

Telling the Jingchu Story Well in Japanese: A Culture–Language–Technology Integration Pathway and Learner Development in a Smart Course

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Abstract: This study addresses how local culture can be effectively embedded in smart foreign language courses. Drawing on one semester of teaching practice in a University Japanese course at a local university, it constructs and validates a culture–language–technology integration pathway—“cultural input–language internalization–dissemination output”—underpinned throughout by human–AI collaboration. Adopting an exploratory mixed-methods design, the study triangulates two rounds of questionnaires ($n = 91$), platform behavioral logs, and students’ multilingual short-video productions. The results show that the pathway significantly enhanced learners’ engagement and their acceptance of AI tools (84.6% of learners shifted to a more positive attitude toward AI) and effectively strengthened their understanding of local culture and their intercultural communicative competence (ICC) (a 42.9% self-reported improvement). Three transferable design principles are distilled—authentic-audience-driven tasks, AI as a cultural mediator, and human–AI collaborative assessment—offering a reference for the smart transformation of college foreign language education.

Keywords: Jingchu culture; Smart course; University Japanese; Culture–language–technology integration; Teaching pathway; Intercultural communication

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1. Introduction

Foreign language teaching at local universities has long faced dual pressures. On the one hand, the popularization of higher education and shifting student demographics have left many learners with uneven language foundations and predominantly instrumental motivation, and “studying for credits” is common. On the other hand, in an era that calls for “telling China’s story well” and promoting Chinese culture to the

world, local institutions are also expected to cultivate applied talent equipped with both language proficiency and intercultural communicative competence (ICC). Jingchu culture, for instance, is historically rich and symbolically dense, yet it is often marginalized in classrooms dominated by widely taught languages and standardized textbooks and has seldom been transformed into learning resources that students can understand, express, and disseminate. Against the backdrop of the national strategy for the digitalization of education, how to reconfigure foreign language teaching through smart courses and AI technologies has become a key issue in curriculum reform at local universities.

How to embed local culture effectively into foreign language courses—given limited contact hours and weak foundations—so that it serves both language learning and cultural dissemination is a pressing practical question. The rise of smart courses and generative AI (GenAI) offers new affordances for addressing this dilemma, but it also raises new challenges of integration and evaluation. This project addresses the dilemma by investigating how local culture can be integrated into smart foreign language courses. This is not merely a matter of improving a single course; it also concerns how local institutions can leverage digital tools to turn regional cultural resources into sustainable educational resources.

Prior research provides three foundations. First, GenAI supplies immediate feedback and has been conceptualized as a “distributed agent” in language learning ^[1], with demonstrated benefits for speaking ^[2,3], writing ^[4], and vocabulary learning ^[5]. Second, project-based language learning (PBLL) can enhance learners’ motivation and academic performance ^[6], and digital storytelling has also been shown to benefit language learning ^[7]. Third, integrating local culture into the classroom can strengthen learners’ cultural identity ^[8]. Nevertheless, two imbalances persist. First, GenAI research remains concentrated in English-language contexts, while studies of non-English languages such as Japanese are still sporadic ^[9,10]. Second, local-culture instruction largely remains at the “content-localization” input stage ^[11]; few studies offer actionable integration pathways or track their effects.

To address this gap, this study uses a University Japanese course as the context in which to integrate Jingchu culture, project-based learning, and GenAI into an actionable culture–language–technology pathway, and it examines the pathway’s effects over one semester. The study is significant in two respects. Practically, it provides an actionable integration pathway grounded in a complete course practice and evaluates its effects across learning engagement, technology acceptance, cultural understanding, and ICC, offering a reference for comparable courses at local universities. Theoretically, it contributes empirical evidence on GenAI in a non-English-language context and attempts to integrate the technological, linguistic, and cultural dimensions within a single analytical framework.

Accordingly, the study addresses three research questions:

RQ1: How can a culture–language–technology integration pathway be constructed in a smart course?

RQ2: What are the effects of this pathway on learners’ engagement, technology acceptance, and understanding of local culture?

RQ3: How does learners’ ICC develop through this pathway?

2. Literature review and theoretical framework

Smart technologies and second language learning. Smart technologies—such as intelligent tutoring, learning analytics, and generative AI—are reshaping the ways and ecology of second language learning. Over the past five years, research has repeatedly confirmed the role of AI in writing feedback, speaking, and vocabulary

learning. In writing, ChatGPT feedback has been shown to improve L2 writing accuracy and feedback engagement ^[4,12] and to support learners in negotiating meaning through cross-linguistic resources ^[13]. In speaking, AI tools can reduce speaking anxiety and enhance willingness to communicate and motivation ^[2,3]. In vocabulary, ChatGPT-based classroom interventions have significantly improved the acquisition and retention of productive vocabulary knowledge ^[5]. Most of these studies, however, focus on skill acquisition in a single language and do not fully address the cultural dimension of learning. Beyond error correction, AI feedback can also foster learners' understanding of sociocultural norms and pragmatic conventions ^[14]. Research on non-English languages remains sporadic: studies with Japanese as the target language show that chatbots can improve vocational students' basic Japanese competence ^[9], and GenAI-supported Japanese instruction oriented toward intercultural communication has been found to enhance learning motivation and proficiency ^[10]; in Japanese EFL settings, ChatGPT feedback has mainly been shown to improve grammatical accuracy and writing fluency ^[15]. Learners' acceptance of multimodal AI agents is generally positive ^[16]. Overall, existing research remains concentrated in English-language contexts, privileges a single skill dimension, and rarely integrates technological, linguistic, and cultural goals within a single course pathway.

PBLL, digital storytelling, and local culture. PBLL drives learning through authentic tasks and emphasizes integrating language use while solving real-world problems; it has been shown to enhance motivation and academic performance and is particularly effective in resource-constrained settings ^[6]. Relying on multimodal expression, digital storytelling has positive effects on learners' multimodal output, complexity–accuracy–fluency (CALF), and multidimensional engagement ^[7,17], and is regarded as an effective means of promoting intercultural understanding ^[18]. With respect to culture, integrating local culture is widely believed to strengthen learners' cultural identity and cultural connection ^[8]; however, existing practice largely remains at the input stage of locally produced textbooks and “content localization” ^[11] and seldom extends to learners' dissemination-oriented output for authentic audiences. Meanwhile, scholars increasingly emphasize the convergence of multimodal and intercultural competence ^[19] and have found that online collaboration with authentic audiences can enhance learners' ICC ^[20]. These strands provide the rationale for integrating local culture, language, and technology within a single pathway.

Theoretical framework. This study adopts sociocultural theory ^[21] and activity theory ^[22] as its overarching framework. Both emphasize that learning occurs through social interaction and tool mediation and that learners' development depends on mastering and internalizing mediational tools. Accordingly, the study treats “AI-mediated project-based local-culture learning” as an activity system comprising the subject (learners), tools (GenAI, knowledge graphs, and the smart platform), community (groups and the course community), rules (teacher-led review of cultural authenticity and academic norms), division of labor (human–AI collaboration and peer cooperation), and object (disseminating local culture in Japanese). The tensions between tools and object, and between rules and motivation, are precisely what drive expansive learning. At the motivational level, self-determination theory ^[23] informs task design: tasks that have an authentic audience, allow autonomous choice, and involve peer collaboration better satisfy learners' needs for autonomy, competence, and relatedness, thereby fostering intrinsic motivation. In defining outcomes and variables, the study draws on the ICC framework ^[24] to characterize cultural knowledge, attitudes, and skills; on the technology acceptance model and its extensions ^[25–27] to specify dimensions of technology acceptance; and on self-regulated learning theory ^[28,29] to explain learners' planning, monitoring, and reflection during the project. Research on technology acceptance further indicates that AI acceptance is shaped by multiple factors,

including perceived usefulness and social influence^[30], suggesting that pathway design should optimize both task value and technological experience rather than pursue tool efficiency alone. Within this integrated framework, culture, language, and technology are not parallel strands but mutually nested and synergistic within authentic tasks.

In sum, prior research provides a solid foundation but leaves three gaps: first, technological, linguistic, and cultural goals are typically discussed in separate strands, with few integrated course pathways; second, GenAI research is dominated by English-language contexts, with limited evidence for non-English languages such as Japanese; and third, local-culture instruction mostly stops at content input and rarely extends to dissemination-oriented output for authentic audiences. The present study is designed to address these three gaps.

3. Research design and teaching pathway

This study adopts an exploratory mixed-methods design to address both “how to construct” (RQ1) and “what effects” (RQ2–RQ3) questions. A mixed-methods approach was chosen because the pathway had to be adjusted iteratively in a real classroom, and a single data source could not capture both process and outcome. As the context involves whole-class instruction in a single course, with the pre- and post-course questionnaires comparing groups of equivalent classes (not individually matched) and no control group, the study does not aim for strict causal inference; instead, it foregrounds learners’ perceptions, supplemented by objective platform data and student work, and it uses triangulation across multiple data sources to strengthen the credibility of the findings.

The study is situated in a University Japanese course offered in the 2025–2026 academic year at a local university. All participants were non-foreign-language majors who entered university through the Japanese track of the college entrance examination, and their language foundations were relatively weak. The two questionnaires each yielded 91 valid responses. The course ran for a full semester on a school-based smart teaching platform, and students completed learning and project tasks in groups.

Constructing the teaching pathway (response to RQ1). To address the starting point of weak language foundations and insufficient dissemination motivation, and building on the existing “dual-axis, three-stage” model (the two axes of language ability and cultural affect; the three stages of input, internalization, and output), the course constructed a culture–language–technology integration pathway—the three-stage pathway “cultural input–language internalization–dissemination output”—underpinned throughout by human–AI collaboration (see **Table 1**). In the cultural-input stage, students sorted and mapped Jingchu cultural resources, producing four maps (knowledge, culture, problem, and ability) linked to supporting resources and test items, and embedding relevant cultural vocabulary and background knowledge to establish a cultural and semantic foundation for later language use. In the language-internalization stage, learning unfolded in cultural contexts: the teacher organized the class through AI-guided instruction and task-driven activities, AI teaching assistants provided immediate feedback, and the smart classroom supported interaction and presentation, helping students convert cultural knowledge into grammar, sentence patterns, and task output. In the dissemination-output stage, students worked in groups on the project “telling the Jingchu story well in Japanese,” drafting multilingual short-video scripts and recording voice-overs with the support of a task engine and AIGC, before publishing their works through the course practice account. The three stages build on one another: cultural input supplies content and semantic support, language internalization transforms knowledge into ability, and dissemination output moves learning outcomes into an authentic public arena.

Table 1. The three-stage culture–language–technology integration pathway

Stage	Core task	Cultural dimension	Linguistic dimension	Technological dimension
(1) Cultural input	Sorting and mapping Jingchu cultural resources	Knowledge/culture/problem/ability maps	Cultural vocabulary and background knowledge	Knowledge graph and resource repository
(2) Language internalization	Input–internalization; AI-guided and task-driven instruction	Language use in cultural contexts	Grammar, sentence patterns, task output	AI-guided instruction, AI teaching assistant, smart classroom
(3) Dissemination output	Production and publication of the “Telling the Jingchu Story Well in Japanese” project	Cultural transcreation and value expression	Multilingual short-video scripts and voice-overs	Task engine, AIGC support, work publication

The key design feature of this pathway is that it turns Jingchu culture from “content to be taught” into “an object for students to disseminate.” The teacher retains authority over cultural authenticity, positioning the approach as human–AI collaboration rather than human–AI replacement.

Three types of data were collected. The first was a pre-course questionnaire measuring learners’ understanding of Jingchu culture, learning motivation, acceptance of project-based teaching, and AI use. The second was an end-of-course questionnaire measuring learners’ self-assessed learning gains, platform experience, and satisfaction. The third comprised platform behavioral records (e.g., posting, visits, task completion, and use of the AI teaching assistant) and students’ project work. In the analysis, questionnaire data are reported as descriptive statistics (multiple-choice items by proportion selected) and platform data by frequency and proportion, while student works serve as objective corroboration through public dissemination and awards; the three data sources are triangulated and cross-checked. To ensure trustworthiness, three strategies were adopted: cross-validation across multiple data sources to reduce the bias of single-source self-reports; retention of original platform records to ensure traceability; and descriptive reporting of questionnaire results to avoid over-interpretation. The study followed research ethics: informed consent was obtained from all learners, and the data were anonymized and used solely for teaching improvement and research.

4. Results

4.1. Baseline

The initial survey depicted the starting point of the reform. With respect to cultural cognition, 81.7% of students reported having only “heard a little” about Jingchu culture, indicating a clear knowledge gap. In terms of motivation, 46.2% aimed mainly to earn credits, indicating the predominance of instrumental motivation. As for dissemination willingness and ability, only 25.3% expressed a strong willingness to disseminate, and 47.3% rated themselves as able to produce only scattered words, indicating limited confidence and ability to disseminate culture in a foreign language. Students were generally open but cautious toward new technologies and teaching methods: 88.5% had used AI, and 49.5% accepted project-based teaching, yet 60.4% still preferred teacher-led instruction. This baseline indicates that the pathway needed both to lower learning barriers through technology and to stimulate dissemination motivation through authentic tasks.

4.2. Pathway operation and engagement (RQ1–RQ2)

The first two stages were implemented smoothly. In the cultural-input stage, four types of maps were

constructed and linked to resources and test items, with a 100% knowledge-point construction rate, providing structured culture–language resources for subsequent learning. In the language-internalization stage, the class was organized through AI-guided instruction and task-driven activities, with high student participation. Learners’ experience was positive: overall satisfaction reached 8.01 (on a 10-point scale), acceptance of project-based teaching 7.68, AI practical functions 7.79, and personalized pathways 7.82. Platform data provided objective corroboration: over the semester, students made 3,682 posts, recorded more than 22,000 learning visits, completed 197 AI practice tasks, and received 364 AI teaching-assistant services, indicating high engagement. With regard to sources of guidance, learners displayed a “human–AI balance”: AI operation guidance (68.1%), Japanese expression guidance (65.9%), and AI grading feedback (50.6%) ranked highest. This pattern suggests that AI did not replace the teacher but took on supporting roles—such as immediate feedback and repetitive tutoring—that complemented the teacher’s professional guidance.

4.3. Pathway effects: Technology acceptance, cultural understanding, and ICC (RQ2–RQ3)

End-of-course self-assessments showed marked improvement across dimensions: the means for subject interest and attitude, frequency of AI use, and cultural understanding were 7.88, 7.88, and 7.79, respectively; acceptance of project-based teaching was 7.68; and willingness and ability to disseminate culture in Japanese was 7.65. The smallest gain was in AI proficiency (5.79), suggesting that “knowing how to use AI” still requires dedicated scaffolding. A key finding was that 84.6% of learners shifted to a more positive attitude toward AI by the end of the course, reflecting the role of authentic use in shaping technology acceptance—attitudinal change often stems not from the tool itself but from experiences of using it effectively in authentic tasks. Platform data moved in the same direction: the knowledge-mastery rate rose from 58% to 84%, the average homework score rose from 75 to 88, the pass rate was 96.7–97.8%, and platform satisfaction reached 93%. In terms of the magnitude of self-reported improvement, the order was AI tool use (68.1%), Japanese expression and writing (63.7%), information retrieval and integration (46.2%), and intercultural dissemination and foreign-language presentation (42.9%). This ordering indicates that technological skills improved most rapidly, whereas ICC improved more slowly and requires longer-term cultivation.

4.4. Operation and outcomes of the third stage, “dissemination output” (RQ1–RQ3)

In the dissemination-output stage, students worked in groups on the project “disseminating Jingchu culture in Japanese,” producing multilingual short-video works. After teacher selection, the works were publicly released through the course practice account and won awards in inter-university competitions, the Challenge Cup, and other events. This stage moved learning from “language internalization” to “authentic dissemination”: the presence of an authentic audience gave the works a public character—they “had to be shown to real people”—turning the task from “completing an assignment” into “expressing to real readers,” which markedly increased perceived task value and engagement. The public dissemination and awards also provide objective evidence of the pathway’s effects beyond the classroom, indicating that the competencies cultivated had partly extended into authentic social contexts of dissemination. See **Table 2**.

Table 2. Correspondence between the pathway and key evidence of its effects

Stage	Main focus	Key evidence
(1) Cultural input	Cultural understanding	Cultural-understanding self-rating 7.79; at baseline, 81.7% had only “heard a little,” with marked improvement by the end
(2) Language internalization	Engagement and technology acceptance	Satisfaction 8.01; 84.6% shifted to positive AI attitudes; mastery rate 58%→84%; homework average 75→88
(3) Dissemination output	Intercultural communication competence	Willingness-and-ability self-rating 7.65; 42.9% improvement rate in intercultural communication competence; works awarded and publicly disseminated

5. Discussion

This study shows that the three-stage culture–language–technology integration pathway can simultaneously promote engagement, technology acceptance, cultural understanding, and ICC in a classroom characterized by weak language foundations and limited dissemination motivation. The study makes three contributions. First, it offers an actionable pathway framework for integrating local culture into foreign language teaching (responding to the project’s aim of “pathway construction”), supported by empirical data. Second, it adds evidence on the “cultural value dimension” that is scarce in GenAI research, in a non-English-language context. Third, it repositions AI from an “efficiency tool” to a “cultural mediator,” echoing the view of AI as a mediational tool in language and culture learning ^[1,14].

Theoretically, the study integrates activity theory, self-determination theory, and the ICC framework within a single design logic, showing that culture, language, and technology are not three parallel strands but are mutually nested within authentic tasks: technology provides the mediational tool, culture provides task content and value, and language provides the means of expression. This helps explain why an authentic audience can simultaneously drive motivation, engagement, and ICC—it both raises perceived task value (a source of autonomy, competence, and relatedness) and provides authentic contexts for using language and cultural knowledge. This integrated perspective may offer an analytical starting point for future pathway-design research.

The findings resonate with previous research. First, AI acceptance is shaped by multiple factors ^[30]; in this study, acceptance increased with authentic use (84.6% shifted to a positive attitude), suggesting that acceptance depends not only on technological features but also on task value—when technology is embedded in an authentic task that “has to be shown to real people,” learners’ willingness to use it increases markedly. Second, the positive effects of PBL and digital storytelling on motivation and engagement ^[6,7] were replicated in the “dissemination output” stage and extended to self-reported gains in ICC. Third, improvements in cultural identity and intercultural competence ^[8,19] suggest that transforming local culture from “learning content” into “an object of dissemination” may be the key mechanism linking language, culture, and technology.

From the perspective of activity theory ^[9], two tensions emerged in the operation of the pathway: one between AI dependence and the development of language ability (the smallest gain was in AI proficiency, yet calls for improvement were the loudest), and the other between the cultural authenticity of AI content and value guidance. Both require the teacher to retain authority over the review and interpretation of cultural content. Accordingly, three transferable design principles are proposed: DP1, authentic-audience-driven task design; DP2, AI as a cultural mediator rather than an answer generator; and DP3, human–AI collaborative,

multi-source assessment with bidirectional alignment of cultural and linguistic goals.

In practical terms, the study offers three references for the smart transformation of foreign language courses at local universities: first, authentic dissemination tasks should be introduced into the classroom to activate motivation through authentic audiences; second, AI should be positioned as a mediational tool for cultural learning while preserving the teacher's leading role over cultural content, so as to ensure the authenticity and appropriateness of cultural expression; and third, human–AI collaborative, multi-source assessment should be used to achieve the bidirectional attainment of both linguistic and cultural goals. It should be noted that the pathway's effectiveness derives not from technology per se but from the appropriate alignment of technology, tasks, and culture.

6. Conclusion and limitations

Building on the “dual-axis, three-stage” teaching model, this study constructed and tested a three-stage culture–language–technology integration pathway—“cultural input–language internalization–dissemination output.” The findings indicate that the pathway effectively enhanced learners' engagement, AI acceptance, understanding of local culture, and ICC in a Japanese classroom at a local university with weak foundations and limited dissemination motivation, extending “classroom output” into “social dissemination” and meeting the project's goals of reconstructing the course content system, developing teaching norms and resources, and innovating teaching and assessment models. The pathway also offers a transferable reference for foreign language teaching reform in other languages and regions. Overall, when technology, tasks, and culture interact productively, foreign language courses may simultaneously achieve the dual goals of language development and education for cultural dissemination within limited contact hours.

This study has several limitations. First, it involves a single course at a single institution, with pre- and post-course questionnaires comparing groups of equivalent classes (not individually matched) and no control group, which precludes strict causal inference. Second, learning outcomes were measured mainly through self-reports and did not employ established scales. Third, qualitative evidence is limited, as interviews and classroom observations were not systematically collected. Fourth, generalization to other languages and regions should be made with caution. Future research could adopt matched pre–post or quasi-experimental designs, employ established scales, and add delayed post-tests and qualitative interviews to further examine the mediating mechanism of “AI–engagement–ICC” and the long-term retention of the pathway, as well as to test its transferability across multilingual and multi-institutional contexts.

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