMEs. Core decision-makers (general managers, deputy general managers responsible for university cooperation, or equivalent heads) were recruited as participants. Information saturation was reached after the seventh interview, with the eighth providing no new themes, confirming the adequacy of the sample size.

A semi-structured interview protocol was developed around the research questions and theoretical framework, encompassing four core dimensions: institutional environment perception, cost–risk assessment, strategic value judgement, and decision-making narratives and contexts. The protocol was reviewed by two qualitative methods experts and pilot-tested for clarity.

2.4 Data Analysis

Interviews were conducted in two phases. Phase one used an exploratory approach with an open-ended protocol based on neoinstitutional dimensions. Phase two refined the protocol into a more focused version based on preliminary coding results. All interviews were conducted face-to-face or via online video, with informed consent and full recording. Each interview lasted 60–90 minutes to allow sufficient time for in-depth dialogue. Recordings were transcribed verbatim, producing approximately

150,000 words of raw transcripts. All participant and institutional information was anonymised.

Data analysis followed the thematic analysis approach, assisted by NVivo 12 for systematic coding, categorisation, and management. The process involved: (1) open coding—reading transcripts line by line and coding raw statements into initial nodes; (2) axial coding—aggregating related nodes into higher-order themes; and (3) selective coding—identifying core categories and comparing thematic distributions across enterprise types. NVivo's matrix coding query function was used to verify whether discourse distribution across thematic nodes showed clear clustering among the three enterprise types, supporting the typological conclusions. The entire coding process was conducted by the lead researcher, with two transcripts randomly selected for inter-coder reliability checking by a second coder.

3. Findings

Through systematic coding and analysis of in-depth interview data from eight enterprise decision-makers, this study finds that, under the same macro-policy orientation and regional business environment, different types of enterprises exhibit structurally differentiated willingness to participate in industry-education integration. This differentiation is rooted in enterprises' distinct survival logics and resource endowments and manifests externally as divergent perceptions, narratives, and trade-offs across three dimensions: institutional pressures, costs and risks, and strategic value. The three core themes are elaborated below.

3.1 Divergent Policy Perceptions and "Temperature Gaps" in Institutional Pressure

Enterprises' perceptions of local government policy instruments for "business environment optimisation" and "industry-education integration promotion" differ markedly, producing significant "temperature gaps". First, regarding utility evaluation of policy instruments, the three enterprise types focus on different concerns. Manufacturing firms (M1, M2) value policy "systematicity" and "stability". As the general manager of M1 stated: "Tax reductions and fee cuts are good, but we would much rather see long-term planning for comprehensive industrial chain upgrading. That would give us confidence to commit long-term to university cooperation." Technology firms (T1, T2) are sensitive to "innovation incentives" and "flexible regulation". A co-founder of T1 remarked: "Direct subsidies are less important to us than the government's tolerance for trial and error. For instance, if a jointly established lab with a university fails, will the project evaluation differentiate that?" SMEs (S1, S2, S3) perceive the most direct effects, focusing on "tangible" immediate subsidies and streamlined procedures. The owner of S1 admitted: "Telling me grand theories is less motivating than giving me money or tax cuts. If the government subsidises half the cost of attending a campus recruitment fair, that gets us much more engaged."

Second, the nature of institutional pressure transmission differs. For manufacturing and some mature technology firms, the call for industry-education integration is perceived primarily as a "normative" and "cultural-cognitive" pressure concerning corporate social image and industry leadership. The general manager of M2 explained: "As an influential enterprise in the industry, being involved in vocational education is seen as 'the right thing to do'. Government awards and industry gatherings treat it as a plus." This represents a proactive response seeking legitimacy. For SMEs, by contrast, the pressure appears more as a "regulatory" pressure intertwined with survival concerns. The manager of S2 described an ambivalent attitude: "There are policy documents, and the subdistrict office also mobilises. Not participating might harm our relationship with them, but participating brings fear of unrecovered costs. It feels like a 'passive task'." This "temperature gap"—proactive legitimacy-seeking at one end and passive compliance pressure at the other—constitutes the primary institutional-psychological basis for differentiated willingness.

Neoinstitutional theory posits that institutional pressures are transmitted through three mechanisms: regulative, normative, and cultural-cognitive. This study finds that the same policy environment produces institutionally distinct pressures for different enterprise types, confirming the moderating role of organisational characteristics in institutional pressure transmission.

3.2 Endowment Constraints and Narrative Divergence in Cost–Risk Perception

At the level of cost–risk evaluation, enterprise decision-making logic is deeply constrained by resource endowments, producing distinctly different discourses. Manufacturing firms, with relatively greater financial resources, show high sensitivity to "management costs" and "opportunity costs". The

general manager of M1 calculated in detail: “Hosting a class of students for internships requires assigning mentors, designing projects, and ensuring safety. This consumes substantial energy from our frontline staff. Our costs are primarily these ‘hidden costs’ and potential production delays.” Technology firms are most vigilant about “technology leakage risks” and associated “core talent poaching risks”. The general manager of T2 emphasised: “When cooperating with universities on algorithm modules, our greatest fear is students or faculty taking core ideas away, or key students being recruited by competitors after the cooperation ends. Such risks are difficult to quantify financially.” SMEs’ cost perception is the most realistic and rigid, directly targeting “cash flow pressure” and “direct operating costs”. The owner of S3 said: “Profit margins are thin in small factories. Interns bring real costs in subsidies, utilities, materials, and equipment depreciation. A safety incident would be catastrophic.”

Risk tolerance also shows structural differences. Manufacturing firms exhibit “strategic risk tolerance”. The general manager of M2 stated: “A single cooperation project may show short-term losses, but if it secures us talented recruits in the long run or opens up new directions in a particular technology, the risk is worth taking.” Technology firms show “selectively tightening” characteristics: they are extremely cautious about core technology cooperation risks but relatively open to cooperation aimed at brand-building or exploring future trends. SMEs exhibit very low risk tolerance, magnifying any risk that might disrupt their delicate operational balance. The owner of S1 commented: “We cannot afford disruptions. Every step must be calculated clearly. We dare not touch anything without obvious returns.”

Integrating resource-based view with neoinstitutional theory reveals that resource endowments not only determine risk-bearing capacity but also shape enterprises’ interpretation of institutional pressures—resource-rich enterprises are more inclined to reframe risks as strategic investments.

3.3 Value Prioritisation and Differentiated Legitimation Narratives

The strategic value enterprises pursue through industry-education integration encompasses both economic rationality and social legitimacy. Different enterprise types prioritise these values differently, producing divergent narrative frameworks. Manufacturing firms place “long-term talent pipeline construction” and “technological ecosystem influence” at the apex of value. M1 and M2 repeatedly mentioned “building skills for the entire industrial chain” and “shaping industry skill directions through standard-setting and curriculum development”. Technology firms exhibit “dual-driver” value pursuits: “cutting-edge technology insight and early talent lock-in” (the co-founder of T1 hoped “to expose students to our technology stack while still at university so they are productive upon graduation”) and “innovation-driven corporate social image building” (which helps attract investment and high-end talent). SMEs have the most direct value pursuits, focusing primarily on “alleviating immediate skill shortages” and “obtaining policy benefits or reputation”. The manager of S2 admitted candidly: “The ideal scenario is students ready to work upon graduation, saving us training costs. Also, being recognised as a ‘demonstration enterprise for industry-education integration’ would help with recruitment and order acquisition.”

Legitimation strategies diverge across enterprise types. Manufacturing firms adopt a “leader” narrative, portraying their participation as fulfilling industry leadership responsibilities, aligning with normative and cultural-cognitive legitimacy. Technology firms favour a “co-creator” narrative, emphasising joint exploration of the future and cultivation of disruptive innovative talents with universities, simultaneously showcasing technological sophistication and meeting government expectations. SMEs more often adopt a “pragmatist” or “survivor” narrative, focusing discourse on solving practical operational difficulties or tactfully expressing “willing but unable” situations. These narrative differences are essentially differentiated legitimation strategies adopted by enterprises within the institutional field based on their positions and resources, rendering their actions “reasonable” and “acceptable” in specific contexts.

Neoinstitutional theory suggests that organisations construct legitimacy through narratives. This study identifies three narrative strategies—leader (normative legitimacy), co-creator (cultural-cognitive legitimacy), and pragmatist/survivor (pragmatic compromise)—thereby enriching the typology of legitimation strategies.

The above themes are mutually reinforcing within the data. NVivo matrix coding query showed clear clustering of discourse distribution across thematic nodes for the three enterprise types, supporting the reliability of the typological conclusions. Additionally, collected local policy texts

aligned with enterprises' perceived policy instrument differences, providing methodological triangulation. The identified logic of differentiation—"institutional perception–endowment constraints–value prioritisation"—offers good explanatory power for understanding enterprise behaviour in industry-education integration within similar regions. However, the generalisability of the conclusions to regions with distinctly different business environments (e.g., extremely favourable or relatively underdeveloped) or to more nuanced sub-types within the same enterprise category (e.g., "specialised and sophisticated" SMEs versus traditional SMEs) may require further adaptation and validation.

4. Conclusion

This study demonstrates that, under the macro-policy orientation of "business environment optimisation", enterprise willingness to participate in industry-education integration is not solely a response to policy incentives but also depends on the interaction between internal endowments and external institutional perceptions.

4.1 Summary of Findings

First, enterprises exhibit significant "temperature gaps" in their perception of industry-education integration policies. Manufacturing firms and some technology firms perceive pressures more through normative and cultural-cognitive dimensions, whereas SMEs experience pressures more directly as regulatory and survival-related. Second, resource endowments are tightly coupled with cost–risk evaluation logics. Manufacturing firms focus on hidden management costs and strategic risk tolerance; technology firms are vigilant about core technology leakage and talent poaching risks; SMEs are extremely sensitive to direct costs and operational risks that might impact their fragile cash flows, forming a continuum from "strategic investment" to "survival cost" orientations. Third, value pursuits and legitimation narratives show differentiated prioritisation. Manufacturing firms pursue "long-term talent pipelines" and "industrial ecosystem influence", adopting a "leader" narrative; technology firms focus on "cutting-edge technology insight" and "innovation image building", favouring a "co-creator" narrative; SMEs concentrate on "alleviating skill shortages" and "obtaining immediate support", with a "pragmatist" or "survivor" narrative reflecting their institutional field position. Together, these findings reveal the deep mechanism underlying differentiated enterprise willingness: the interaction between the temperature gap in institutional pressure perception and the rigidity of resource endowment constraints.

This study provides locally grounded empirical evidence for neoinstitutional theory. It shows that, even within the same institutional field, due to fundamental differences in enterprise survival logics and resource endowments, institutional pressures do not produce simple behavioural convergence but rather elicit strategic, diverse responses, thereby deepening understanding of "organisational agency" and the "micro-mechanisms of institutional pressure transmission".

4.2 Policy Implications

This study offers theoretical support for targeted local government policies. For manufacturing firms, policy should build a long-term, stable institutional environment supporting leading-edge, deep cooperation. For technology firms, stronger intellectual property protection and flexible incentives should encourage co-creative, R&D-oriented cooperation. For SMEs, direct and convenient services—such as simplified subsidy application procedures and risk-buffering tools—should be provided to effectively lower participation thresholds. At the same time, policy communications should recognise enterprises' diverse legitimation narratives, fostering an integrated ecosystem in which diverse actors contribute their respective strengths.

4.3 Limitations and Future Research

This study has limitations. The sample size is limited and concentrated in one city, so the generalisability of the findings requires testing in more diverse contexts. Future research could expand the sample through multi-case comparisons or quantitative surveys, and dynamically track the entire process of enterprise participation. It could also integrate perspectives from vocational institutions, government departments, and other stakeholders to construct a more systematic governance analytical framework.

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