

Digital Intelligence-Driven Blended Teaching Practice for College Japanese: A Case Study of the Course *College Japanese III*

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Abstract: *College Japanese III* has long faced obvious teaching troubles: class time is limited, the course covers a large amount of new knowledge, and teachers spend too much time explaining basic vocabulary and grammar, leaving little room for students to practice using Japanese in real contexts. To fix this problem, this paper takes 39 sophomores who learned Japanese in high school as research subjects. The school cooperated with an enterprise to make 6 teaching videos plus one review video for the whole semester, with a total length of 187 minutes. Combining outcome-based education (OBE) and cognitive load theory, I built a three-step mixed teaching mode: students learn basic knowledge online first, then consolidate language skills in offline class, and finally do targeted review guided by learning data. All learning materials are uploaded to the self-developed Aihaoke online learning platform, matching the progress of daily classes. Before each lesson, students watch teaching videos with AI virtual teachers to learn words and grammar by themselves. In class, teachers focus on training students to analyze passages and communicate in Japanese scenes. After class, students use platform learning data to make up for their weak points. At the end of the semester, all students filled out an anonymous satisfaction questionnaire. The results show 89.74% of students feel satisfied or very satisfied with this teaching mode. Statistics from the platform show students finished 99% of all online learning tasks on average throughout the semester. This mode also cuts down teachers' repeated work on basic knowledge explanation. The one-semester practice proves that this teaching method can better motivate students to study independently and improve their ability to use Japanese, and it offers preliminary practical experience for adjusting intermediate Japanese teaching under digital education.

Keywords: *College Japanese III*; Japanese teaching; Blended teaching; AI digital human teaching videos; OBE; Cognitive load theory

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1. Background

AI technology is changing college foreign language teaching in all aspects, including teaching ideas, classroom arrangements, the roles of teachers and students, and assessment rules. In recent years, generative

AI and virtual digital human technology have become mature, bringing new learning materials and interactive ways to Japanese classes, making personalized and self-directed learning possible. Right now, a key problem in Japanese teaching reform is how to use digital tools to truly improve classroom learning instead of just putting on a show.

College Japanese III is a transitional course between basic and advanced Japanese study. It contains many new words, core grammar rules and difficult texts. Teachers need to help students build solid language foundations, practice reading, cultivate cross-cultural awareness and improve comprehensive expression skills at the same time. But in traditional classes, teachers spend most of the time explaining basic words and grammar. There is not enough time left for students to practice dialogue and discuss text content. Students rarely take part in classroom activities, and the overall teaching effect fails to meet expectations.

To solve this problem, our school worked with an enterprise to make teaching videos with AI digital humans. These materials are uploaded to the school-enterprise joint Aihaoke platform step by step according to the teaching schedule. We formed a complete mixed teaching cycle: online knowledge learning, offline skill training, and targeted review based on learning data, hoping to provide practical references for similar course reform.

2. Teaching design ideas and model construction: Combining OBE and Cognitive Load Theory

2.1 Theoretical basis: Combining OBE and Cognitive Load Theory

OBE (Outcome-Based Education) sets the language skills students need to master after finishing the course as the starting point and final goal of teaching design, and takes “practical Japanese ability” as the core learning target. Teachers design lessons in reverse order according to expected learning results and carry out teaching step by step, shifting the focus from teachers and textbook content to what students can actually do with the language. The course divides three core abilities: reading comprehension, language expression and cross-cultural communication into clear classroom tasks and measurable learning results, which gives clear direction to the whole mixed teaching process.

Australian education psychologist John Sweller put forward Cognitive Load Theory in the late 1980s based on problem-solving research. Its core view is that people’s short-term memory can only hold a limited amount of information ^[1]. Memorizing and distinguishing words and grammar are mechanical, repetitive tasks that bring heavy irrelevant cognitive load. In traditional classrooms, students receive information from teachers’ speeches, blackboard notes and PPT at the same time, which further increases their cognitive burden. Sweller divided cognitive load into three categories: intrinsic cognitive load (decided by how hard the learning task itself is), extraneous cognitive load (caused by the way information is presented), and germane cognitive load (mental work that helps students form knowledge frameworks) ^[2].

In this study, we move mechanical basic knowledge to pre-class self-study. The Aihaoke platform releases AI digital human teaching videos matching each lesson so that students can learn on their own. They can pause and replay videos as needed. This reduces the extra cognitive pressure students face during in-person classes, freeing up their short-term memory to focus on deeper thinking tasks such as text analysis and cross-cultural comparison. This design follows the rule that optimizing the way information is shown can cut extraneous cognitive load and raise learning efficiency, and it is the core idea of our teaching model.

2.2 The “Online Input – Offline Internalization – Data Feedback” teaching model

- (1) Pre-class Learning: Teachers upload teaching videos to the Aihaoke platform in batches according to the teaching schedule, fully matching daily class progress. The videos insert small quiz questions at key knowledge points, so students can watch, pause and answer questions on their own to adjust their learning pace and cognitive pressure. Before each class, students log into the platform to finish watching videos and 10 to 15 objective preview exercises. The platform automatically records their learning time and answer results, and generates class-wide learning reports. Teachers use these reports to find knowledge points most students struggle with, so students can finish learning basic words and grammar before class.
- (2) In-class Session: Teachers and Students Jointly Improve Practical Language Skills. Class time is used to turn knowledge into usable language ability, divided into three progressive links. First, teachers download pre-class learning reports from Aihaoke and spend the first 10 minutes explaining questions with error rates over 40%. Second, teachers use mind maps, Chinese-Japanese expression comparison and grammar-pragmatic analysis to help students understand texts deeply. Third, students practice language output by summarizing texts, discussing topics in groups, acting out role-plays and making impromptu situational dialogues. The classroom tasks are designed as collaborative and challenging scene simulations, meeting OBE’s requirements of training students’ high-level thinking and comprehensive abilities ^[3].
- (3) Post-class Targeted Review Guided by Data: The Aihaoke platform automatically collects students’ wrong answers and sorts them into word, grammar and reading error files. After each video, teachers assign homework that students can revise and resubmit up to three times. Students use their personal error files to make up weak knowledge points. Teachers analyze the whole class’s error data to find common learning problems, then adjust online materials and classroom activity design for the next lesson, forming a closed-loop targeted review system. This mixed teaching mode combines standardized online resources with one-on-one offline guidance. It takes the strengths of both traditional classroom and digital learning, raising students’ participation and learning effects ^[4].

3. Teaching implementation paths: Using digital human videos and restructuring classroom arrangements

3.1. Resource production: Joint development by school and enterprise

AI digital human teaching videos are the core materials to carry out mixed teaching. All videos are stored and shared on the Aihaoke platform, a learning system built by our school and cooperative enterprise, which can fully track and manage students’ learning data. We set clear work divisions and multi-round quality checks for video production. After passing all reviews, videos are uploaded to the platform in batches following the teaching plan to match class progress.

Every video follows six fixed production steps: sorting out knowledge points → writing teaching scripts → making supporting PPTs → internal review by other Japanese teachers → technical synthesis by enterprise staff → final check by the course teacher. After final approval, we set clear release schedules for each video to ensure materials are ready before related lessons. When checking video quality, we put content quality above technical effects, examining five aspects: grammar accuracy, appropriate example sentences, clear pronunciation, reasonable difficulty levels and intuitive visual layout. Only videos passing all five checks are uploaded to Aihaoke, to guarantee the reliability of online teaching materials.

3.2. Classroom restructuring: Shift focus from knowledge explanation to ability training

With pre-class self-study materials on Aihaoke, the classroom's core function changes completely: from a place for teachers to explain knowledge to a training ground for advanced language skills, shown in three main ways.

First, classroom teaching starts with clear targeted problems. Traditional classes need to cover all basic content from scratch to fit students with different foundations. In this mixed mode, students finish unit videos and preview exercises ahead of time. Teachers use platform learning reports to find common weak points for the whole class and explain these problems at the start of class, making classroom teaching more targeted.

Second, teaching focuses on task-based ability training. AI digital human videos take over all explanations of basic words and grammar, freeing up plenty of class time. Teachers design layered tasks of different cognitive difficulty: comprehension tasks (sorting information charts, judging true/false text statements), analysis tasks (comparing Chinese and Japanese expression logic, analyzing grammar usage in real contexts), and creation/output tasks (role-play, class presentations, impromptu dialogues). These tasks form a complete training system for improving comprehensive Japanese ability step by step.

Third, classroom interaction changes from one-way teacher-student questioning to multi-directional communication. Traditional classes mostly follow the mode of “teacher asks, student answers”, covering few students. The new classroom design adds group discussions, peer evaluation and scene simulation for horizontal interaction among students. Teachers walk around the classroom to give instant guidance, effectively lowering students' fear of speaking Japanese and raising overall classroom participation. This change follows the core direction of modern foreign language teaching reform: shifting focus from knowledge transmission to ability development. Building real communication scenes and tasks can better push students to improve their practical language skills ^[5].

3.3. Assessment reform: Full-process evaluation supported by platform data

We use unit learning materials on Aihaoke to rebuild the course assessment system, forming a three-dimensional evaluation system including online data scoring, offline classroom performance scoring and adjusted final exam assessment.

3.3.1. Online objective evaluation

The Aihaoke platform automatically records and quantifies all students' online learning behaviors and results, including video watching duration and completion rate, chapter quiz scores and accuracy of knowledge points, homework submission and correction records, error distribution and forum discussion participation. The system generates personalized learning profiles for each student, showing learning participation, weak knowledge areas and phased progress through visual charts. Students can use these profiles to adjust their review plans and learning methods; teachers get objective data to carry out differentiated teaching and one-on-one tutoring for students.

3.3.2. Offline classroom performance evaluation

Offline evaluation mainly relies on teachers' continuous on-site observation. During daily classes, teachers record students' oral fluency, pronunciation accuracy, adaptability in communication scenes, teamwork ability and contribution to group tasks, giving instant feedback and regular comprehensive scores. Face-to-face offline evaluation records soft abilities that the Aihaoke platform cannot capture, such as oral expression

and classroom participation, making assessment results more complete and objective. Diversified evaluation systems that attach importance to full-process formative assessment can fully reflect students' learning effects and provide continuous feedback for teaching adjustment ^[6].

3.3.3. Optimized final exam assessment

The structure of final exam papers is adjusted to match OBE requirements. We cut down the proportion of memory-based objective questions and raise the weight of practical and expressive question types. The percentage of traditional multiple-choice grammar questions that only test memorization drops from 35% to 25%. The exam uses translation, reading comprehension and a short Japanese essay (200–250 characters) to test students' comprehensive ability to use the language.

4. Teaching effect and data analysis

This teaching practice lasted one semester during the 2025–2026 academic year (February to June 2026), with 39 second-year students who studied Japanese in high school as research objects. We collected and analyzed data through platform statistics, questionnaires, oral tests and teacher teaching logs. This study did not set a parallel control class, so the results only reflect the learning trend of this single class, and the conclusions can only serve as exploratory references for related teaching reform.

4.1. Obvious changes in students' online learning behaviors

Objective data from the Aihaoke platform shows students kept steady self-directed online learning and finished matching videos following the class schedule. Among the 39 students, 31% are highly or relatively active online learners, and 61% have moderate learning activity. Overall, students' online learning enthusiasm presents a layered distribution, with most maintaining medium participation levels. The average completion rate of all online learning tasks on Aihaoke reached 99% in the whole semester, meaning most students could keep up with the teaching rhythm and finish pre-class preview tasks.

Students mostly logged into the platform in evening free time and on weekends. AI digital human videos support pause and replay functions, fitting fragmented spare time learning. Matching each unit's content, the teacher assigned 12 batches of homework with over 200 practice questions in total on the platform. The platform's error collection and multiple revision functions help students target weak knowledge points, and repeated revision greatly promotes self-correction and deep learning. Students used the platform's built-in AI learning tools frequently: 37 times for intelligent video and document summary, 96 times for supplementary knowledge explanations, with total AI tool usage reaching 697 times. These data show students accepted the platform's teaching materials and intelligent tools well, and they could keep stable self-study with the help of digital tools following class progress.

4.2. Improvement of students' practical Japanese ability

At the end of the semester, we handed out anonymous Likert satisfaction questionnaires to all 39 students and received 39 valid feedback forms. The results show 89.74% of students chose satisfied or very satisfied with the mixed teaching mode matched with Aihaoke platform materials. In terms of self-perceived learning progress, 87.2% of students thought their oral Japanese got better, 79.5% saw progress in writing, and 76.9% felt much less anxious when learning Japanese.

Since reading comprehension and cross-cultural awareness take a long time to improve, short-term questionnaires cannot directly measure these two abilities. We recorded students' growth in these areas through long-term classroom observation by teachers, and we need longer follow-up research to verify related effects.

In open-ended questionnaire answers, many students mentioned that they could replay platform videos at any time to figure out difficult grammar knowledge on their own, and the extra class time reserved for speaking practice slowly eased their fear of oral communication. Some students put forward suggestions, hoping to add more real-life dialogue materials. To objectively check oral communication improvement, we randomly selected 20 students for 5-minute one-on-one situational dialogue tests, scored from four dimensions: natural pronunciation and intonation, accurate grammar use, smooth response and flexible communication strategies. Most tested students reached the oral ability standard set by the course, and they performed well in adapting to communication scenes. However, some students lacked logical expression and enough vocabulary when facing complex communication situations, which points out the direction for future teaching optimization. Students' demand for scene dialogue and practical ability training also proves that teaching design needs to contain real tasks and communication contexts, consistent with project-based learning ideas ^[7].

4.3. Changes in teachers' workload and teaching effect

We looked through complete teacher teaching logs and Aihaoke platform operation data to review changes in teachers' daily work. After uploading AI digital human teaching videos matching each lesson, teachers spent less time sorting out basic word and grammar content and designing blackboard writing during lesson preparation. Instead, they spent more energy designing classroom activities and collecting supplementary teaching materials. Total lesson preparation time stayed almost the same as before the reform; only the focus of work content shifted internally.

In the early stage of the course, writing video scripts, repeatedly checking video quality and arranging the platform's material release schedule temporarily increased teachers' preparation workload. But after the full set of digital materials were uploaded in batches matching the teaching plan, teachers no longer needed to repeat basic knowledge explanations in class. Daily routine teaching pressure dropped, and teachers gained a stronger sense of achievement in classroom teaching. Teachers' work focus shifted from knowledge explanation to guiding students' ability improvement, greatly raising professional satisfaction.

5. Practice reflection and future improvement directions

5.1. Practical difficulties found in teaching

In the first three weeks of the semester, around 8% of students were used to only listening to teachers in class and could not adapt to the new learning rhythm. They failed to log into Aihaoke on time to finish watching videos and online preview exercises. A small number of students came to class without finishing preview tasks or even skipped pre-class work, leading to low participation in group discussions.

The teacher adjusted supporting guidance rules in time: uploading unit-based pre-class task checklists on the platform and sending reminder messages in the class WeChat group at the same time. For the first three lessons, the first 5 minutes of each class were used to review platform preview content and randomly test students' preview knowledge. After three weeks of adaptation, students gradually formed the habit of finishing online learning matching class progress. The completion rate of pre-class tasks rose from the initial

88% to over 99% in the later semester. This practice proves that mixed teaching cannot rely only on providing platform materials; teachers must add supporting guidance to help students develop self-directed learning habits step by step. This view matches existing related research: promoting mixed teaching well requires solving students' adaptation problems when switching from passive learning to independent learning, and providing effective learning support and guidance ^[8].

The new mixed teaching mode relying on the Aihaoke platform puts higher comprehensive requirements on teachers. Besides solid Japanese teaching ability, teachers need to master skills such as arranging staged online video release, analyzing platform learning data and making targeted teaching decisions based on data. In addition, since classroom teaching shifts from lecture-based to task-activity-based, teachers need stronger ability to manage classroom order, give instant feedback to students' answers and deal with unexpected classroom situations flexibly.

5.2. Future optimization directions

Combining Aihaoke platform operation data, student questionnaire feedback and teachers' phased teaching reflection records, we plan to continuously optimize the whole teaching system from two aspects in the long run.

First, improve the guidance system for students' independent learning. Add an online-offline combined learning guidance unit in the first week of the course, teaching students how to use platform videos efficiently following class progress: split watching sessions, take notes actively, pause to repeat and shadow the audio. We will also teach students to use unit quizzes to check their own learning levels and make full use of the error file system so that students can improve the quality of self-study through better learning methods. Good guidance on independent learning strategies is a key factor to guarantee mixed teaching results. Teachers need to help students form metacognitive awareness, learning to plan, monitor and reflect on their own learning process, instead of only relying on task reminders from outside ^[9].

Second, expand real communication scene dialogue materials and add more small embedded quiz points inside teaching videos. Frequent mini-quizzes in videos can capture students' real-time mastery of Japanese words and sentence patterns, helping teachers adjust teaching priorities in advance. From a broader perspective, mixed teaching modes work well only under a positive interactive learning environment. Students need to connect formal classroom study with informal spare-time learning, applying knowledge learned in class to real or simulated life scenes to deepen understanding and internalization ^[10]. At the same time, we need to study further how to optimize video interactive design to lower students' cognitive load and raise learning efficiency ^[11].

6. Conclusion

This paper takes *College Japanese III* as the research carrier, using the Aihaoke platform to release AI digital human teaching videos step by step, matching class progress, exploring a practical mixed teaching path for intermediate college Japanese supported by digital intelligence. With school-enterprise joint production of teaching videos and synchronized platform release, we built a three-stage progressive teaching mode: online knowledge learning, offline ability consolidation, data-guided targeted review. This mode effectively solves the structural conflict in Japanese courses: rich knowledge content and limited class time for language practice.

One semester of practical data shows this mode has achieved preliminary effects: students' willingness

to study independently and practical Japanese ability both improved, and teachers' repeated basic teaching burden was relieved to a certain degree.

This practice is only a small-scale trial on a single class, with obvious limitations: no parallel control class for horizontal comparison, time and money costs for making digital human videos and operating the platform, and lack of cross-semester follow-up data to track students' long-term language growth. In follow-up research, we will keep optimizing platform teaching materials, perfect the multi-dimensional comprehensive assessment system, and expand the scope of teaching practice step by step to further verify the general applicability of this teaching mode.

Disclosure statement

The author declares no conflict of interest.

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