Asia Pacific Science Press

Journal of Educational Theory and Practice
ISSN(O):3005-9313
ISSN(P):3005-9305
Vol. 3 No.4 (2026)

Digital Cross-Cultural Collaboration Competence in Business Education: An Integrative Review and a Blended-Learning Framework for Yunnan-Southeast Asia

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Abstract: Business graduates are increasingly conducting cross-border decision-making negotiations through digital platforms. In this process, business judgments rely on the ability to interpret institutional differences, coordinate dispersed contributors, and adjust decisions based on evidence changes. This study proposes a framework for teaching these interdependent competencies in business education. An integrated theory-based review synthesizes research on intercultural competence, cultural intelligence, global virtual teams, virtual communication, blended learning and performance evaluation, with reference to public RCEP documents and the curriculum background of Southwest Forestry University in Yunnan, China. The review found that there is a persistent mismatch between the assessment of cross-cultural orientation and the visible process of team-generated defensible business decisions. We propose a five-dimensional, performance-oriented construct of Digital Cross-Cultural Collaboration Capability (DCCC), and identify four stages of learning mechanisms : evidence preparation, negotiation and coordination, joint outcome output, and reflective recalibration. A six-week cross-border e-commerce blended learning module demonstrates the framework through a Yunnan-Southeast Asia trade scenario and process-sensitive assessment scale. This study contributes a mechanism-based cross-cultural business learning theory, achieves a practical alignment of tasks and assessments, and provides a research agenda for studying learning quality, transfer, and cross-agency collaboration.

Keywords: Intercultural Competence; Digital Collaboration; Business Education; Blended Learning; Virtual Exchange; Yunnan; Southeast Asia; RCEP

Published: Nov 26, 2026

DOI: https://doi.org/10.62177/jetp.v3i4.1875

1. Introduction

Cross-border commercial decisions rarely follow the sequence of a conventional international business syllabus. A distributor may interpret a delivery obligation differently from a seller, an online marketplace may restrict access to transaction data, and an international team may disagree over whether to prioritize product localization, regulatory screening, or channel development. Resolving these problems requires more than knowledge of trade terms or cultural conventions. Participants must establish a shared evidentiary basis, negotiate competing interpretations, distribute responsibilities, and revise a business decision through digital communication. These activities bring intercultural interpretation, digital competence, and

commercial judgment into a single episode of professional work.

Yunnan provides a substantive setting for studying this educational challenge. Its cross-border commercial links with mainland Southeast Asia bring regulatory variation, platform-mediated transactions, logistics decisions, and multilingual coordination into close view. The Regional Comprehensive Economic Partnership (RCEP) offers a common institutional reference while leaving market-specific requirements and business practices relevant to managerial choice [1]. At Southwest Forestry University, the College of Economics and Management lists Cross-Border E-Commerce, Agricultural E-Commerce, Supply Chain and Logistics Management, and E-Commerce Law and Regulation among its undergraduate offerings; its program description also identifies cross-border e-commerce training resources [2]. These existing curricular elements provide a credible setting for an integrated business-education design.

Existing scholarship explains important components of this challenge. Intercultural competence has been framed in terms of dispositions, knowledge, interpretive skills, and appropriate behavior [3], whereas cultural intelligence differentiates capabilities associated with intercultural judgment and adaptation [4]. Research on global virtual teams shows how trust, coordination, and shared understanding shape the use of dispersed expertise [5][6]. Virtual exchange and Collaborative Online International Learning (COIL) extend such encounters into higher education, with learning patterns that vary by task, cohort, and institutional arrangement [7][8]. Yet the translation of these literatures into business decisions that students must jointly defend remains underdeveloped.

The gap is best seen at the level of performance. Describing a cultural difference differs from negotiating a distribution plan; familiarity with a collaboration platform differs from coordinating a distributed project; and favorable attitudes toward international exchange differ from demonstrated business judgment. Reviews of project-based learning likewise show that student perceptions are assessed more frequently than the quality of the work produced [9]. A useful instructional model must therefore specify the sequence of actions through which a team turns culturally and institutionally diverse information into an accountable commercial recommendation.

This article addresses three questions: (1) Which established findings illuminate the development of digital cross-cultural collaboration in business education? (2) Through what learning mechanism do evidence inquiry, digitally mediated negotiation, and joint decision making reinforce one another? (3) How can that mechanism be embedded in a regional business course and assessed through observable coursework? The study contributes a five-dimensional competence framework, a four-stage learning mechanism, and a six-week teaching design with a corresponding assessment and research agenda.

2. Materials and Methods

2.1 Design and Unit of Analysis

A theory-driven integrative review brought together evidence from fields that emphasize different outcomes: intercultural dispositions, collaborative processes, digital practices, and applied business judgment. Integrative reviews support concept development by connecting heterogeneous theoretical and empirical traditions [10][11][12]. The unit of synthesis was a digitally mediated collaborative decision episode: a bounded sequence in which participants interpret evidence, divide responsibilities, negotiate alternatives, produce a joint output, and explain subsequent revisions. This unit directs attention to the process by which knowledge becomes coordinated action.

2.2 Source Identification and Analytical Strategy

The scholarly corpus was assembled through targeted searches of publisher records, DOI-linked articles, and academic repositories using combinations of intercultural competence, cultural intelligence, global virtual teams, virtual exchange, COIL, blended learning, digital skills, project-based learning, and business education. Selection prioritized sources that specified a relevant competence, identified a learning or collaboration mechanism, or offered implications for observable assessment. Conceptual studies, empirical evaluations, methodological contributions, and research syntheses were examined together to identify points of convergence and productive disagreement. Public RCEP materials and the university's published program profile supplied contextual documentation for curriculum design.

Each source was examined through four questions: What construct or outcome is defined? Which process is proposed

or observed? Under what conditions does that relationship operate? What instructional decision follows? Findings were organized into a source-to-mechanism matrix covering intercultural judgment, digitally mediated coordination, task design, and assessment. Official documents were used to establish the institutional context and course-related task requirements; peer-reviewed research informed the proposed learning mechanism. This combination follows established approaches to document analysis and qualitative thematic synthesis [13][14].

2.3 Synthesis Rules and Scope

The synthesis proceeded from constructs to processes and then to learning artifacts. Evidence about attitudes and skills informed the competence dimensions; evidence about virtual teamwork and project-based learning informed the sequence of interaction; and assessment research informed the observable indicators. A further distinction was made between locally facilitated business simulation and COIL, which involves coordinated curricular design across institutions [15]. These steps produced a coherent framework linking research evidence with classroom activity and performance assessment.

3. Results: Cross-Disciplinary Evidence Synthesis

3.1 From Intercultural Attitudes to Situated Judgment

Deardorff's account of intercultural competence [3] places openness, respect, observation, interpretation, and appropriate communication within a developmental process. Cultural intelligence offers a complementary differentiation: Ang et al. identify metacognitive, cognitive, motivational, and behavioral dimensions with distinct relationships to judgment, adaptation, and task performance [4]. The shared implication is that competence develops through interpretation and action. In business education, students should therefore be assessed on how they interpret unfamiliar evidence, elicit a counterpart's reasoning, and adjust a commercial choice, alongside their understanding of cultural perspectives.

Management education provides a closer test of this proposition than language-focused exchange alone. Erez et al. examined a four-week online multicultural team project involving management students from multiple contexts, making virtual teamwork part of an explicit developmental intervention [16]. Rosenblatt et al. further identified expectancy disconfirmation as a relevant process in experiential cultural intelligence education: development may involve encountering evidence that unsettles a prior expectation rather than merely increasing contact [17]. The instructional implication is to design an encounter in which a team must recognize a mistaken assumption, defend a revised interpretation, and document the consequences for a commercial recommendation. A short reflective question about "what I learned about another culture" is not an adequate substitute for this trace of reasoning.

Cultural explanations also require attention to the immediate business setting. Communication differences within a negotiating group may arise from institutional rules, professional roles, language proficiency, bargaining power, or prior experience as well as national socialization. Research on multicultural teams identifies both process gains and coordination costs, with the balance shaped by team conditions [18]. Educational tasks should prompt students to diagnose the source of disagreement before selecting a response. A country profile can inform initial preparation, while an accountable decision requires evidence about the actual transaction and its participants.

3.2 Digital Collaboration as a Socio-Organizational Process

Digital access is necessary for remote coordination but does not guarantee shared meaning. Jarvenpaa and Leidner documented the fragility of trust in global virtual teams and the importance of communication behavior [6]. Gibson and Gibbs demonstrated that geographic dispersion, electronic dependence, changing membership, and national diversity are analytically distinct dimensions of virtuality, with a psychologically safe climate capable of addressing some negative consequences [5]. These findings matter for an educational design because they identify team processes that can be observed: visible commitments, timely clarification, transparent evidence exchange, and explicit repair after misunderstandings. They also suggest that adding more applications to a syllabus is not an educational mechanism.

The broader digital-skills literature reaches a similar conclusion. Van Laar et al. distinguish technical proficiency from higher-order skills such as information management, communication, collaboration, critical thinking, and cultural awareness [19]. DigComp 2.2 includes communication, collaboration, information evaluation, safety, and problem solving among its competence areas, emphasizing responsible use rather than the mere operation of a tool [20]. In international commerce these abilities

are interdependent. Students cannot make a reliable market-entry recommendation if the source date is unknown, cannot coordinate revisions when responsibilities are implicit, and cannot claim an ethical digital practice when customer records are handled without a defensible data-governance plan.

Digital platforms also change the nature of the underlying business problem. Nambisan et al. argue that international platforms and ecosystems create new arrangements for cross-border knowledge, relationships, and value creation [21]. The course implications are concrete: students should examine platform rules and data availability alongside tariffs, partner channels, and logistics. A marketplace listing may expand visibility while making the seller dependent on privately governed information and dispute processes. Understanding those dependencies is part of the business task, not an optional technology unit.

3.3 Virtual Exchange: Evidence, Definitions, and Task Dependence

Virtual exchange provides a structured means of bringing geographically separated learners into shared curricular work. O'Dowd traces its development toward collaborative projects with substantive learning aims [22][23]; subsequent work emphasizes the role of exchange design and task demands in shaping learning [24]. In a qualitative analysis of learner portfolios, O'Dowd identifies changes in perspectives on stereotypes, communication, and confidence across different exchange formats [8]. Çiftçi and Savaş similarly document opportunities and recurrent challenges in telecollaborative learning [25]. Taken together, these studies show the importance of deliberate interaction, guided reflection, and tasks that require participants to work through differences rather than merely exchange information.

COIL is a narrower instructional form. It involves educators at different institutions jointly designing and facilitating curriculum-embedded collaboration with shared learning objectives [15]. Hackett et al. provide unusually informative quasi-experimental evidence: intercultural competence increased relative to a comparison group in the U.S. cohort, but an equivalent advantage was not observed in the Dutch cohort [7]. This contrast is analytically useful because it points to the importance of prior international exposure, institutional conditions, and task design when short exchanges are integrated into a course.

The curriculum can draw on two complementary forms of practice. A locally facilitated business simulation can develop evidence evaluation, negotiation routines, and joint drafting under controlled constraints. A co-designed exchange involving students from partner universities adds reciprocal interaction with counterparts whose perspectives and responses are less predictable. Both forms can use the same performance criteria, allowing a course to move from structured rehearsal to international collaboration while retaining a consistent competence model.

3.4 Why Blended and Project-Based Learning Require Alignment

The educational value of blended learning depends on how learning activities are connected. Hrastinski calls for clear accounts of what is blended and why [26]. Garrison and Kanuka emphasize the integration of online and face-to-face inquiry [27], while Boelens et al. identify flexibility, interaction, support for learning processes, and affective climate as recurrent design concerns [28]. Meta-analytic evidence indicates that instructional arrangements matter alongside the presence of technology [29][30]. For the present model, asynchronous research creates a documented evidence base, synchronous dialogue exposes disagreements, and in-person workshops support synthesis and feedback.

Constructive alignment offers a stronger design rule: the intended capability, learning task, and assessment must call for the same form of understanding [31]. The ICAP framework likewise differentiates passive reception from active manipulation, constructive explanation, and interactive co-construction [32]. A course that lectures about intercultural negotiation, assigns an online quiz on the RCEP, and evaluates only factual recall is misaligned with an intended outcome of negotiating a shared commercial plan. A better design asks students to resolve conflicting evidence, justify trade-offs to one another, and co-author a decision whose history can be examined.

Project-based learning adds the requirement of a consequential artifact. Reviews describe collaboration, learner agency, inquiry, and reflection as common features [33], while Guo et al. point out that artifact quality and learning process are less often assessed than learner perceptions [9]. This observation motivates the evidentiary core of the proposed module: source logs, bilingual or multilingual message records, decision tables, version histories, and revised market-entry proposals.

Together they reveal more about practical competence than a post-course satisfaction question. Feedback should also be timely and interpretable; it is most useful when it identifies the task, the gap in performance, and a feasible next step [34][35].

3.5 Generative Tools as Resources for Critical Rehearsal

Generative systems can support translation comparison, negotiation rehearsal, and iterative drafting when their outputs become objects of critical examination. Research on artificial intelligence in higher education highlights the importance of pedagogical purpose and evaluation [36], while work on large language models identifies opportunities for feedback alongside risks from error and bias [37]. In the proposed module, students document how these tools influenced their reasoning and independently verify factual claims. The educational focus remains the learner's ability to interpret evidence, judge alternatives, and communicate with counterparts.

Across these research streams, the strongest common explanation concerns disciplined interaction around a consequential task. Learners gather traceable evidence, test interpretations with others, commit to a joint recommendation, and revise that recommendation in response to critique. Table 1 synthesizes the major research streams and identifies the instructional implications that inform the proposed framework.

Table 1. Evidence Streams and Their Implications for Curriculum Design

Evidence stream	Representative evidence	Inference usable for course design
Intercultural competence and cultural intelligence	Deardorff [3]; Ang et al. [4]; Rosenblatt et al. [17]	Build interpretation, adaptive behavior, and reflection into assessed tasks; dispositions alone do not establish business performance.
Global virtual work	Jarvenpaa and Leidner [6]; Gibson and Gibbs [5]; Stahl et al. [18]	Make trust-building, coordination, clarification, and repair observable in digital traces.
Virtual exchange and COIL	Erez et al. [16]; O'Dowd [8]; Hackett et al. [7][15]	Design authentic joint work; distinguish cross-institutional COIL from simulation; effects depend on context.
Blended and project-based pedagogy	Bernard et al. [29]; Boelens et al. [28]; Guo et al. [9]	Align online inquiry, live negotiation, shared artifacts, and assessment instead of counting tools.
Digital and AI-mediated work	Van Laar et al. [19]; Nambisan et al. [21]; Vuorikari et al. [20]	Assess source quality, digital coordination, platform constraints, and responsible AI use.

4. A Framework for Digital Cross-Cultural Collaboration Competence

4.1 Construct Definition and Dimensional Structure

Digital cross-cultural collaboration competence (DCCC) refers to the situated capacity to interpret diverse institutional and interpersonal information, coordinate work through digital media, negotiate a defensible business decision, and revise that decision in response to evidence and feedback. It combines research on intercultural judgment, virtual teamwork, and digital competence at the level of professional performance. The dimensions are interdependent but distinguishable: strong regulatory research, for example, does not compensate for unmanaged disagreement, and fluent communication cannot rescue a commercially unsupported recommendation.

Five dimensions operationalize DCCC. Contextual evidence literacy concerns identifying reliable, time-appropriate sources and distinguishing enforceable requirements from commercial assumptions. Intercultural interpretation concerns active listening, perspective-taking, explicit acknowledgment of uncertainty, and avoidance of unsupported national generalizations. Distributed coordination concerns allocating responsibilities, preserving a shared decision history, and repairing breakdowns. Digital and ethical stewardship concerns provenance, platform choice, privacy, and transparent use of AI-assisted material. Reflective adaptation concerns diagnosing why an initial position changed and explaining what would transfer to another market or partner. Table 2 links each dimension to assessable evidence.

Table 2. Proposed DCCC dimensions and observable coursework indicators

Dimension	Working definition	Possible observable evidence
Contextual evidence literacy	Select and interpret market, regulatory, and logistical information in its proper jurisdictional and temporal context.	Source register; claim–evidence matrix; explicit unresolved questions.
Intercultural interpretation	Elicit and compare counterpart perspectives without reducing individuals to national stereotypes.	Clarifying questions; alternative interpretations; accurately summarized counterpart constraints.
Distributed coordination	Assign tasks, negotiate decision criteria, and repair misunderstanding in a digitally shared workflow.	Meeting minutes; responsibility log; annotated negotiation sequence; change history.
Digital and ethical stewardship	Choose tools proportionately, verify generated or translated content, and protect commercially sensitive information.	Tool-use disclosure; verification record; data handling plan; platform-risk register.
Reflective adaptation	Revise a commercial recommendation after challenge and explain the reasons for the revision.	Version comparison; reasoned decision memo; critical-incident reflection.

4.2 A Four-stage Learning Mechanism

The proposed mechanism consists of four connected stages. During evidence preparation, teams define the commercial problem, identify source quality, and separate market-specific requirements from assumptions. During negotiated coordination, participants compare divergent interpretations and document how they resolve disagreement. Joint artifact production requires the team to commit to an actionable recommendation, risk register, or fulfillment plan. Reflective recalibration tests that recommendation against new information and makes the rationale for revision explicit. Figure 1 locates these stages within a common regional task context and links them to observable evidence of performance.

Figure 1. Conceptual mechanism connecting digital mediation, intercultural inquiry, and joint business decisions



Task interdependence supplies the motive for collaboration, while the shared digital workspace preserves competing interpretations and decisions. Structured negotiation turns disagreement into a resource for problem solving; a joint artifact then makes the quality of that coordination open to examination. Reflection links the resulting business decision to principles that can be carried into another market or partner relationship. The mechanism is strongest when students must depend on one another's evidence and expertise and when assessment captures the quality of both interaction and output.

4.3 Research Propositions

Four propositions follow from the synthesis.

Proposition 1: Joint tasks requiring reciprocal dependence and a shared evidence register will produce more integrated commercial reasoning than equivalent tasks divided into independent contributions.

Proposition 2: Structured challenges to initial assumptions will increase the frequency and substantive quality of evidence-based revisions.

Proposition 3: A combined assessment of interaction traces, group artifacts, and individual defenses will reveal competence differences that are obscured by self-report measures alone.

Proposition 4: The contribution of AI-supported rehearsal to subsequent performance will depend on learners' practices of source verification, critical review, and ownership of negotiated decisions. These propositions identify mechanisms and measures for the next phase of empirical research.

5. Translating the Framework into a Yunnan–Southeast Asia Course Module

5.1 Curriculum Anchor and Contextual Evidence

The Cross-Border E-Commerce course identified in Southwest Forestry University's published e-commerce program [2] offers an appropriate curricular anchor. The module connects cross-border marketing, agricultural e-commerce, logistics, digital platforms, and business regulation through a single decision-oriented project. Its sequence draws on knowledge that students encounter in related courses and turns that knowledge into coordinated problem solving under regional commercial constraints.

RCEP provides a structured documentary foundation for distinguishing regional commitments from national implementation. Its provisions address electronic commerce, small and medium-sized enterprises, customs procedures, and related cooperation [1]. Students work from a treaty provision to the relevant destination-market source, identify the practical decision involved, and specify which information must be refreshed before a recommendation is finalized. Comparing Viet Nam, Thailand, and Lao PDR as differentiated market settings makes institutional variation part of the business reasoning rather than background information.

5.2 An Integrated Six-Week Sequence

The six-week design combines asynchronous evidence gathering, synchronous negotiation, and facilitated classroom workshops. During weeks 1-2, teams define the decision problem, allocate roles, and establish a traceable evidence base. Weeks 3-4 introduce conflicting counterpart preferences and a change in operating conditions, requiring the team to negotiate and revise its draft recommendation. Week 5 centers on a joint commercial dossier; week 6 combines a decision defense with individual reflection and peer feedback. Table 3 details the mode of instruction and assessable output at each stage. The sequence can be delivered through standard university systems and an access-controlled shared workspace.

Table 3. Six-week blended-learning module and evidence of performance

Week and focus	Learning activity and mode	Assessable output
1.Problem framing	Online briefing; in-class identification of a Yunnan-origin product, target market, role allocation, and key unknowns.	Problem statement, task charter, initial assumption list.
2.Evidence preparation	Asynchronous review of RCEP and target-market sources; workshop on source reliability and cross-border data needs.	Claim–source matrix, dated source register, preliminary risk map.
3.Negotiated coordination	Synchronous role negotiation with introduced conflicting constraints; structured clarification and minutes.	Negotiation transcript or minutes, decision criteria, disagreement log.
4.Revision under challenge	Peer critique and instructor challenge; optional AI-supported role rehearsal with verification log.	Versioned recommendation and evidence-based revision memo.
5.Joint production	Team completes localized market-entry plan, communication schedule, partner protocol, and risk response.	Co-authored commercial dossier with responsibility and provenance records.
6.Defense and reflection	In-class decision defense; individual reflective memo; peer assessment and formative review.	Final artifact, oral defense, individual contribution and reflection.

5.3 Public-source Case Packets and Role Structure

A hypothetical Yunnan specialty-tea exporter provides a focused instructional case. Students compare distribution options serving Viet Nam and Thailand, evaluate localization and fulfillment requirements, and negotiate a channel strategy. The case packet contains instructor-developed product, price, and counterpart information, while treaty provisions and current official market materials supply the documentary evidence. A second scenario involves a Yunnan agricultural-products SME weighing a Lao distributor against a platform-supported sales channel. Both scenarios place cross-cultural coordination within decisions about evidence, contracts, logistics, and platform governance.

Each case packet includes a business brief, a source register, two contrasting counterpart positions, an operational disruption, and an agreed deliverable. Team members take responsibility for market evidence, logistics, digital compliance, and counterpart communication, with roles rotating across assignments. In the tea case, the initial disagreement concerns localization investment and after-sales obligations. Midway through negotiation, the instructor introduces a distributor claim about customs treatment that cannot be accepted without source checking. Students must locate the applicable official guidance, record the uncertainty, and revise their channel decision. This design rewards disciplined inquiry and collaborative adjustment.

Authentic documents and authentic interaction perform different educational functions. A treaty chapter or official regulatory page grounds an analysis in verifiable conditions; an instructor-authored buyer message creates a decision prompt. Interaction with students at a partner university would add genuine reciprocal negotiation and permit direct observation of intercultural coordination. The different functions are reflected in Table 4, which identifies the provenance and analytical use of each case component [7, 15].

Table 4. Illustrative case components and the evidentiary status of materials

Case component	Data provenance	Permitted analytical use
RCEP electronic-commerce, SME, and trade-related chapters	Public treaty text hosted by a government ministry.	Teach document scope, regional rules, and the need for market-specific verification.
SWFU e-commerce curriculum context	Public school program profile dated March 16, 2026.	Justify course location, disciplinary alignment, and regional teaching relevance.
Hypothetical tea exporter, quotations, and buyer requests	Instructor-authored scenario; no real company identified.	Elicit negotiation, source checking, digital workflow design, and a shared decision.
Optional overseas student dialogue	Would arise only from an implemented, jointly designed exchange.	Future observation of authentic cross-cultural interaction; not evidence in this article.

5.4 Task Protocols and Technology Choices

Every team decision memo separates three elements: documented facts with current sources, assumptions necessary for planning, and choices the team makes under uncertainty. An online task board assigns responsibilities and deadlines; shared documents preserve versions and supporting evidence; and brief synchronous meetings concentrate on contested questions. Disagreements and unresolved issues remain visible in the decision record, enabling instructors to examine how the recommendation was reached as well as its final quality.

A practical negotiation protocol begins with restating the counterpart's interest, requesting clarification, identifying contested evidence, and proposing a criterion for resolution. The interaction is assessed against those behaviors rather than a stylized national negotiating script. Research on virtual teams associates trustworthy collaboration with observable communication practices and a supportive climate [5][6]. Structured written follow-up also broadens participation when students differ in language proficiency or confidence during live discussion.

Generative AI may assist with drafting alternative messages, comparing translations, and rehearsing counteroffers. Teams retain a concise tool-use log and verify legal, market, or logistical claims against accessible sources. They also document when generated suggestions were rejected and why. The protocol protects personal and commercially sensitive information

and places student judgment above automated fluency, in line with broader principles of responsible digital competence and educational technology use [20][38].

5.5 Assessment of Situated Performance

Assessment combines the quality of a group business dossier, the evidence of negotiated coordination, and each student's explanation of revisions. Table 5 presents a rubric with five weighted dimensions aligned to the DCCC framework. These weights express curricular priorities and can be refined through expert appraisal and rater calibration. A defensible recommendation must be supported by appropriate evidence and reached through transparent participation; both requirements enter the assessment rather than being inferred from the polish of the final report.

Table 5. Proposed analytic rubric for digital cross-cultural collaboration

Dimension (weight)	Performance level 1: insufficient	Performance level 4: accomplished
Contextual evidence literacy (20%)	Repeats undated claims; omits key market or channel constraints.	Cross-checks current sources; distinguishes obligations, assumptions, and justified choices.
Intercultural interpretation (25%)	Ascribes motives to nationality; ignores expressed concerns or ambiguity.	Elicits interests; weighs alternative readings; adapts communication on evidence.
Distributed coordination (25%)	Responsibilities and decisions are unclear; disagreement is left unresolved without record.	Allocates work transparently; negotiates criteria; records and repairs coordination problems.
Digital and ethical stewardship (15%)	Uses unverified AI output or handles information without provenance or safeguards.	Documents tool use, validates claims, manages versions, and applies data-protection rules.
Reflective adaptation (15%)	Provides generic reflection with no connection to decisions or revisions.	Explains specific mistaken assumptions, evidentiary changes, and transfer conditions.

The five-dimensional weights define the competence assessment structure, whereas the distribution across the group dossier, interaction records, and individual defense specifies the coursework grading arrangement. The two weighting schemes serve distinct purposes and should be reported separately.

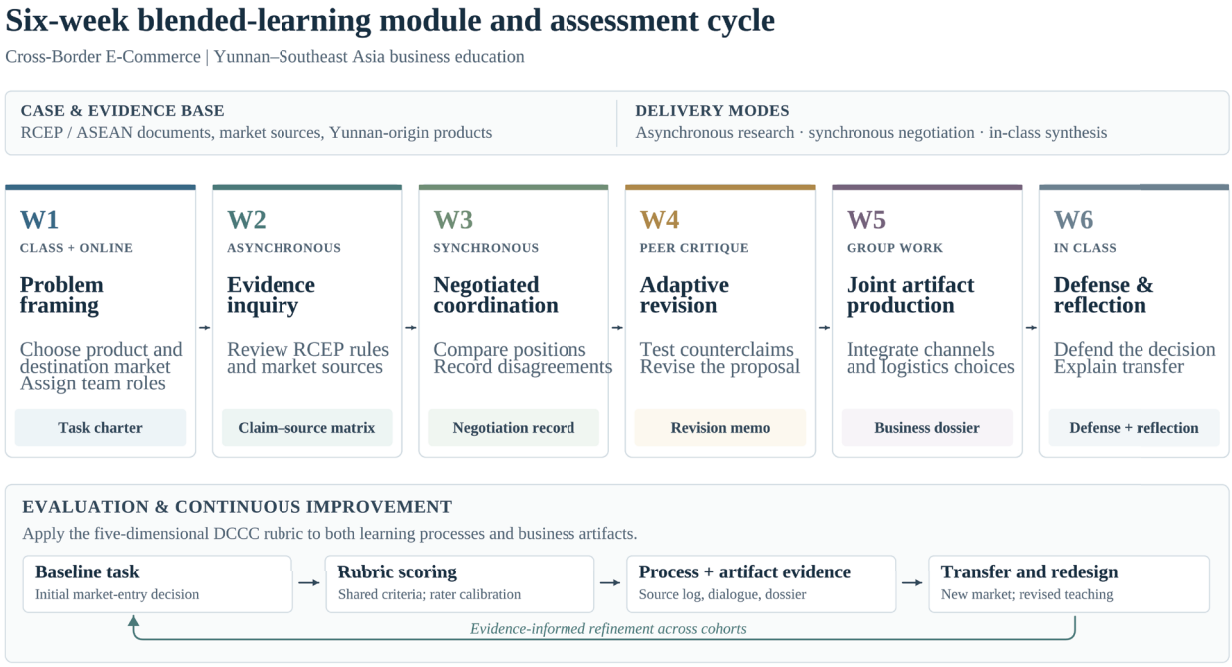
The four-level rubric can be developed by retaining the endpoint descriptors in Table 5 and defining two intermediate performance anchors. Level 2 represents partial achievement with substantial prompting; level 3 indicates mostly independent performance with a consequential omission. One practical grading arrangement assigns 50% to the group dossier, 30% to documented interaction and contribution, and 20% to individual defense and reflection. Separate individual scores recognize how team members apply evidence, handle disagreement, and explain decisions, while the shared dossier captures collective synthesis.

5.6 Evaluation Plan for a Future Implementation

A staged evaluation can test the framework's measurement quality and its contribution to learning. Students would complete an unfamiliar market-entry task before the module and a parallel task at its conclusion, with comparable evidence demands. Trained raters would score de-identified artifacts using the same calibrated rubric and examine agreement across dimensions. Process records would be coded for evidence requests, clarification, substantive disagreement, negotiation moves, and justified revisions. A delayed transfer task with a new product or destination market would reveal whether students can apply the reasoning process beyond the original scenario.

The strongest next-stage design would compare the module with a course section using conventional case discussion, accounting for baseline business knowledge, language proficiency, prior international experience, and digital access. Multilevel or repeated-measures analysis could estimate changes in the quality of evidence use, collaboration, and decision revision. Process analysis would clarify which stages account for improvements and for whom. Figure 2 organizes the implementation, assessment, feedback, and transfer stages into a research-ready evaluation cycle.

Figure 2. Proposed curriculum implementation and evidence-based evaluation cycle



6. Discussion

6.1 Theoretical Contributions

This study advances business-education theory by specifying the collaborative decision episode as a unit of intercultural learning. Existing competence models distinguish dispositions and skills; virtual-team research explains communication and coordination; and instructional-design research emphasizes active engagement and alignment. The DCCC framework integrates these insights into an observable sequence: learners establish evidence, negotiate meanings and priorities, produce a collective commercial judgment, and revise it as conditions change. Its distinctive contribution is to explain how intercultural understanding becomes accountable action under digital and institutional constraints.

A second contribution is a process account of digitally mediated learning. The four stages in Figure 1 connect task interdependence to the quality of interaction and, ultimately, to a defensible business artifact. This account clarifies why technology alone is an insufficient descriptor of an intervention. COIL adds reciprocal collaboration across institutions [15], blended learning connects modes of inquiry [26], and AI-based rehearsal provides a space for iterative preparation. Each can support the mechanism, but each acts on different conditions in the learning process. The resulting distinctions offer a clearer basis for instructional comparison and theory testing.

A third contribution is a performance-based approach to assessment that joins the collective product with the process that produced it. Market-entry dossiers show the quality of commercial reasoning; negotiation traces reveal how evidence and perspectives were integrated; and individual defenses distinguish shared learning from uneven participation. The triangulation extends concerns in project-based-learning research about the limited observation of artifact quality [9] and puts constructive alignment into practice [31]. It also provides a basis for studying whether intercultural dispositions translate into reliable professional decisions.

6.2 Regional Contextualization and Research Relevance

Regional contextualization makes the framework more demanding and more useful. Yunnan–Southeast Asia scenarios require students to compare markets with distinct documentary, logistical, platform, and commercial conditions. Rather than rely on generalized descriptions of national behavior, learners must interpret the specific counterpart's interests, the relevant institutional rules, and the evidence available at a given decision point. Research on multicultural teams supports this attention to interaction conditions and the simultaneous potential for coordination gains and losses [18]. The regional context thus supplies variation through which students can practice adaptive reasoning.

The design also provides a direct educational extension of research into the digital transformation and internationalization of Yunnan SMEs. The same problems, information asymmetry, platform dependence, cross-border coordination, and

institutional heterogeneity, organize both enterprise strategy and student assignments. This alignment makes the course a setting for developing the analytical and collaborative capacities needed to investigate and address the challenges identified in the wider Belt and Road research agenda.

6.3 Conditions for Implementation

Implementation depends on the quality of task preparation and teaching support more than on specialized software. Instructors need a curated, periodically updated evidence set and the ability to connect platform tools with pedagogy and commercial content, consistent with technological pedagogical content knowledge [39]. Flexible participation routes accommodate differences in connectivity, language proficiency, and confidence. Educational technology contributes most when it expands meaningful access to inquiry and feedback [38]. A reusable case library and shared scoring exemplars would reduce the costs of adoption across courses.

Three design choices are especially consequential. Rotating roles and individual defenses counter the concentration of work in the most fluent participant. Counterpart briefs anchored in commercial interests help students distinguish evidence-based interpretation from national stereotypes. Sequenced task packets prevent regulatory and logistical complexity from overwhelming learners before they have a working analytic framework. Together, these choices protect the central mechanism: participants must contribute expertise, negotiate a shared decision, and explain how that decision changes.

6.4 Future Research Agenda

The next research stage is to establish the construct validity and reliability of the DCCC assessment. A multidisciplinary panel of business educators, intercultural-learning specialists, and practitioners working with Southeast Asian markets can examine the authenticity and coverage of task scenarios. Cognitive interviews with students can then clarify how rubric descriptors are interpreted. Pilot scoring of anonymized artifacts and negotiation traces should establish inter-rater reliability and identify dimensions that require sharper behavioral anchors. These steps will determine whether DCCC can be assessed consistently at the level of action rather than inferred from general attitudes.

A second stage should test the learning mechanism and its transfer. A multi-cohort comparison, preferably including a conventional case-based course and a COIL implementation, could estimate whether structured evidence sharing and negotiated revision improve the quality of group decisions. Repeated assessments would distinguish immediate gains from retention; a delayed task involving a new product, partner, or market would test transfer. Interaction-sequence analysis could identify when a clarification request or a challenge to evidence changes the direction of a team's recommendation. The strongest tests will examine moderators such as prior international exposure, language proficiency, task interdependence, and access to digital tools. A later partnership with Yunnan SMEs and Southeast Asian educators could assess the authenticity and workplace relevance of student decisions, linking curriculum evaluation with enterprise-facing capability development.

7. Conclusion

Digital cross-cultural collaboration in business education is a capacity for evidence-based joint judgment under institutional and technological constraints. By integrating intercultural-competence theory, virtual-team research, and aligned assessment, this study develops a five-dimensional DCCC framework and a four-stage process model. The Yunnan–Southeast Asia teaching design shows how these principles can be enacted through a six-week Cross-Border E-Commerce module, traceable commercial artifacts, and structured negotiation. The framework supplies a precise account of what students should learn, how coursework can make that learning visible, and which propositions can now be tested across cohorts and partner institutions.

Funding

This research was supported by the Humanities and Social Sciences Foundation of Southwest Forestry University (Grant No. WKQN26021).

Conflict of Interests

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

Reference

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