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A Study on the Current Situation and Development Strategies of Integrating the Deep Learning Concept into the Quality Management System of International Chinese Language Education in Indonesian Primary and Secondary Schools

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Keywords
Indonesian primary and secondary schools; international Chinese language education; quality management system; deep learning; localized adaptation

Abstract
In response to the era requirements of educational transformation driven by Indonesia's National AI Strategy 2045 and Guidelines for the Implementation of Deep Learning, and to address the adaptation dilemma between the quality management system of Chinese language education in Indonesian primary and secondary schools and the deep learning orientation, this study adopted a mixed research method to conduct questionnaires and interviews with persons in charge of Chinese language teaching in primary and secondary schools across seven core cities of Indonesia. The findings reveal that the scores of Indonesian Chinese language education quality management in the five dimensions of curriculum, teaching staff, assessment, resources and management all fall in the low range of 1.57-1.86, presenting an overall characteristic of "initial establishment of basic functions and insufficient systemic effectiveness", and showing a significant gap with the active construction, situational transfer and higher-order thinking development emphasized by deep learning. Based on the "Policy-Institution-Implementation" framework, this study integrates deep learning into the quality management system by synthesizing theories of didactics, process improvement, and system management to construct a localized "Curriculum-Teaching Staff-Assessment-Resources-Management" optimization system. Through the integration of goals, processes, and mechanisms, this system transforms quality management from superficial norms to in-depth competency construction, providing both a theoretical basis and practical pathway for improving Chinese language education quality in Indonesia while serving as a reference for innovation in Chinese language education quality management across Southeast Asian countries.

INTRODUCTION

Against the backdrop of global digital transformation and the wave of educational reform in Indonesia, the country has launched the National AI Strategy 2045 and the Guidelines for the Implementation of Deep Learning No. 126. The former incorporates education into the core fields empowered by artificial intelligence, while the latter advocates a teaching transformation oriented toward contextualization and higher-order thinking (Barriga et al., 2025; Saar et al., 2025; Shahzad et al., 2025). These two policies provide a framework for the digitalization and high-quality development of primary and secondary education (Wang, 2023; Keputusan Menteri, 2025). However, although International Chinese Language Education has entered a

new stage of high-quality development (Wu, 2023), the traditional quality management system for Chinese language education struggles to adapt to such transformational needs. It is confronted with multiple predicaments, including uneven development and a lack of collaboration among school administrators, a shortage of teaching staff with inadequate competence in deep learning instruction, curriculum design overly oriented toward examinations and practicality, a resource supply model reliant on external support, immature strategic management, as well as a diverse and highly mobile student population (Gao et al., 2024). Evidently, the quality management of International Chinese Language Education still faces numerous practical challenges. The traditional quality management model tends to focus on superficial factors such as curriculum provision and teacher allocation, with a core orientation toward knowledge transmission. It can hardly meet the comprehensive cultivation goals of "linguistic competence + cultural literacy + intercultural communication competence" for International Chinese Language Education in the new era (Zhao, 2020; Wang, 2025), nor can it adapt to students' developmental needs for higher-order thinking.

The concept of deep learning derives from constructivist learning theory, which emphasizes learners' active participation in knowledge construction, skill transfer, and the development of higher-order thinking in real-world contexts (Marton & Saljö, 1976). This concept is regarded as a fundamental indicator of classroom transformation, shifting the focus from superficial knowledge acquisition to the cultivation of key competencies and profound understanding (Zhong, 2016). Its core connotations are highly consistent with the educational objectives of International Chinese Language Education. At present, research on the quality management of International Chinese Language Education mostly focuses on the optimization of individual components, such as curriculum localization and teacher training. These predicaments urgently need to be addressed through theories of quality improvement and strategic management: quality improvement emphasizes dynamic adaptation to educational standards and stakeholders' expectations, with empowerment for teachers' professional capacity development as the core of supervision; strategic management focuses on the planning and integration capabilities of school principals and other administrators, which are key to enhancing educational quality (Li, 2021). In addition, relatively few studies have examined the systematic integration of the deep learning concept and quality management systems, especially empirical research grounded in the local context of Indonesia.

In recent years, the international academic community has paid increasing attention to the application value of deep learning in second-language teaching. Indriani and Sukmadinata (2021) pointed out that second-language teaching in primary and secondary schools in Southeast Asia needs to strengthen contextualization and the cultivation of higher-order competencies, while Damir and Jumaidi (2025) emphasized the synergistic effect of local cultural integration and deep learning. Among domestic studies, Yang Yi (2020) confirmed that deep learning-related approaches such as context creation and activity design can effectively improve language-teaching efficiency and students' learning interest. Zhang and Wu (2020) found that strategies such as differentiated instruction and communicative language teaching are consistent with the concept of deep learning and can significantly enhance teaching quality and learners' comprehensive abilities. Yang Zhe et al. (2024), through a cross-country comparative study of Chinese language education exchange activities in Southeast Asia, noted that Indonesia has a rich variety of Chinese language education exchange activities

but insufficiently diverse content in cultural and sports activities, exhibitions, and related events, which provides empirical references for optimizing Chinese language education curricula and activities. Strategic management theory provides a top-level framework for systemic change, but its successful implementation depends on high-quality teaching practices, represented by deep learning, as its core component (Hattie, 2015; Fullan, 2016). These three elements can form a synergistic framework of "vision guidance–process optimization–practical innovation."

Therefore, this study integrates these three elements to develop an optimization pathway based on the local context of Indonesia, not only solving practical problems but also providing a systemic theoretical framework and practical solutions rooted in the Indonesian context for innovation in Chinese language education quality management in Southeast Asian countries, while offering valuable insights for International Chinese Language Education quality management across Southeast Asia. Theoretically, this study enriches the body of knowledge on quality management in International Chinese Language Education by systematically integrating the deep learning concept into a comprehensive analytical framework, thereby bridging the gap between pedagogical theory and quality management practice. Practically, the findings provide evidence-based recommendations for policymakers and school administrators in Indonesia to enhance curriculum design, teacher professional development, assessment mechanisms, resource allocation, and strategic management, ultimately supporting the cultivation of students with intercultural communication competence. Furthermore, the localized optimization system developed in this study serves as a replicable model for other Southeast Asian countries facing similar challenges in Chinese language education quality management.

RESEARCH METHODS

This study employed a mixed research method, with the questionnaire survey as the main approach and the semi-structured interview as the supplementary approach. The research subjects included the person in charge of Chinese language teaching in primary and secondary schools across seven major cities in Indonesia—Jakarta, Surabaya, Medan, Bandung, Yogyakarta, Bali, and Batam—such as school principals, vice principals, curriculum directors, Chinese department directors, and second/foreign language directors.

The questionnaire was designed based on the core dimensions of quality management in international Chinese language education, comprising six modules and 44 items covering school basic information, curriculum design, teaching staff, teaching evaluation, resource support, and management mechanisms. It combined a Likert scale, multiple-choice questions, and open-ended questions to comprehensively collect data on the current status of quality management. A total of 107 valid questionnaires were recovered in this survey, and the samples covered different types of schools, including public, private, and international schools, thus possessing certain representativeness.

To further explore the underlying causes of the identified issues, this study selected core research participants for interviews. The interview content centered on key themes, including the basis for curriculum design, support for teachers' professional development, approaches to teaching evaluation, the utilization of educational resources, and suggestions for improving quality management.

Research data were analyzed using Excel and SPSS 29.0. Descriptive statistical analysis was employed to present the characteristics of the current situation, and qualitative coding analysis was conducted in conjunction with interview data, which provides a solid empirical foundation for problem diagnosis and the formulation of countermeasures. Due to space constraints, the survey results will prioritize presenting core conclusions with percentage data and streamline redundant data tables.

To ensure the reliability and validity of the data, this study conducted a reliability and validity test on the questionnaire. For reliability, Cronbach's α coefficient was used to examine internal consistency, and the results showed that the overall Cronbach's α coefficient of the questionnaire was 0.856, indicating a good level of reliability. At the dimensional level, the resource support dimension (α=0.788) and strategic management dimension (α=0.785) achieved good reliability, while the curriculum design dimension (α=0.658) had acceptable reliability. The teaching evaluation management dimension (α=0.488) and teaching staff dimension (α=0.308) showed insufficient reliability due to the need for optimization in item design—for instance, items in the teaching staff dimension focused only on basic qualifications and lacked questions assessing higher-order competencies. This study compensated for the deficiencies in quantitative reliability through triangulation verification with supplementary interview data and case data, and thus, the overall research logic remained unaffected. For validity, the KMO test (KMO=0.876) and Bartlett's Test of Sphericity (p=0.000) demonstrated that the data were highly suitable for exploratory factor analysis, reflecting excellent construct validity. Overall, the questionnaire met the standards for overall reliability and validity and can support subsequent quantitative analysis.

RESULTS AND DISCUSSION

Current Status of the Quality Management System for International Chinese Language Education in Indonesian Primary and Secondary Schools

1. Overview of the Overall Quality Management Level

Table 1. Core Dimensions of Quality Management for International Chinese Language Education in Indonesia

Core Dimensions	Mean Value	Standard Deviation
Curriculum Design	1.86	0.544
Teaching Staff	1.79	0.565
Evaluation Management	1.57	0.717
Resource Support	1.73	0.577
Strategic Management	1.80	0.799

Source: Primary data processed by the researcher (2026)

The comprehensive scores of the five core dimensions all fell within the low range of 1.57 to 1.86 (on a rating scale of 1 to 4, with higher scores indicating a higher degree of standardization in quality management). Among them, the Teaching Evaluation Management dimension had the lowest score of 1.57, while the Curriculum Design dimension had a relatively higher score of 1.86. Overall, the quality management system exhibited the

characteristic of "having initially developed basic functions but suffering from significant deficiencies in systemic effectiveness". In terms of dispersion, the Teaching Evaluation Management dimension (standard deviation = 0.717) and the Strategic Management dimension (standard deviation = 0.799) showed a large score gap across institutions, highlighting a prominent issue of unbalanced development. By contrast, the Curriculum Design (0.544), Teaching Staff (0.565), and Resource Support (0.577) dimensions had relatively small standard deviations, which reflects that the problems in these aspects were universal and homogeneous across different institutions, and the overall quality management level lacked differentiated advantages and benchmarking guidance.

2. Analysis of the Current Status of Quality Management by Dimension

From the perspective of curriculum provision, this dimension had a mean comprehensive score of 1.86 with a standard deviation of 0.544, ranking overall at a below-average level. Over 80% of the surveyed schools have offered systematic Chinese language curricula, among which 56% have provided such curricula for 4 to 10 years and 23% for more than 10 years, indicating the accumulation of certain practical teaching experience. The formulation of curriculum syllabi presents a diversified feature: on the one hand, this reflects the autonomy and flexibility of schools; on the other hand, under Indonesia's highly decentralized education management system, it is also prone to obscuring curriculum quality standards and widening inter-school gaps (Bjork, 2006).

Similarly, Yang Zhe et al., (2024) revealed a similar phenomenon in their research on Chinese language education exchange activities—a wide variety of activities, yet insufficient content depth. This reflects, from another perspective, that current Chinese language education in Indonesia, while pursuing expansion in scale, still lacks systematic attention to the contextualization and content depth required for deep learning. In this study, 38% of schools adopted a curriculum formulated by integrating Chinese and Indonesian standards, and 31% based their curricula on the Foreign Language Curriculum Standards of Indonesia's Ministry of Education, which demonstrates exploratory efforts to adapt to the local educational context.

In terms of strengths, basic language skill teaching is fully covered: the case coverage rate of basic linguistic knowledge, such as phonetics, vocabulary, and grammar, reaches 79.2%, and that of reading and writing stands at 50.0%, basically achieving the core goal of instrumental language teaching. However, compared with the requirements of integration and contextualization advocated by deep learning (Yang Yi, 2020), the curriculum system still has obvious shortcomings. Moreover, Yang Zhe et al., (2024) research shows that as a well-developed country in Chinese language education exchanges in Southeast Asia, Indonesia has carried out nine major categories of exchange activities, including cultural and sports activities, learning and training, and competitions. Nevertheless, cultural and sports activities lack cultural experience content, and exhibition activities are short of exhibits featuring traditional Chinese arts and crafts—a gap that exists with the demands of contextualized and experiential learning required for deep learning.

In terms of teacher allocation, this dimension scored a mean of 1.79 with a standard deviation of 0.565, indicating a low level of development. A total of 72% of the surveyed schools had 1 to 10 Chinese language teachers on their staff, and 61% maintained a student-teacher ratio of 1:45 or lower, which was basically sufficient to meet the needs of basic teaching. Teacher recruitment criteria have trended toward rationality: 67% of the schools took

Chinese proficiency as the core assessment indicator, and 53% attached importance to academic background in teaching, which guaranteed the basic quality of the teaching team.

Accordingly, the basic strengths were reflected in the certain support of teachers' core competencies: the coverage rate of Chinese proficiency reached 79.4%, and that of bachelor's degree or above in majors related to International Chinese Language Education stood at 68.2%, providing basic human resource support for the delivery of teaching. However, in reference to the competency requirements for Chinese as a foreign language teachers proposed by Zhang & Wu (2020)—including differentiated teaching and context creation—there existed a significant gap in the current teaching team's capacity for deep learning instruction. This finding is highly consistent with the issue of professional loyalty among Chinese language teachers in ASEAN countries identified by Tan & Long (2024).

Within the Indonesian local context, this problem has been further exacerbated by institutional factors. Studies have shown that teachers of non-core subjects in Indonesia are often marginalized in career development and resource allocation (Fahmi et al., 2021). As a group among them, Chinese language teachers have thus faced systemic challenges to the stability of their teaching team.

The Teaching Evaluation Management dimension scored 1.57 (the lowest across all dimensions) with a standard deviation of 0.717, making it the weakest link in the quality management system. Eighty-three percent of the schools adopted a composite assessment method combining final examinations, classroom performance, and homework evaluation. Summative assessments such as final examinations (61.7%) and midterm examinations (42.1%) had a relatively high coverage rate; 35% of the schools included oral tests, and 28% incorporated evaluations of cultural practical activities. This has initially broken the limitation of over-reliance on scores and shown a development trend toward diversified assessment. In addition, 67.3% of the institutions provided individual tutoring for students' weak areas, demonstrating a basic awareness of assessment feedback. However, compared with the requirements of formative assessment and diversified feedback emphasized by deep learning (Marton & Saljö, 1976), the current assessment system remains lagging.

The Resource Support dimension had a mean score of 1.73 with a standard deviation of 0.577, and its overall performance was characterized by “adequate hardware supply alongside insufficient software provision and contextual adaptation”. Its strengths lie in the stable supply of basic teaching resources: government education funding (57.0%) serves as the core source of capital, with textbook procurement (74.8%) and teaching equipment acquisition (61.7%) being prioritized, and conventional hardware such as integrated Chinese language teaching machines (72.6%) and projectors (55.7%) basically meeting classroom teaching needs. However, there is a lack of contextualized and life-oriented teaching resources emphasized by Yang Yi (2020). Furthermore, Tan & Long (2024) pointed out that digital Chinese language teaching and Chinese + Vocational Education have emerged as new research hotspots in ASEAN's Chinese language education, yet the current resource support in Indonesia has not been fully adapted to these emerging demands, making it difficult to underpin the implementation of deep learning.

The Strategic Management dimension had a mean score of 1.80 with a standard deviation of 0.799, showing the most significant developmental disparities among institutions. Its core characteristic is the high coupling of restrictive factors and improvement needs: limited teacher

competency (66.4%) is the primary constraint, while inadequate policy support and insufficient resource guarantee (both 40.2%) serve as secondary bottlenecks. Notably, the demands for improvement—including teacher training (67.3%), government policy regulation (58.9%), and funding subsidies (51.4%)—correspond precisely to these constraints, indicating that institutions have a clear understanding of their shortcomings. However, there is a lack of strategic planning that systematically integrates the concept of deep learning into quality management (Wang, 2025). Additionally, research by Yin & Tang (2022) shows that although Indonesia has incorporated the Chinese language into the high school elective curriculum system, there is a subsequent absence of sustained strategic promotion measures, which have hindered the steady improvement of Chinese language education quality.

Overall, the quality management system for international Chinese language education in Indonesian primary and secondary schools has achieved the implementation of basic teaching functions and transformed from scattered development to systematic advancement, with a preliminary basic framework for quality management established. It holds certain advantages in aspects such as basic language teaching, the supply of core hardware, and the accurate identification of existing problems.

3. Core Pain Points: Mismatch with the Core Tenets of Deep Learning

Although the quality management of Chinese language education in Indonesian primary and secondary schools has laid a certain foundation, there remains a significant mismatch with the core demands of the deep learning concept, which is mainly reflected in the following five aspects.

The curriculum design lacks integration and contextualization, making it difficult to support the implementation of deep learning. The problem of fragmented connection between academic stages is prominent: 63% of schools suffer from the phenomenon of content discontinuity between primary and junior high schools/junior and senior high schools or repetition of certain content, failing to form a curriculum logic that aligns with the “gradual construction” requirement of deep learning (Yang Yi, 2020). Localization and contextualization are inadequate: only 29% of schools incorporate content that integrates Indonesian local culture with the Chinese language into their curricula, and 48% of schools consider the currently used textbooks “poorly adapted” or “completely inadapted”. The cases in the textbooks are disconnected from students' daily life scenarios, and thus cannot provide authentic inquiry contexts for deep learning (Zhang & Wu, 2020). In addition, the curriculum update mechanism is passive: 52% of schools adjust their curricula only when textbooks are replaced, or teaching staff are changed, and 31% have never proactively optimized their curricula. There is a lack of dynamic adjustment based on teaching feedback and student needs, which is inconsistent with the requirement of “continuous iteration” for deep learning (Marton & Saljö, 1976). Furthermore, the research by Yang Zhe et al., (2024) has further confirmed that although Chinese language education exchange activities in Indonesia are diverse in type, some activities lack in-depth contextual elements such as cultural experience and displays of traditional Chinese arts and crafts, which echoes the contextualization deficiency in curriculum design.

The teaching team is deficient in professional literacy and guiding capacity, making it difficult to meet the teaching requirements of deep learning. The qualifications of local Chinese language teachers are uneven: only 41% of them hold a bachelor's degree or above in majors

related to International Chinese Language Education, and 35% have not received systematic Chinese language teaching training, which renders them unable to take on the role of "learning guides" as required by deep learning (Zhang & Wu, 2020).

There are obvious shortcomings in teacher training: 47% of schools carry out teacher training only once a year, and the training content is mostly focused on linguistic knowledge (62%) and basic teaching skills (58%), lacking specialized training in core competencies such as deep learning, project-based teaching, and intercultural guidance (Wang, 2025). Meanwhile, the stability of the teaching team is inadequate: 32% of schools have an annual teacher turnover rate of over 10%, among which 8% have a turnover rate exceeding 20%. In addition, 45% of schools do not have a dedicated teacher incentive mechanism, which makes it difficult to ensure the sustainable implementation of deep learning teaching models. This finding is highly consistent with the issue of professional loyalty among Chinese language teachers in ASEAN countries identified by Tan & Long (2024).

Teaching assessment prioritizes outcomes over processes, deviating from the core of deep learning, which emphasizes process orientation and competency focus. The problem of a singular assessment approach is prominent: 68% of schools primarily adopt summative assessments such as final examinations and unit tests, neglecting key dimensions in the deep learning process, including inquiry participation, collaborative performance, and skill transfer (Marton & Saljö, 1976). Assessment content remains superficial: 46% of schools hold that their assessment practices lack scientific standards, which is disconnected from the goal of higher-order competency development in deep learning (Yang Yi, 2020). The efficiency of feedback and application of assessment results is low: 51% of schools only release assessment scores to students, and 43% do not apply assessment results to curriculum optimization, teaching method adjustment, and other links, failing to form a closed-loop mechanism of assessment-feedback-improvement.

Resource support is inadequate in terms of adaptability and sharing capacity, failing to provide effective underpinning for deep learning. Limited funding input stands as the primary restrictive factor: 58% of schools have an annual budget for Chinese language teaching of 30 million Indonesian rupiah or less. The scarcity of localized resources is a prominent issue only 23% of schools have developed Chinese language teaching resource banks incorporating local content, which echoes the finding that the innovation in localized resource development remains a key challenge in Indonesia (Liu et al., 2021). This represents a considerable gap from the demands for communicative and contextualized teaching resources advocated by Zhang & Wu (2020). In addition, there is a lack of resource sharing mechanisms: 72% of schools have no inter-school resource sharing channels and thus cannot deliver adaptive support, nor have they fully aligned with the emerging resource demands, such as digital Chinese language teaching and Chinese + Vocational Education proposed by Tan & Long (2024).

The management mechanism lacks systematicness and specialization, making it difficult to coordinate the integration of the deep learning concept. There is an absence of dedicated management entities: only 17% of schools have established specialized departments and full-time staff for the quality management of Chinese language education, 53% assign Chinese language teachers to concurrently take on quality management work, and 20% have no dedicated personnel in this regard, which hinders the coordinated and systematic integration of the deep learning concept (Wang, 2025). Institutional procedures are inadequate: merely 22%

of schools have formulated clear quality management objectives and detailed procedures, 49% only have general objectives, and 19% have no defined objectives or procedures at all. The lack of institutional norms for the implementation of deep learning teaching, assessment, and monitoring, resource support, and other key links has resulted in a fragmented characteristic of quality management.

In summary, the quality management of Chinese language education in Indonesia has a significant mismatch with the deep learning concept across the five core dimensions of curriculum, teaching staff, assessment, resources, and management, characterized by insufficient integration, weak guiding capacity, lack of process orientation, inadequate adaptability, and a shortage of systematicness.

Analysis of the Causes of Problems in the Quality Management System

1. Top-level Policy Dimension: Lack of Norms and Weak Implementation

At the policy formulation level, the absence of a national quality management standard for Chinese language education constitutes a fundamental constraint. The lack of clear definitions for core links such as curriculum, teaching staff, and assessment has given rise to numerous practical problems, including no fixed recruitment criteria and a singular assessment approach. This is not accidental, and its underlying root cause lies in the fact that Indonesia, as a post-colonial and multilingual country, has long seen its foreign language education policies waver between the tensions of pragmatism-driven economic orientation and national identity construction (Kurniawan, 2020). Bearing complex historical and geopolitical implications, Chinese language education has witnessed a particularly torturous and cautious process of policy clarification and systematization. Therefore, even though the Chinese language has been incorporated into the high school elective curriculum system (Yin & Tang, 2022), there is still a lack of supporting deep learning-oriented curriculum and teaching standards at the national level, with policy supply remaining at the level of access threshold rather than quality regulation.

However, at the level of policy implementation and guarantee, the problem of a weak mechanism is prominent. The lack of targeted guidance in government funding support often leads schools to prioritize the procurement of tangible hardware equipment, while neglecting "soft" investments such as teacher training and the development of localized resources. Meanwhile, policy coverage is uneven, with notably inadequate support for institutions in remote areas, which has exacerbated the "Matthew effect" in inter-school development. Fundamentally, the positioning of Chinese language education in the overall educational planning for primary and secondary schools remains ambiguous, and it has not yet been recognized as a core strategic component underpinning the country's future competitiveness (Wang, 2025). This ambiguity in strategic positioning directly results in the randomness and discontinuity of resource investment, as well as the difficulty in establishing a management closed loop, making it hard to translate top-level design into a sustained driving force for the improvement of grassroots teaching practices.

2. Meso-level Institutional Dimension: Fragmented Management and Insufficient Coordination

There is a lack of inter-departmental collaboration within institutions. Links such as curriculum, teaching staff, assessment, and resources fall under separate modules with no effective cross-departmental coordination. For instance, teacher training is not aligned with

assessment results and curriculum optimization directions, leading to a misalignment between supply and demand.

Institutions are deficient in management capacity and awareness: most lack professional quality management teams, exhibit weak capabilities in analyzing and translating assessment results into actionable measures, and have a shallow sense of quality control, merely content with fulfilling basic teaching tasks. A closed-loop management mechanism has not been established: all links remain at the preliminary stage of "implementation - problem identification", without full-chain control covering "problem analysis - plan design - on-the-ground implementation - effect feedback", resulting in the recurrent emergence of shortcomings (Zhang & Wu, 2020).

Meanwhile, institutions have not fully drawn on the experience of Chinese language education exchange activities in Indonesia, summarized by Yang Zhe et al., (2024). They have failed to integrate exchange activities with curriculum development, teacher training, and other links in a coordinated manner, and thus cannot form a synergistic education effect.

3. Micro-level Implementation Dimension: Ecological Constraints and Poor Collaboration

At the micro level of implementation, Chinese language education in Indonesia is mired in the practical predicament of an overall ecology with limited resources and inadequate collaboration. Structural deficiencies exist in the supply of internal resources: as a non-core curriculum, Chinese language education is in a disadvantaged position in school resource allocation, making it difficult to secure sustained and sufficient investment. This is prominently reflected in the teaching staff segment: the reserve of high-quality local teachers is severely insufficient, with only 16.8% of them possessing advanced language proficiency at HSK Level 6 or above, and the concept of intercultural teaching has not been popularized (Yang Yi, 2020). The root cause of this predicament can be traced back to the talent supply side—namely, the limited scale of talent cultivation in majors related to International Chinese Language Education within Indonesia's higher education system, and a disconnect between their training objectives and the practical teaching needs of primary and secondary schools (Suryadinata, 2017). Meanwhile, on the demand side, although students' motivations for learning Chinese have become increasingly diverse, instrumental motivations (such as examinations and employment) still dominate (Wijaya, 2018). This has objectively weakened the intrinsic demand for cultural depth in curricula and high-level thinking capacity, creating tension with the goals of deep learning.

The external collaborative network is characterized by fragmentation and has failed to effectively offset the inadequacy of internal resources. Cooperation between Chinese and Indonesian institutions mostly remains at the level of hardware donations and short-term training, lacking in-depth and long-term mechanisms based on joint curriculum development and co-training of teaching staff. Local social forces (such as overseas Chinese communities and enterprises) have a low participation rate (accounting for only 26.2%), and their support is often poorly aligned with the actual teaching needs. There is also a lack of effective mechanisms for experience sharing and resource circulation among schools, which hinders the scaling up of high-quality practices and exacerbates developmental imbalances (Wang, 2025). In addition, there is a lag in aligning with macro trends. In the face of emerging trends in the ASEAN region, such as Chinese + Vocational Education and digital teaching (Tan & Long,

2024), Indonesian Chinese language education has responded slowly in curriculum and resource development, leading to a further disconnect between resource supply and cutting-edge teaching and social demands.

The aforementioned causes across the three dimensions are interrelated and mutually reinforcing: the absence of top-level policies has laid institutional hidden risks for the problems; insufficient coordination at the meso-level institutional level has exacerbated systemic fragmentation at the organizational level; and the ecological constraints and poor collaboration in micro-level implementation have fundamentally limited the effectiveness of any short-term improvement measures, ultimately resulting in an intractable composite predicament.

Development Strategies for the Quality Management System of International Chinese Language Education in Indonesian Primary and Secondary Schools

1. The Integration Logic of Deep Learning Concept and Chinese Language Education Quality Management

The core of deep learning is to guide learners to shift from passive knowledge reception to active knowledge construction, and realize the transfer of language skills, the deepening of cultural cognition, and the development of higher-order thinking in authentic contexts (Marton & Saljö, 1976). Its integration logic with the quality management of international Chinese language education in Indonesian primary and secondary schools is reflected in three dimensions: goal, process, and mechanism, which provides a core approach to addressing the pain points of quality management.

At the goal integration level, it is essential to achieve a value shift from knowledge acquisition to competency construction. The traditional quality management of Chinese language education takes the imparting and assessment of linguistic knowledge as its core goal, focusing on students' mastery of basic knowledge points such as Chinese characters, vocabulary, and grammar, which leads to the deviation of valuing knowledge over competency in teaching practice. In contrast, the deep learning concept emphasizes the comprehensive development of linguistic competence + cultural literacy + thinking ability as its core, which is highly consistent with the ultimate goal of international Chinese language education—cultivating compound talents with intercultural communication competence (Wang, 2025). Integrating the deep learning concept into quality management can drive the transformation of quality evaluation criteria from knowledge attainment to competency enhancement, focusing on the development of students' higher-order competencies, such as oral communication, intercultural situational response, and problem-solving, and effectively addressing the current dilemma of deviation in evaluation orientation in quality management.

At the process integration level, it is imperative to realize the model reconstruction from fragmented teaching to integrative inquiry. Deep learning emphasizes inquiry in authentic contexts, project-based learning, and interdisciplinary integration, and such process characteristics can target and address the problems of fragmented curriculum connection and the disconnection between content and daily life in Indonesian Chinese language education (Yang Yi, 2020). Research by Chen et al., (2024) has confirmed that project-based learning can effectively enhance students' problem-solving ability, collaborative ability, and knowledge application ability at the primary and secondary education stages, and this conclusion provides empirical support for the reconstruction of the Chinese language teaching model in Indonesia.

Through thematic and integrative teaching design, the learning of linguistic knowledge, the experience of cultural cognition are combined with real-life contexts—for example, designing project-based learning themes such as “Chinese Promotion in Indonesian Traditional Festivals” and “Comparative Research on Campus Life in China and Indonesia”. This approach enables the gradual connection of curricula across primary, junior high, and senior high school stages, allowing students to master language skills and deepen cultural understanding through active inquiry (Zhang & Wu, 2020). Meanwhile, the process characteristics advocated by deep learning, such as sustained interaction and collaborative learning, can drive the transformation of the teaching process from one-way indoctrination by teachers to two-way interaction between teachers and students, enhance students' learning initiative and participation, and make up for the deficiency of the lack of student subjectivity in the current teaching process.

At the mechanism integration level, it is necessary to achieve systematic optimization from static management to a dynamic closed loop. Deep learning requires the establishment of a dynamic mechanism of teaching implementation - process assessment - feedback improvement - iterative optimization, which aligns with the essence of continuous improvement in quality management (Marton & Saljö, 1976). Such mechanism integration can drive the transformation of teaching assessment from outcome orientation to equal emphasis on process and outcome, capturing problems in students' learning process in real time through formative assessment and adjusting teaching strategies promptly; it can push resource support to shift from fragmented supply to systematic adaptation, building a localized and interactive resource system centering on the contextualized and project-based demands of deep learning (Yang Yi, 2020); it can also promote the transition of management mechanisms from passive response to proactive planning, setting up specialized quality management institutions and institutional norms, and coordinating the integration of the deep learning concept into all links including curriculum, teaching staff, assessment and resources, thus forming a comprehensive and systematic quality management ecology (Wang, 2025). This entire process embodies the transformative power of deep learning on teaching and learning ecosystems (Zhong, 2016).

In summary, this study takes the concept of deep learning, which signifies a fundamental shift in educational paradigms (Zhong, 2016) and innovatively integrates it into the quality management framework of Chinese language education in Indonesia. Based on this integration logic and the identified pain points, the following five-in-one optimization system is constructed.

2. Optimization Strategies for the Quality Management System Integrating the Concept of Deep Learning

Based on the integration logic of the deep learning concept and the quality management of Chinese language education in Indonesian primary and secondary schools, and in combination with the current core pain points, this study constructs a five-in-one optimization system covering curriculum, teaching staff, assessment, resources, and management to drive the systematic upgrading of quality management.

(1) Curriculum Design: A Localized and Integrated System Oriented to Deep Learning

In terms of curriculum design, a localized and integrated curriculum system oriented to deep learning is established. In accordance with the International Chinese Language Education Standards for Chinese Proficiency and the Foreign Language Curriculum Standards of Indonesia's Ministry of Education, the curriculum syllabus is reconstructed following the deep

learning logic of situational input in primary school → project-based practice in junior high school → intercultural transfer in senior high school (Yang Yi, 2020). The primary school stage focuses on contextualized language input such as Chinese nursery rhymes and daily dialogues to cultivate students' language perception ability; the junior high school stage designs localized project-based learning themes, including "Chinese Introduction to Indonesian Traditional Festivals" and "Comparison of Cultural Customs between China and Indonesia", to train students' language application and collaborative inquiry abilities; the senior high school stage centers on advanced tasks such as intercultural topic research, Chinese speech and debate to improve students' intercultural communication and innovative thinking abilities, ensuring that the gradient design covers more than 90% of the core knowledge points.

Drawing on the policy foundation of the Chinese language being incorporated into senior high school elective courses in Indonesia, as proposed by Yin & Tang (2022), the integration of localization and contextualization into the curriculum is strengthened. It is required that the content related to Indonesian local culture and daily life accounts for no less than 30% of textbooks. Chinese and Indonesian educational experts are jointly organized to develop thematic resource packages of "Chinese + Indonesian Local Culture", enrich cultural experience and traditional Chinese art elements in cultural and sports activities as well as exhibition activities (Yang Zhe et al., 2024), and enhance the relevance of the curriculum to students' daily lives (Zhang & Wu, 2020). A dynamic optimization mechanism is established to adjust curriculum content promptly through quarterly collection of student feedback, teachers' teaching seminars, cultural adaptation assessment, and other approaches. The curriculum syllabus is systematically updated once a year based on teaching effectiveness, ensuring that the curriculum is synchronously adapted to the demands of deep learning and the local cultural context.

(2) Teaching Staff: A Professional Development System Empowered by Deep Learning

To address the deficiencies of the teaching staff in deep learning instructional competence, it is imperative to build a full-cycle professional development system covering recruitment, development, and retention.

First, optimize recruitment and training standards to empower teachers at the source. Deep learning instructional competence (e.g., project-based learning design) and intercultural guidance capacity should be explicitly incorporated into the core assessment indicators for teacher recruitment (Zhang & Wu, 2020), with priority given to candidates who hold academic backgrounds in International Chinese Language Education and relevant teaching qualifications. This measure aims to enhance the alignment of the teaching staff with the instructional requirements of the new era from the entry point.

Second, establish a systematic, practice-focused, specialized training system. It is necessary to abandon the previous fragmented and generalized training models and set up an intensive research and training mechanism with 2 to 3 sessions per year. The training content shall focus on deep learning teaching methods and project design in the first half of the year and localized resource development and formative assessment in the second half, with instruction jointly delivered by Chinese and Indonesian experts and outstanding frontline teachers to ensure 100% coverage (Wang, 2025). Such high-intensity, pedagogy-focused in-service professional development has been proven to be one of the most effective levers for transforming teachers' instructional practices and improving students' academic outcomes

(Darling-Hammond et al., 2017), which can directly empower teachers to be competent in the role of guides for deep learning.

Third, improve the effectiveness-based incentive and stability mechanism. To tackle the challenge of low professional loyalty leading to teacher attrition (Tan & Long, 2024), it is essential to establish an incentive mechanism that directly links deep learning instructional effectiveness to teachers' personal career development. Specifically, outcomes of project-based learning and data on students' higher-order competency improvement can be incorporated into the core evaluation system for professional title promotion and performance rewards, with special honorary awards established. Research has shown that combining professional recognition and career development opportunities with teaching innovation performance is the key to stabilizing the outstanding teaching staff and stimulating their intrinsic motivation (Fahmi et al., 2021). Through this combined mechanism, the goal is to control the annual teacher attrition rate within 8%.

(3) Teaching Assessment: A Diversified Closed-Loop System Oriented to Deep Learning

Restructure the assessment model and establish the core status of process-based feedback. A hybrid model of formative assessment (60%) + summative assessment (40%) should be constructed. This weight allocation is designed to markedly strengthen the attention to and feedback on the learning process, and its pedagogical effectiveness has been fully demonstrated in research emphasizing competency construction (Black & Wiliam, 2009). Under this model, formative assessment needs to focus on the process dimensions of deep learning, such as classroom inquiry participation, project collaboration performance, and skill transfer and application; summative assessment, by contrast, shall center on the comprehensive evaluation of higher-order competencies, including integrated language application, cultural comprehension, and critical thinking.

Upgrade assessment content and tools, and develop a three-dimensional indicator system. Assessment content must go beyond mere linguistic knowledge and shift to the comprehensive evaluation of linguistic competence, cultural literacy, and thinking quality. This is both a positive response to the concepts of holistic education and the theory of multiple intelligences in the field of language assessment, but also an inevitable requirement for the implementation of deep learning (Yang Yi, 2020). To this end, supporting standardized rating scales need to be developed, and specific, observable evaluation rubrics designed for modules such as logical oral expression, cultural situational response, and innovative problem-solving, to ensure the scientificity and orienting role of assessment.

Strengthen the feedback and application of assessment results, and build a closed loop for teaching improvement. The value of assessment lies in the follow-up actions taken. A rigid process must be established: it is required that personalized feedback and targeted tutoring be completed within one week after each unit assessment (coverage rate $\geq 85\%$); assessment data be systematically analyzed every month to form diagnostic reports, which are applied to the precise optimization of curriculum content, adjustment of teaching strategies, and planning of teacher training. It is ensured that the feedback rate of assessment data for teaching improvement is no less than 70%, thus realizing a virtuous circle of assessment – diagnosis – improvement.

(4) Resource Support: An Adaptive Sharing Platform Backed by Deep Learning

To address the predicament of adequate hardware yet inadequate adaptability in resources, it is imperative to systematically build a resource ecosystem oriented to deep learning and localization.

Optimize the funding structure to consolidate the material foundation for interactive teaching. At least 30% of the annual Chinese language teaching funding should be earmarked for the development of deep learning resources. This investment needs to focus on two dimensions: first, ensuring the full popularization of interactive teaching equipment (e.g., integrated teaching machines, listening systems) with a 100% classroom coverage rate, laying the hardware groundwork for contextualized and collaborative teaching (Zhang & Wu, 2020); second, providing targeted support for the development of localized and interactive software resources, such as project-based learning materials and cultural experience props, to enhance the pedagogical adaptability of resources from the source.

Co-construct a high-quality digital resource bank with a high localization ratio, which serves as the core content to underpin deep learning. The development of the resource bank must adhere to two fundamental principles: first, the Culturally Responsive principle, requiring that content related to Indonesian local culture and life scenarios account for no less than 40% of the resource bank. This is not merely the simple addition of local cases, but a strategic effort to ensure the authenticity of learning contexts, enabling students to construct meaning and conduct cross-cultural comparisons in familiar linguistic environments—a prerequisite for the occurrence of deep learning (Gay, 2018). Second, the Proactiveness and Integration principle, which demands active alignment with the trends of digital Chinese language teaching and Chinese + Vocational Education (Tan & Long, 2024). Therefore, in addition to conventional courseware, the resource packages should prioritize developing project-based learning cases integrated with local elements, cross-cultural situational simulation scripts, and teaching materials for vocational modules such as Chinese + Tourism/Commerce. Given the digital and diverse nature of resources, their development should follow the concept of Universal Design for Learning (UDL) (Meyer et al., 2014). By providing multiple ways of content representation, expression, and participation, the resource bank ensures that students with different learning styles and starting levels can access and utilize resources effectively, safeguarding the equity and accessibility of deep learning.

Establish a regional resource sharing mechanism to maximize resource efficiency. Build an inter-school online sharing platform and break down inter-institutional barriers through mechanisms such as monthly updates of high-quality cases and tools, and a mandated resource sharing participation rate of no less than 60% among partner schools. This facilitates resource circulation and experience exchange, fundamentally alleviating the resource scarcity faced by individual schools and fostering a synergetic educational force through regional collaboration.

(5) Management Mechanism: A Top-Level Guarantee System for the Integration of Deep Learning

To overcome the bottleneck of systematic deficiency in management, it is imperative to construct a top-level guarantee system that drives the systematic integration of the deep learning concept through deliberate top-down design.

Establish organizational guarantees with clear rights and responsibilities, and shift management from part-time to full-time oversight. All schools shall be mandated to set up a

dedicated Chinese Language Education Quality Management Position (full-time or part-time), whose core responsibility is to coordinate the implementation of deep learning across all teaching links—including concept promotion, teaching supervision, data analysis and improvement tracking—and to define measurable core objectives (e.g., an improvement rate of no less than 30% in students' higher-order linguistic competence) (Wang, 2025). This initiative essentially embodies the implementation of instructional leadership; research has confirmed that clearly defined leadership responsibilities are the key to the sustainability of any pedagogical reform (Hallinger, 2011).

Provide procedural guarantees with clear guidelines, and transform management from personnel-dependent governance to rule-based governance. It is necessary to formulate school-based Detailed Implementation Rules for Deep Learning Teaching, which standardize and formalize processes for curriculum design, teaching implementation, assessment operation and resource utilization (Zhang & Wu, 2020). This is not merely a normative document, but an institutional cornerstone for building a continuous improvement cycle of Plan-Do-Check-Act, ensuring that quality management becomes a dynamic and orderly process.

Furthermore, leverage existing carriers to shift management from isolation to collaboration. Quality management does not require building a new system from scratch, but rather adeptly integrating existing advantageous resources. For example, the diverse types of Chinese language education exchange activities (e.g., cultural and sports events, competitions, exhibitions) investigated by Yang Zhe et al., (2024) can be systematically upgraded in content and designed as curricular components. This transforms such loosely organized activities into an organic part of supporting deep learning objectives (e.g., cultural experience, project-based practice), thereby aligning curriculum, teaching staff and resources to work in synergy.

Establish evaluation guarantees with multi-stakeholder participation, and evolve management from internal control to co-governance. Led by each school, an evaluation panel consisting of Chinese and Indonesian experts, teachers and parent representatives shall be convened every semester to conduct special supervision on deep learning implementation. The evaluation shall be based on clear indicators covering curriculum, teaching staff, students and resources; its results must be directly linked to the school's quality rating and disclosed to the community. This model of joint supervision involving multiple stakeholders not only enhances the credibility and professionalism of the evaluation, but also generates external pressure for continuous improvement and community support, ultimately driving the spiral optimization of the quality management system.

CONCLUSION

This study systematically examined the current situation and core challenges of quality management in International Chinese Language Education at Indonesian primary and secondary schools, revealing persistent structural deficiencies in curriculum integration, teachers' instructional capacity, assessment scientificity, resource adaptability, and management systematicness despite the existence of a basic framework. To address these issues, the study proposed three major innovations: the construction of a "Policy–Institution–Implementation" causal analysis framework to identify systemic root causes; the integration of deep learning into Chinese language education quality management research in Indonesia through the synthesis of didactics, process improvement, and system management theories; and

the development of a localized "Curriculum–Teaching Staff–Assessment–Resources–Management" five-in-one optimization system. By integrating educational goals, processes, and institutional mechanisms, the study shifts quality management from superficial standardization toward competency-oriented development, thereby contributing both theoretical and practical value to the implementation of deep learning in Indonesian Chinese language education and offering important references for regional educational quality improvement and the cultivation of intercultural communication competence. Future research should expand sample coverage across different regions, school types, and educational stages in Indonesia, while conducting longitudinal pilot studies to evaluate the effectiveness and adaptability of the proposed optimization system in diverse school contexts. In addition, stronger collaboration between Chinese and Indonesian educational institutions should be promoted to develop localized teaching materials, teacher-training resources, and competency-based assessment tools, while methodologies such as Design-Based Research and Implementation Science may further strengthen the explanatory power, contextual adaptability, and practical applicability of future studies.

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