MICRO-CREDENTIALS IN CHINESE HIGHER EDUCATION: QUALITY ASSURANCE, CREDIT RECOGNITION, AND WORKFORCE RELEVANCE

Qin FENG[1], Thada SITHTHADA[1] and Suttipong BOONPHADUNG[1]
1 Department of Educational Administration, Suan Sunandha Rajabhat University, Thailand; s68584951014@ssru.ac.th

ARTICLE HISTORY
Received: 5 September 2026 **Revised:** 20 September 2026 **Published:** 25 September 2026

ABSTRACT
Micro-credentials are emerging as flexible instruments for certifying focused learning, responding to technological change, and supporting lifelong learning. In China, the expansion of micro-specialties, short vocational programmes, digital learning platforms, and the 1+X certificate system creates a favorable environment for their development. This article examines micro-credentials through three interdependent concerns: quality assurance, credit recognition, and workforce relevance. Drawing on international scholarship and Chinese policy developments, it argues that a credible micro-credential must represent assessed learning rather than course participation, carry transparent information about level and workload, connect coherently with formal programmes, and communicate capabilities that employers can understand and trust. The literature reveals persistent risks including inconsistent terminology, fragmented standards, weak portability, and uncertain long-term value. The article proposes the TRUST Framework for Chinese higher education: Transparent standards and metadata, Rigorous assessment and quality assurance, Unified recognition and stacking, Strategic workforce alignment, and Trusted digital governance and learner protection. The framework positions micro-credentials as complements to degrees and as governed elements of a wider learning ecosystem.
Keywords: Micro-Credentials, Quality Assurance, Credit Recognition, Workforce Relevance, Chinese Higher Education

CITATION INFORMATION: Feng, Q., Siththada, T., & Boonphadung, S. (2026). Micro-Credentials in Chinese Higher Education: Quality Assurance, Credit Recognition, and Workforce Relevance. *Procedia of Multidisciplinary Research, 4(9), 64.*

INTRODUCTION

Higher education must respond to technological change, industrial restructuring, and growing demand for lifelong learning. Degrees remain essential for disciplinary formation, but their duration and fixed structures can slow curriculum renewal. Learners and employers increasingly seek shorter opportunities that develop specific capabilities alongside employment or a degree. Micro-credentials have consequently become prominent instruments for upskilling, reskilling, access, and curricular innovation (OECD, 2021a, 2023a).

Their apparent simplicity conceals a complex administrative problem. A short course becomes credible only when learning outcomes, assessment, provider accountability, and the meaning of the award are clear. Formal recognition additionally requires judgments about level, workload, equivalence, and programme coherence. Employer relevance requires occupational input without reducing higher education to narrow, temporary training. Micro-credentials therefore operate within an ecosystem of learners, universities, quality agencies, technology providers, employers, and government (Thi Ngoc Ha et al., 2023; Varadarajan et al., 2023).

China has strong foundations for this ecosystem. The 1+X initiative linked academic qualifications with vocational skill certificates, while credit-bank experiments supported recognition, accumulation, and conversion of learning outcomes (Ministry of Education of the People's Republic of China [MOE], 2021; MOE et al., 2019). The employment-capability "Double Thousand Plan" subsequently accelerated micro-specialties in areas of urgent labour demand. By July 2025, institutions had created 2,654 micro-specialties for approximately 74,000 graduates, and the 2026 implementation meeting emphasized both quality and rapid response (MOE, 2025b, 2026).

Micro-specialties, 1+X certificates, digital badges, and short courses overlap but are not automatically equivalent. Their status must depend on verified learning and governance, not labels. This article clarifies the concept, synthesizes scholarship on quality, recognition, and workforce relevance, analyzes educational-administration implications, and proposes the TRUST Framework for Chinese higher education. Its central claim is that the three dimensions must be governed together: quality without recognition produces isolated certificates, recognition without quality weakens standards, and short-term relevance without educational coherence limits lasting value.

CONCEPTS AND THEORETICAL FOUNDATIONS

Defining Micro-Credentials

Terminology varies across digital badges, nano-degrees, professional certificates, micro-specialties, and skill certificates. UNESCO provides a useful minimum: a micro-credential records focused achievement, verifies what a learner knows or can do through defined standards and assessment, is awarded by a trusted provider, has stand-alone or stackable value, and meets relevant quality requirements (Martin & Van der Hijden, 2023). The European approach similarly requires information about learning outcomes, workload, level, assessment, quality assurance, learner and issuer identity, and portability (Council of the European Union, 2022).

These features distinguish a credential from attendance and distinguish learning from its digital representation. A badge is a container; its credibility rests on assessment, metadata, and authority. A micro-credential may serve as stand-alone professional learning, a bridging pathway, an embedded supplement to a degree, or a stackable unit. Because each role creates different approval and recognition consequences, institutions should define the role before delivery. Confidence should rest on visible standards and evidence rather than institutional name alone. Where universities collaborate with technology companies or platform providers, the award should identify who taught, assessed, assured, and issued it.

Credential Ecology, Signaling, and Capability

Micro-credentials complement rather than replace degrees. Together with licenses, transcripts, portfolios, and occupational certificates, they form a credential ecology in which different awards communicate different evidence. Their signal to employers is strongest when the issuer is trusted, assessment is authentic, evidence is accessible, and the capability relates to recognizable work (Maina et al., 2022; Oliver, 2019). Educational administrators must ensure attractive badges are backed by evidence to protect learners from misleading offers.

A human-capability perspective prevents workforce relevance from becoming narrow job training. Higher education should develop judgment, ethics, adaptability, transferable knowledge, and capacity for continued learning. Wheelahan and Moodie (2021) warn that fragmented credentials may narrow knowledge and transfer responsibility for employability to individual learners.

Therefore, relevance should be sustainable occupational participation, not mastery of one temporary product or vacancy.

Recognition as Institutional Trust

Stackability is not simple accumulation. Components may overlap, differ in level, or lack the integration expected in a qualification. Meaningful recognition requires rules for sequence, prerequisites, recency, maximum credit, assessment equivalence, and alignment with programme outcomes. It may be vertical toward a higher award, horizontal across programmes or institutions, or external through recognition of prior learning. In every form, credit recognition is an academic judgment supported by common information and trust, not a clerical conversion of course hours (OECD, 2023b). Therefore, institutional trust and standardized rules are essential to ensure credit recognition functions as a valid academic judgment rather than a mere clerical course-hour conversion.

REVIEW AND SYNTHESIS OF ACADEMIC LITERATURE

Opportunities, Evidence, and Risk

Reviews identify flexibility, rapid skill development, access, curricular experimentation, and employability signaling as potential benefits (Ahsan et al., 2023). Universities can serve students, graduates, and working adults while testing emerging content before revising full programmes. Nevertheless, the evidence base is uneven: definitions, providers, duration, credit, and target groups differ, and many initiatives remain pilots. Benefits for one stakeholder may also create costs for another; choice may confuse learners, employer input may constrain academic independence, and continual upskilling may shift financial risk to workers (Brown & Nic Giolla Mhichíl, 2022; Varadarajan et al., 2023). Enrollment and completion are therefore insufficient measures. Institutions should examine learning, recognition, progression, equity, employer use, and longer-term capability.

Quality Assurance

Quality assurance should cover the credential lifecycle. Approval should verify need, target learners, level, workload, outcomes, staffing, resources, delivery, assessment, and financial sustainability. Delivery monitoring should address learner identity, academic integrity, accessibility, teaching, moderation, complaints, and completion. Periodic review should use evidence of recognition, progression, workforce application, equity, and continuing relevance (OECD, 2021a; Selvaratnam & Sankey, 2021).

Assessment is central. Short duration requires precise alignment rather than reduced rigor. Authentic projects, demonstrations, simulations, portfolios, or supervised performance are preferable when complex capability is claimed. Rubrics, assessor preparation, moderation, and evidence-retention rules help identical credentials represent comparable achievement. Joint university-industry offers also need explicit responsibilities for curriculum, assessment, data, appeals, and withdrawal. External review may be proportionate to risk, but transparency, fairness, integrity, and accountability remain non-negotiable.

Credit Recognition and Portability

Without credit or documented equivalence, learners may accumulate certificates that do not support formal progression. A balanced system uses common minimum descriptors while allowing local innovation. Institutions should publish whether a credential carries credit, which programmes accept it, how long recognition remains valid, and what combinations lead to admission or exemption. "Stackable" should be used only when a destination and decision process exist (OECD, 2021a, 2023b).

Recognition should compare learning outcomes and evidence, not titles. Institutions need policies on content overlap, credit limits, prerequisites, and technical currency. A transparent recognition map reduces ad-hoc negotiation and lets learners assess credentials before enrolling. Secure digital infrastructure verifies identity, carries metadata, and enables learner-controlled sharing. But technical verifiability cannot replace sound learning; digital systems should enforce academic policy, not substitute for it.

Workforce Relevance and Employer Trust

Relevance draws on development priorities, occupational standards, job trends, employer consultation, graduate outcomes, and technological forecasts. Multi-employer input identifies durable capabilities, reduces single-firm dependence, and enables co-design, project provision, work-based learning, and metadata review, while acceptance depends on the provider, learner, workplace, and evidence behind the award (Thi Ngoc Ha et al., 2024).

The literature therefore favors structured partnership over simple endorsement. Academic staff protect coherence, transferability, ethics, and public value; employers clarify performance contexts; learners contribute evidence about usability and access. McGreal and Olcott (2022) frame micro-credentials as a strategic leadership issue. Leaders must decide which credentials fit institutional mission, how they relate to degrees, and when weak or obsolete offers should close.

Workforce outcomes require careful interpretation. Placement and employer satisfaction indicate relevance, not lasting value. Assessment should examine whether learners can transfer skills across contexts, adapt to technological change, advance their studies, and exercise professional judgment.

Analysis from an Educational Administration Perspective

Micro-credentials transcend conventional administrative silos, necessitating portfolio-level governance—whether a dedicated committee or delegated process—clarifying decision rights, risk thresholds, ownership, renewal, recognition, closure across academic, quality, registry, digital, continuing-education, external-relations units. Proportionate governance should stratify credentials by risk, distinguishing embedded credit-bearing offerings from novel non-credit external awards, while mandating minimum metadata for both; academic senates should retain authority over credit and programmatic coherence, whereas operational units may administer lower-risk renewals under published protocols.

Performance management must integrate operational metrics—completion, cost, and assessment quality—with public-value indicators including credit acceptance, stacking and progression, employer uptake, learner satisfaction, access, and data incidents to inform continuation, redesign, or closure decisions. Financial and data governance require transparent pricing that discloses total costs and precludes sequences lacking verified academic destinations, while partnership contracts must delineate intellectual property, revenue, assessment authority, data access, retention, and post-termination liabilities; the institution must maintain an authoritative, platform-independent verification record, converting institutional trust from a marketing claim into a durable administrative obligation.

Application to the Chinese Educational Context

China's policy direction supports flexible, digitally enabled learning connected with national development. The Education Powerhouse Outline (2024–2035) emphasizes high-quality education, digital transformation, and talent development (Central Committee of the Communist Party of China & State Council, 2025). The 1+X pilot and credit-bank work provide experience in

connecting qualifications, skill standards, and accumulated learning (MOE, 2021; MOE et al., 2019). National digital-education policy also encourages new mechanisms for academic credit and learning recognition (MOE, 2025a).

The Double Thousand Plan demonstrates both opportunity and urgency. Micro-specialties can enable universities to respond rapidly to advanced manufacturing, artificial intelligence, digital services, green development, and regional industry needs. However, rapid expansion increases the likelihood of inconsistent terminology, duplicated content, unclear credit, uneven employer participation, and certificates that learners cannot reuse. The 2026 emphasis on quality creates an opportunity to move from programme growth toward a coherent credential ecosystem (MOE, 2026).

National reference principles should specify minimum descriptors, identity and record requirements, assessment expectations, and truthful use of terms such as credit-bearing and stackable. Provincial authorities can coordinate regional industry intelligence, recognition networks, and quality support. Universities should retain authority over academic standards while aligning credential portfolios with mission, such as emphasizing frontier and interdisciplinary learning at research universities, connecting technology with regional industries at application-oriented universities, and integrating occupational standards and work-based assessment at vocational institutions.

Credit-bank development can provide connective infrastructure, but it should not imply automatic equivalence. Common data fields and secure records can make learning visible, while authorized academic bodies decide how it contributes to a programme. Articulation agreements among groups of institutions could begin in high-demand fields with shared occupational standards and then expand after review. This staged approach respects regional and institutional diversity while building trust through actual recognition decisions rather than policy language alone.

Equity also requires explicit administration. Learners in rural or less-resourced regions, working adults, and students with disabilities may face fees, device constraints, inaccessible platforms, or weak guidance. Publicly supported credentials should publish costs and recognition routes, provide advising, and monitor who gains access and who converts learning into progression. National and institutional systems should make credentials portable across platforms while protecting personal data and preserving authoritative records.

THE TRUST FRAMEWORK FOR CHINESE MICRO-CREDENTIALS

The proposed TRUST Framework treats credibility as a system outcome created by five mutually reinforcing pillars. Transparent standards and metadata require public information about outcomes, workload, level, assessment, credit, issuer, partners, costs, and recognition. Rigorous assessment and quality assurance connect every claim to authentic evidence, moderation, qualified staff, partner accountability, and periodic review. Unified recognition and stacking establish credit rules, equivalence, destination qualifications, transfer agreements, recency, and secure records. Strategic workforce alignment uses multiple labour-market sources and co-design partners while preserving academic depth, ethics, and transferable capability. Trusted digital governance and learner protection require verifiable records, privacy, accessibility, vendor continuity, accurate marketing, guidance, complaints, and correction or revocation procedures. A weakness in one pillar reduces the value of the others: rigorous assessment has limited use without recognition, recognizable credit is risky without quality, and labour relevance is fragile without trustworthy records and learner rights.

Table 1. The TRUST Framework for Micro-Credentials in Chinese Higher Education

Pillar	Administrative purpose	Core actions	Evidence for review
Transparent standards and metadata	Make claims understandable and comparable	Publish outcomes, workload, level, assessment, credit, issuer, partners, costs, and recognition.	Complete metadata; user comprehension; accurate public information
Rigorous assessment and quality assurance	Protect academic credibility	Align outcomes and authentic assessment; moderate results; approve partners; review risks.	Assessment evidence; moderation; complaints; completion and quality review
Unified recognition and stacking	Turn learning into usable pathways	Define credit and equivalence; map destinations; agree transfer; record achievement securely.	Credits awarded and accepted; stacking and progression; recognition decisions
Strategic workforce alignment	Connect learning with durable capability	Use labour intelligence; co-design with multiple employers; review occupational relevance.	Employer use; capability application; curriculum updates; graduate progression
Trusted digital governance and learner protection	Ensure secure, equitable, and sustainable use	Maintain authoritative records; privacy; accessibility; guidance; vendor continuity; truthful marketing.	Verification; data incidents; access and equity; support and appeals

Administrative Implementation Cycle

Framework implementation entails six stages: needs scanning, risk-based classification, co-design of outcomes and assessment, delivery assurance, recognition activation, and evidence-based review for renewal or closure. Responsibilities should be differentiated: the Ministry of Education coordinates terminology and interoperability; provinces support regional recognition and labour intelligence; universities retain academic standards and portfolio ownership; employers advise without superseding academic governance; and learners participate in design and review. Staged pilots publish successful and unsuccessful cases to ensure evidence-guided rather than volume-driven expansion.

Implementation should begin with an institutional inventory. Leaders should identify every short award, its owner, learner group, assessment, credit status, partner, digital record, and intended destination. The inventory can reveal duplication and distinguish credentials ready for recognition from participation certificates that require redesign. Institutions may then pilot the TRUST requirements in a limited number of strategically important fields, negotiate recognition before recruitment, and provide public guidance showing how each credential can be used. This sequence gives learners reliable information while allowing administrators to test approval, record, and review processes before expansion.

Annual portfolio review should combine a concise dashboard with qualitative academic judgment. Useful evidence includes assessment moderation, completion, credits awarded and accepted, movement into further study, employer verification and use, learner costs, accessibility, complaints, data incidents, and currency of occupational content. Targets should be interpreted by discipline and learner group rather than used as a single ranking. A credential with modest enrollment may remain valuable for a strategic regional industry, whereas a popular award may require closure if assessment or recognition is weak. Transparent renewal decisions complete the governance cycle and reinforce institutional trust.

CONCLUSION

Micro-credentials help Chinese higher education respond to industrial change, graduate employment, and lifelong learning, but flexibility does not guarantee value. Credibility arises when

assessed achievement, transparent information, educational pathways, and employer understanding align. China has foundations in micro-specialties, the Double Thousand Plan, the 1+X system, credit banks, and national education digitalization. The next stage emphasizes reference standards, interoperable records, proportionate quality assurance, recognition protocols, multi-employer co-design, and equitable access.

The TRUST Framework integrates these priorities through Transparent standards and metadata, Rigorous assessment and quality assurance, Unified recognition and stacking, Strategic workforce alignment, and Trusted digital governance and learner protection. Governed together, the five pillars enable micro-credentials to complement degrees, strengthen institutional responsiveness, and support sustainable workforce capability without weakening the broader academic and public purposes of Chinese higher education.

REFERENCES

Ahsan, K., Akbar, S., Kam, B., & Abdulrahman, M. D.-A. (2023). Implementation of micro-credentials in higher education: A systematic literature review. *Education and Information Technologies, 28*(10), 13505-13540. https://doi.org/10.1007/s10639-023-11739-z

Brown, M., & Nic Giolla Mhichíl, M. (2022). Unboxing micro-credentials: An inside, upside and downside view. *Culture and Education, 34*(4), 938-973. https://doi.org/10.1080/11356405.2022.2102293

Central Committee of the Communist Party of China, & State Council. (2025). *Outline for building a leading country in education (2024-2035)*. https://www.mee.gov.cn/ywdt/szyw/202501/t20250120_1100931.shtml

Council of the European Union. (2022). Council recommendation of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability (2022/C 243/02). *Official Journal of the European Union, C 243*, 10-25. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022H0627(02)

Maina, M. F., Guàrdia Ortiz, L., Mancini, F., & Martinez Melo, M. (2022). A micro-credentialing methodology for improved recognition of HE employability skills. *International Journal of Educational Technology in Higher Education, 19*, 10. https://doi.org/10.1186/s41239-021-00315-5

Martin, M., & Van der Hijden, P. (2023). *Short courses, micro-credentials, and flexible learning pathways: A blueprint for policy development and action*. UNESCO International Institute for Educational Planning. https://www.iiep.unesco.org/en/publication/short-courses-micro-credentials-and-flexible-learning-pathways-blueprint-policy-development-and

McGreal, R., & Olcott, D., Jr. (2022). A strategic reset: Micro-credentials for higher education leaders. *Smart Learning Environments, 9*, 9. https://doi.org/10.1186/s40561-022-00190-1

Ministry of Education of the People's Republic of China. (2021). *Response to Proposal No. 3416 of the Fourth Session of the 13th National Committee of the Chinese People's Political Consultative Conference*. https://www.moe.gov.cn/jyb_xxgk/xxgk_jyta/jyta_zcs/202205/t20220527_631324.html

Ministry of Education of the People's Republic of China. (2025a). *Nine departments: Accelerating construction of a new national digital university and exploring new mechanisms for academic credit and degree awards*. https://www.moe.gov.cn/fbh/live/2025/56808/mtbd/202504/t20250416_1187640.html

Ministry of Education of the People's Republic of China. (2025b). *Ministry of Education accelerates the employment-capability enhancement "Double Thousand Plan"*.

https://www.moe.gov.cn/jyb_xwfb/xw_zt/moe_357/2025/2025_zt21/mtjj/202507/t20250729_1199799.html

Ministry of Education of the People's Republic of China. (2026). *Implementation promotion meeting for the employment-capability enhancement "Double Thousand Plan" convened*. https://www.moe.gov.cn/jyb_zzjg/huodong/202605/t20260509_1436020.html

Ministry of Education of the People's Republic of China, National Development and Reform Commission, Ministry of Finance, & State Administration for Market Regulation. (2019). *Pilot plan for implementing the "academic diploma + several vocational skill level certificates" system in colleges*. https://www.moe.gov.cn/jyb_xwfb/gzdt_gzdt/s5987/201904/t20190416_378206.html

OECD. (2021a). *Micro-credential innovations in higher education: Who, what and why?* OECD Education Policy Perspectives, No. 39. https://doi.org/10.1787/f14ef041-en

OECD. (2023a). *Micro-credentials for lifelong learning and employability: Uses and possibilities*. OECD Education Policy Perspectives, No. 66. https://doi.org/10.1787/9c4b7b68-en

OECD. (2023b). *Public policies for effective micro-credential learning*. OECD Education Policy Perspectives, No. 85. https://doi.org/10.1787/a41f148b-en

Oliver, B. (2019). *Making micro-credentials work for learners, employers and providers*. Deakin University. https://dteach.deakin.edu.au/wp-content/uploads/sites/103/2019/08/Making-micro-credentials-work-Oliver-Deakin-2019-full-report.pdf

Selvaratnam, R. M., & Sankey, M. D. (2021). An integrative literature review of the implementation of micro-credentials in higher education: Implications for practice in Australasia. *Journal of Teaching and Learning for Graduate Employability, 12*(1), 1-17. https://doi.org/10.21153/jtlge2021vol12no1art942

Thi Ngoc Ha, N., Spittle, M., Watt, A., & Van Dyke, N. (2023). A systematic literature review of micro-credentials in higher education: a non-zero-sum game. Higher Education Research & Development, 42(6), 1527–1548. https://doi.org/10.1080/07294360.2022.2146061

Thi Ngoc Ha, N, Van Dyke, N., Spittle, M., Watt, A., & Smallridge, A. (2024). Micro-credentials through the eyes of employers: Benefits, challenges and enablers of effectiveness. *Education + Training, 66*(7), 948-963. https://doi.org/10.1108/ET-08-2023-0340

Varadarajan, S., Koh, J. H. L., & Daniel, B. K. (2023). A systematic review of the opportunities and challenges of micro-credentials for multiple stakeholders: Learners, employers, higher education institutions and government. *International Journal of Educational Technology in Higher Education, 20*, 13. https://doi.org/10.1186/s41239-023-00381-x

Wheelahan, L., & Moodie, G. (2021). Analysing micro-credentials in higher education: A Bernsteinian analysis. *Journal of Curriculum Studies, 53*(2), 212-228. https://doi.org/10.1080/00220272.2021.1887358

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.



Copyright: © 2026 by the authors. This is a fully open-access article distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0).