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From Explicit Knowledge to Tacit Wisdom: Knowledge Management Challenges and Opportunities in AI-Era University Classrooms

Renyuan Nong

School of Business Administration, Baise University, Baise, Guangxi, China

Abstract: In the context of Artificial Intelligence (AI) integration into higher education, the modes of knowledge creation and dissemination have undergone fundamental transformation. While AI enhances the accessibility of explicit knowledge, it also challenges the traditional roles of teachers and the function of classrooms. Drawing on the perspective of Knowledge Management (KM) and grounded in Nonaka and Takeuchi's SECI model, this study investigates how explicit knowledge and tacit wisdom interact within AI-empowered university classrooms. Employing a qualitative research design, the study combines classroom observation and semi-structured interviews, analyzing 45 sessions across three universities. The findings reveal that AI reshapes the flow of classroom knowledge: explicit knowledge circulates more efficiently, but knowledge fragmentation increases. Despite AI's dominance in knowledge delivery, classrooms remain the primary space for tacit wisdom generation through interaction, reflection, and contextual learning. Teachers' roles are shifting from knowledge transmitters to knowledge managers and wisdom facilitators. The study recommends building an "AI + Knowledge Management" teaching system in higher education, strengthening teachers' capacity for knowledge integration and reflective guidance, and transforming classrooms from knowledge arenas into wisdom ecosystems that balance technological empowerment and humanistic education.

Keywords: Artificial Intelligence; Knowledge Management; Higher Education Classroom; Explicit Knowledge; Tacit Wisdom; Teacher Role Transformation

1. Introduction

With the rapid advancement of artificial intelligence (AI) technologies, the ways in which knowledge is generated and disseminated are undergoing profound transformation. The emergence of generative AI tools—such as ChatGPT, Deepseek, Kimi, Dolla, Claude, and Copilot, etc. —enables learners to access vast, structured information within seconds. Consequently, the traditional model of "teachers transmitting knowledge and students receiving it" has been rapidly reshaped. Knowledge is no longer scarce; the instant accessibility of information has redefined both the function of the classroom and the role of the teacher [1][2].

However, the accessibility of information does not necessarily equate to depth of learning. While AI excels at presenting explicit knowledge, it struggles to emulate the tacit wisdom embedded in experience, judgment, and context. As Polanyi observed [3], there exists a dimension of human cognition that is "known but cannot be told." Such wisdom is often cultivated through interaction, experience, and reflection. The university classroom remains a crucial incubator of this wisdom: through dialogue, case analysis, and emotional resonance, students develop understanding and discernment that transcend the mere acquisition of information [4]. Hence, as AI increasingly assumes the function of transmitting explicit knowledge, the classroom must evolve from a site of knowledge instruction to one of wisdom generation and meaning construction.

Knowledge management (KM) theory provides a valuable framework for understanding this transformation. It emphasizes the processes of knowledge creation, circulation, sharing, and internalization, focusing particularly on the dynamic interaction between explicit and tacit forms of knowledge. Within the educational context, KM theory helps re-examine the classroom's knowledge value chain: How do teachers integrate AI-generated explicit knowledge? How do students internalize knowledge through AI-supported learning? And

how can the classroom shift from a knowledge transmission arena to a wisdom co-creation space? These questions define the core agenda for educational innovation in the AI era.

Guided by this perspective, the present study explores the structural transformation of knowledge flow and wisdom generation in AI-empowered higher-education classrooms. The research addresses four central questions:

(1) How does AI influence the dissemination and management of explicit knowledge in university classrooms?

(2) In what ways do classrooms facilitate the generation of tacit wisdom through AI-supported learning?

(3) What new roles do teachers assume in classroom knowledge management in the AI era?

(4) How can a classroom knowledge management model be constructed to align with the emerging AI-based educational ecology?

This study seeks to reveal the interactive mechanisms between explicit knowledge and tacit wisdom in AI-driven classrooms and to construct a theoretical framework for classroom knowledge management in higher education. Theoretically, it extends the applicability of KM theory to the educational domain by incorporating the SECI model to analyze how AI reshapes the knowledge-creation cycle of socialization, externalization, combination, and internalization. Practically, through qualitative observation and semi-structured interviews, the study identifies key strategies and features of knowledge management in AI-supported classrooms, offering actionable insights for teachers transitioning from knowledge providers to wisdom facilitators.

2. Literature Review

The rapid development of artificial intelligence (AI) has reconstructed the ecology of educational knowledge. To understand this transformation, it is necessary to draw on knowledge management (KM) theory to examine the mechanisms of knowledge creation, circulation, and transformation in the classroom.

2.1 Knowledge Management Theory and Its Educational Implications

Knowledge management originated in the field of organizational innovation, focusing on the creation, sharing, and application of knowledge. Nonaka and Takeuchi [4] proposed the SECI model—socialization, externalization, combination, and internalization—which reveals the dynamic cycle between tacit and explicit knowledge and emphasizes that knowledge innovation depends on context, interaction, and reflection.

In the educational context, higher education institutions can be regarded as typical knowledge-intensive systems [5], and the classroom serves as the core arena for knowledge flow and re-creation. The introduction of knowledge-management concepts not only helps teachers and students organize knowledge structures but also promotes collaboration and innovation within the learning process. However, existing studies have largely focused on curriculum resource development and information management, lacking systematic exploration of tacit knowledge and the generation of learning wisdom in the classroom—this gap provides the theoretical entry point for the present study.

Recent reviews in the knowledge management field further suggest that while AI enhances the efficiency of explicit knowledge processing, the creation and transformation of tacit knowledge continue to rely heavily on human interaction and social processes [6].

2.2 AI and the Reconstruction of Knowledge Dissemination

The widespread adoption of generative AI tools such as ChatGPT and Perplexity has brought the explicitness and accessibility of knowledge to an unprecedented level [2]. AI has reshaped the pathways of knowledge acquisition, making learning more personalized and instantaneous [2]. However, AI provides "answers" rather than "understanding," leading to problems such as knowledge fragmentation and superficial learning [7].

Studies have indicated that AI not only transforms learning methods but also reshapes the cognitive pathways of knowledge construction [8]. It has facilitated a shift from "teacher-centered" to "human–AI co-constructed" learning, while simultaneously weakening the social interaction and emotional dimensions of the classroom.

Recent empirical reviews further reveal that most AI-in-education studies prioritize system performance and learning outcomes, whereas classroom-level pedagogical processes and meaning-making mechanisms remain

underexplored [9].

Therefore, in the age of AI, classroom learning must evolve from "knowledge transmission" to "meaning construction," seeking a balance between technology and humanistic values. This intersection marks the convergence of knowledge management theory and AI-based educational research.

2.3 Research Progress on Knowledge Management in University Classrooms

The classroom can be regarded as a micro–knowledge management system [5], in which teachers, students, and AI collectively form a dynamic network of knowledge creation and sharing [10].

Recent syntheses of research on artificial intelligence in higher education suggest that AI technologies primarily reshape instructional structures and learning environments rather than transforming the fundamental purposes of classroom teaching and learning [11].

Teachers are no longer merely transmitters of knowledge but also "knowledge managers," responsible for integrating multiple sources of information and guiding students in reflection and co-creation [2,12]. However, in AI-supported environments, teachers often face a dual challenge: mastering the application of AI technologies while maintaining the humanistic depth and reflective guidance of teaching. This tension has become a central issue in innovating classroom knowledge management.

2.4 Tacit Wisdom and Its Educational Value in the Classroom

Polanyi [3] proposed that knowledge comprises both an "explicit" component that can be articulated and a "tacit" component that resists expression. In educational contexts, this tacit dimension is imbued with humanistic and ethical meaning, forming what has been termed tacit wisdom [13].

Critical scholarship has cautioned against technologically deterministic narratives in AI education, emphasizing the irreplaceable role of human judgment, ethical reasoning, and relational meaning-making in learning processes [14].

Tacit wisdom represents the integrative understanding that learners develop through interaction, critical inquiry, and reflection, encompassing five key aspects:

(1) Ways of thinking — learning how to think rather than merely knowing the answers;

(2) Contextual judgment — forming experiential judgments in complex situations;

(3) Values and ethics — perceiving perspectives, empathy, and moral stance through communication [15];

(4) Collaborative wisdom — generating shared meaning through cooperative learning;

(5) Reflection and metacognition — deepening understanding through self-monitoring [16].

Together, these dimensions constitute the mechanism of wisdom generation within the classroom, making it an irreplaceable humanistic space in the age of AI.

2.5 Challenges and Opportunities of Classroom Knowledge Management in the AI Era

The impact of AI on the classroom knowledge ecosystem is inherently dual. On the one hand, it leads to knowledge overload, the weakening of authority, and the blurring of values [7]. On the other hand, it offers unprecedented possibilities for knowledge integration, collaborative reflection, and learning analytics [9,12]. The teacher's role is no longer to control the flow of knowledge but to guide students in integrating explicit knowledge and generating tacit wisdom with the support of AI [17]. Consequently, the classroom is shifting from a site of knowledge transmission to a space of co-created wisdom, with knowledge management serving as the key pathway to realize this transformation.

In summary, although existing studies provide a solid theoretical foundation for this research, three major gaps remain. First, most studies on AI in education focus primarily on technological aspects and lack a knowledge management perspective. Second, there is no systematic integration between knowledge management theory and AI-based educational research. Third, the mechanism underlying the generation of tacit wisdom in classroom settings lacks empirical support.

Accordingly, this study adopts knowledge management theory as its central framework to construct a triadic knowledge flow model among AI, teachers, and students. Using qualitative classroom observation and thematic analysis, it seeks to uncover the interactive mechanisms between explicit knowledge and tacit wisdom in AI-mediated university classrooms, offering insights for educational innovation and the professional transformation of teachers.

3. Theoretical Framework

3.1 The Educational Relevance of Knowledge Management Theory

Knowledge Management (KM) theory originated in organizational innovation and learning research, aiming to explain the mechanisms of knowledge creation, flow, and transformation [4]. In the field of education, KM provides a critical analytical framework for understanding knowledge creation and sharing within teaching and learning contexts. The classroom can be regarded as a dynamic knowledge system in which teachers, students, and learning resources collectively form an interactive cycle of knowledge creation and exchange [5].

The SECI model proposed by Nonaka and Takeuchi—Socialization, Externalization, Combination, and Internalization—constitutes the core of KM theory, revealing the dynamic interplay between explicit and tacit knowledge. Its four stages correspond to educational processes as follows:

(1) Socialization (S): Students transform individual experiences into shared cognition through classroom interaction and collaborative learning.

(2) Externalization (E): Teachers and students articulate tacit understanding through expression, discussion, or AI-assisted writing.

(3) Combination (C): Teachers integrate textbooks, AI-generated content, and case studies to reorganize knowledge into systematic structures.

(4) Internalization (I): Students transform explicit knowledge into personal wisdom through reflection and practice.

The SECI model demonstrates that teaching is not a linear act of transmission but a continuous, spiral process of knowledge innovation and wisdom generation, offering a solid theoretical foundation for understanding learning mechanisms in AI-driven classrooms.

3.2 Knowledge Flow Mechanisms in the AI Era

The emergence of artificial intelligence (AI) has reshaped how knowledge is generated and circulated, transforming classroom knowledge management from a traditional linear transmission model into an intelligent, symbiotic, and multi-directional interactive system [2].

Within AI-supported learning ecosystems, knowledge flow follows a triadic interaction among AI systems, teachers, and students:

(1) AI systems act as integrators and mediators of explicit knowledge, responsible for content generation and data feedback.

(2) Teachers serve as knowledge facilitators and meaning constructors, stimulating students' tacit wisdom through contextual design, dialogue, and reflective activities.

(3) Students function as both learners and co-creators, internalizing and reconstructing knowledge with the support of AI and teacher guidance.

This multi-directional interaction forms a double-helix model of classroom knowledge management in the AI era: AI accelerates the diffusion of explicit knowledge, while teachers and students collaboratively foster the deeper generation of tacit wisdom. Rather than replacing teachers, AI becomes embedded within the classroom ecosystem—serving as a critical node of knowledge flow and a collaborative agent for pedagogical innovation.

3.3 Conceptual Framework of Classroom Knowledge Management

Building upon Knowledge Management (KM) theory and AI-supported learning mechanisms, this study develops a conceptual framework for classroom knowledge management in the AI era (see Figure 1). The framework integrates the SECI model with the triadic interaction among AI systems, teachers, and students, illustrating their synergistic relationship in the processes of knowledge creation and transformation.
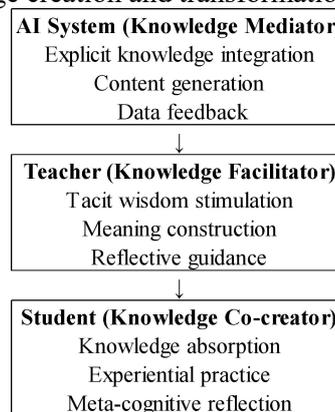
Figure 1. Theoretical Framework of Classroom Knowledge Management in the AI Era (Schematic)

The framework operates across three core dimensions:

(1) Knowledge flow pathway: AI generates

explicit knowledge, teachers design and guide learning contexts, and students engage in absorption and re-creation.
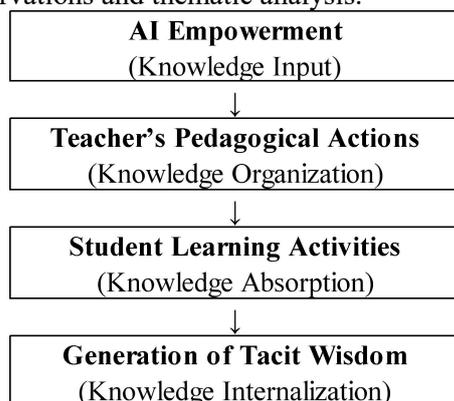
(2) Knowledge transformation mechanism: Through the cyclical process of Socialization, Externalization, Combination, and Internalization (SECI), the classroom forms a dynamic spiral of knowledge evolution.

(3) Generation of tacit wisdom: Interaction among teachers, students, and AI facilitates the internalization of knowledge into understanding, judgment, and values—realizing wisdom development in the educational sense.

This framework reflects the structural transformation of the classroom from a knowledge transmission system to a wisdom-generating ecosystem.

3.4 Analytical Model of the Study

Guided by the above theoretical framework, this study develops an analytical model of classroom knowledge management in the AI era (see Figure 2) to inform subsequent qualitative observations and thematic analysis.

AI Empowerment
(Knowledge Input)
↓
Teacher's Pedagogical Actions
(Knowledge Organization)
↓
Student Learning Activities
(Knowledge Absorption)
↓
Generation of Tacit Wisdom
(Knowledge Internalization)

Figure 2. Analytical Model of Classroom Knowledge Management in the AI Era (Logical Pathway)

The model reveals a three-layered logic:

(1) Input layer – AI empowerment: AI provides explicit knowledge and learning resources, expanding the pathways of knowledge input.

(2) Process layer – Teacher-student interaction: Teachers implement knowledge management strategies, while students construct meaning through interaction and participation.

(3) Outcome layer – Generation of tacit wisdom: Learners internalize knowledge through reflection, dialogue, and practice, ultimately forming personal wisdom.

This model provides a systematic analytical framework for understanding how AI facilitates knowledge flow and wisdom generation within the classroom.

4. Research Design

4.1 Research Paradigm and Methodological Approach

This study adopts a qualitative research paradigm, aiming to gain an in-depth understanding of the dynamic mechanisms and contextual characteristics of knowledge management in university classrooms during the AI era. Qualitative inquiry emphasizes exploring meaning within natural settings, making it particularly suitable for uncovering the implicit processes underlying complex educational interactions [18].

The research primarily employs classroom observation, supplemented by semi-structured interviews, to ensure methodological triangulation and strengthen overall credibility. Through systematic observation of authentic classroom settings, the researcher examines interactions among teachers, students, and AI tools, analyzing the processes of knowledge creation, circulation, and internalization in order to reveal the micro-mechanisms through which explicit knowledge transforms into tacit wisdom.

4.2 Research Context and Participant Selection

To enhance representativeness and diversity, the study selected classrooms from three universities with distinct disciplinary orientations, encompassing courses in education, language, Engineering and management (see Table 1). All participating classes had integrated AI-based tools, allowing for comparative analysis of classroom knowledge management practices across different AI application contexts.

The study was conducted over 8 weeks, with each session lasting approximately 90 minutes, resulting in 32 classroom observations in total.

This multi-site design enabled a comprehensive understanding of the diverse manifestations of classroom knowledge management across varying teaching cultures and levels of AI integration.

4.3 Research Instruments and Data Sources

4.3.1 Classroom observation protocol
Drawing upon the SECI knowledge management model and the triadic interaction framework among AI, teachers, and students, the study designed a classroom observation protocol

encompassing four analytical dimensions (see Table 2).

This instrument was used to systematically

record classroom behaviors, interaction patterns, and the use of AI tools during instructional activities.

Table 1. Overview of Research Samples and AI Application Contexts

University	Course Type	Teacher Characteristics	Number of Students	AI Application
University A	Language	Mid-career instructor with extensive teaching experience	45	Used Deepseek, ERNIE Bot for case analysis
University B	Engineering	Male instructor emphasizing project-based learning	40	Used ERNIE Bot/Dola and AI-assisted drawing tools
University C	Management	Female instructor emphasizing classroom discussion	52	Students used Kimi for information retrieval

Table 2. Dimensions and Indicators of Classroom Observation

SECI Dimension	Observed Elements	Key Indicators
Socialization (S)	Teacher–student interaction; collaborative learning	Level of student participation; depth of interaction
Externalization (E)	Expression, discussion, and AI-assisted creation	Level of expression; frequency of AI use
Combination (C)	Teacher's integration of content and AI-based recommendations	Knowledge integration strategies; information organization
Internalization (I)	Reflection and student performance	Quality of self-reflection; depth of knowledge application

After each observation, the researcher recorded critical classroom events, representative verbal exchanges, and relevant nonverbal cues to ensure data authenticity and contextual richness.

4.3.2 Semi-structured interviews

The interviews explored teachers' and students' perceptions of AI and knowledge management.

Teacher interviews focused on the role of AI in instructional design, classroom organization, and knowledge facilitation.

Student interviews addressed AI usage experiences, learning depth, and the perceived meaning of classroom interaction.

All interviews were conducted with informed consent, audio-recorded and transcribed, and subsequently incorporated into the thematic analysis.

4.4 Data Collection and Analysis

The study drew on multiple data sources, including classroom observation notes (32 sessions), teacher and student interviews (20 participants), and instructional documents (e.g., slides, assignments, and AI-generated materials). Data were analyzed using thematic analysis [19], following these procedures:

(1) Familiarization with and repeated reading of the data;

(2) Generation of initial codes (e.g., AI-assisted learning, tacit wisdom formation, reflective deepening);

(3) Identification of overarching themes (e.g., explicit knowledge flow, wisdom generation pathways, teacher–student co-creation);

(4) Construction of a thematic network to interpret the interrelations among AI, teachers, and students in classroom knowledge interaction.

Cross-case comparison and data triangulation were employed to ensure logical consistency and theoretical robustness of the thematic interpretations.

4.5 Research Trustworthiness and Ethical Considerations

To ensure research quality and ethical compliance, the study adopted the following strategies:

(1) Triangulation: Cross-verification of classroom observations, interviews, and documentary data to enhance the credibility of findings;

(2) Member Check: Inviting interviewed teachers to review and confirm the accuracy of the researcher's interpretations;

(3) Reflexive Journal: Documenting the researcher's positionality, reflective notes, and potential biases during data collection and analysis;

(4) Peer Review: Engaging experts in educational technology and AI in education to examine the coding framework and analytical

conclusions.

Ethically, the study strictly followed institutional and educational research guidelines. All participants provided informed consent prior to participation. Data were anonymized, used solely for academic purposes, and the entire research process underwent institutional ethics review.

5. Findings and Analysis

Drawing upon the research methods described in Chapter 4, this chapter analyzes the mechanisms of classroom knowledge management in the era of artificial intelligence (AI) through systematic classroom observations and semi-structured interviews conducted across three universities.

In total, the study included 45 classroom observations, 8 teacher interviews, and 12 student interviews, complemented by cross-validation with course materials, assignments, and AI-generated artifacts.

Using thematic analysis [1], three overarching themes were identified:

(1) New characteristics of explicit knowledge flow;

(2) Pathways for tacit wisdom generation; and

(3) A co-creative model of knowledge management between teachers and students.

5.1 New Characteristics of Explicit Knowledge Flow: AI and the Restructuring of Knowledge Transmission

5.1.1 AI as a "pre-class input source" of knowledge

In most observed classrooms, students used AI tools such as ChatGPT and Perplexity to preview course materials before class and even to search for information in real time during lessons.

Observation data indicate that approximately 68% of students engaged with AI to support their learning (see Table 3).

Table 3. Students' AI Usage and Teachers' Teaching Adjustments

Course	Frequency of AI Use (Student Ratio)	Teaching Adjustment Strategy
Language	72%	Increased use of discussions and case-based guidance
Engineering	63%	Re-analysis and critique of AI-generated content
Management	69%	Emphasis on group reflection and knowledge integration

As Teacher A noted:

"Students now grasp information much faster than before—many come to class already equipped with AI-generated answers."

This finding indicates that AI has significantly reshaped the pathway of knowledge input. The starting point of classroom learning has shifted from "teacher-centered instruction" to a hybrid model of "AI-generated content plus teacher guidance."

5.1.2 The relative weakening and transformation of teacher authority

Teachers are no longer the sole source of knowledge but have become "knowledge filters" and "cognitive integrators."

For example, in the *Engineering Ethics and Innovation* course at University B, after students generated case analyses using AI tools, the instructor guided them to critically compare AI-produced content with real-world cases.

This pedagogical approach exemplifies the transformation of teachers from knowledge transmitters to facilitators of meaning-making.

5.1.3 The "acceleration and fragmentation" of explicit knowledge management

While AI accelerates the circulation of explicit knowledge, it also contributes to information fragmentation.

As Teacher C observed:

"AI-generated answers are often correct, but students do not necessarily understand the underlying logic."

Observation data showed that some students completed tasks efficiently with AI assistance but struggled to explain the conceptual rationale behind their outputs.

This suggests that greater efficiency in explicit knowledge management often comes at the cost of reduced depth of understanding, underscoring the need for teachers to redesign knowledge integration strategies.

5.2 Pathways for Tacit Wisdom Generation: The Deeper Value of Classroom Interaction

5.2.1 Socialization: experience and empathy as sources of tacit cognition

Within the interpersonal contexts that AI cannot replicate, teacher guidance and peer interaction serve as the primary sources of tacit wisdom.

For instance, in the *Principles of Education* course, the instructor posed open-ended questions such as *"Can AI truly understand students' emotional needs?"* to stimulate students' value judgments and ethical reflection.

Observations revealed that such discussions significantly enhanced students' contextual understanding and critical thinking abilities (see Table 4).

Table 4. Classroom Manifestations of Tacit Wisdom Generation

Observation Dimension	Case Example	Type of Tacit Wisdom
Classroom Discussion	Exploring the ethical boundaries of AI-supported teaching	Value-judgment ability
Group Collaboration	Co-editing AI-generated texts	Collaborative thinking and communicative wisdom
Teacher Questioning	Guiding students to reflect on their own learning approaches	Metacognitive ability

These interactive scenarios constitute the socialization process of tacit knowledge, in which wisdom is internalized through contextual experience and collective participation.

5.2.2 Externalization: expression as a means to deepen understanding

In the classroom, students reorganize and articulate the knowledge they obtain through AI, which represents a critical step in the externalization of tacit wisdom.

For example, in the *AI Ethics Debate* activity at University B, students used AI to generate arguments but ultimately developed deeper insights through oral presentations and comparative case analysis.

This indicates that the process of expression serves as a stage of re-creation, where explicit knowledge is transformed back into tacit understanding.

5.2.3 Combination: AI-supported knowledge reorganization

AI tools assist students in rapidly integrating multidimensional information, promoting the structural organization of knowledge.

For instance, in the *Introduction to Management* course at University C, the instructor required students to use AI to generate market-analysis reports and then evaluate their validity through classroom models.

Findings show that this form of AI-integrated, task-driven learning effectively enhanced students' abilities in information integration and analytical judgment, representing a productive form of AI participation in classroom knowledge management.

5.2.4 Internalization: reflection as a driver of wisdom generation

The knowledge provided by AI serves as the "Other" in students' reflective processes.

Through assignments such as *learning reflection journals*, teachers guided students to examine the limitations of AI-generated knowledge and to compare it with their own understanding.

Findings indicated that this stage significantly enhanced students' meta-cognitive awareness. As one student (Student F) remarked, *"AI tells me the answer, but my teacher helps me think about why that answer makes sense."*

This reflective internalization constitutes a key pathway for the generation of tacit wisdom.

5.3 A Co-creative Knowledge Management Model: From Knowledge Flow to a Wisdom-oriented Ecosystem

Through a comparative analysis of the three classroom cases, the study identified a co-creative model of knowledge management in AI-mediated higher-education classrooms (see Figure 3).
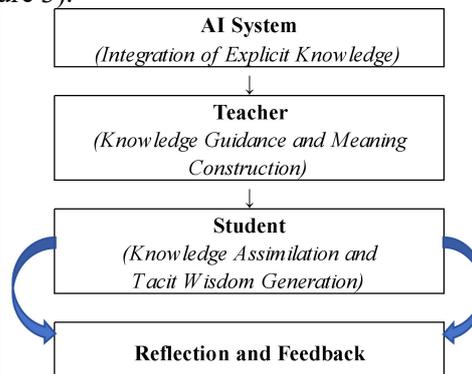
Figure 3. The Co-Creation Model of Knowledge Management in AI-era Classrooms (Synthesized from Observation Results)

This model reveals three emerging characteristics of knowledge management in the AI-enhanced classroom:

5.3.1 Triadic Embeddedness: AI, teachers, and students jointly constitute an interconnected knowledge ecosystem in which each component influences and reinforces the others.

5.3.2 Cyclical Co-creation: Classroom knowledge is no longer transmitted linearly but circulates through continuous processes of reflection, reconstruction, and co-creation.

5.3.3 Wisdom-oriented Learning: The ultimate goal of learning shifts from knowledge acquisition to wisdom generation, emphasizing

depth of understanding, reflection, and value formation.

(1) Teachers' Knowledge Management Competence as the Key to Wisdom Generation

Across the observed classrooms, the depth of wisdom generation largely depended on the teacher's ability to organize AI-generated information and guide students' reflection.

Teacher A demonstrated a strong awareness of knowledge management by asking students to compare AI-generated answers with real-world case analyses, thereby fostering critical judgment and evaluative thinking.

(2) Strengthening Student Agency: AI as a "Cognitive Accelerator"

Interview data showed that 85% of students believed AI helped them understand knowledge more efficiently, while only 42% felt that AI could replace the classroom (see Table 5).

This suggests that students continue to view the classroom as a space for understanding and critical thinking, whereas AI functions primarily as a knowledge trigger that stimulates inquiry rather than substitutes for it.

Table 5. Themes and Positive Response Rates from Student Interviews

Interview Theme	Positive Response Rate	Representative Excerpt
AI enhances learning efficiency	85%	"AI helps me organize notes—it's very convenient."
AI can replace classroom learning	42%	"AI explains things clearly, but the classroom helps me understand the problem better."
Importance of teacher guidance	91%	"The teacher helps us think about what AI doesn't cover."

(3) From a "Knowledge Space" to a "Wisdom Ecosystem"

The emergence of AI has not diminished the classroom but has redefined its functions.

The classroom now serves as a space for knowledge socialization, reflection, and value co-construction.

Within this evolving ecosystem, teachers assume dual roles as Knowledge Managers and Wisdom Facilitators, guiding the transformation of information into understanding and collective meaning.

5.4 Summary

Drawing on qualitative observations and interview data, this chapter identified three major dimensions of knowledge management in AI-era university classrooms: explicit knowledge flow, tacit wisdom generation, and teacher–student co-creation.

The findings indicate that:

(1) AI has reshaped the mechanism of explicit knowledge flow, shifting classroom instruction from knowledge transmission to knowledge integration;

(2) The classroom remains the core site for tacit wisdom generation, where interaction, expression, and reflection enable knowledge internalization;

(3) Teacher–student co-creation constitutes a new classroom ecology in the AI era, with teachers' knowledge management competence serving as the key mediating factor.

These results validate the theoretical framework proposed in Chapter 3, demonstrating that AI, teachers, and students form a multi-directional knowledge cycle, within which the generation of tacit wisdom embodies the essential educational value of this dynamic process.

6. Discussion

Building on the research findings, this chapter integrates perspectives from knowledge management theory and educational transformation to explore the underlying logic of knowledge flow, wisdom generation, and teacher role transformation in university classrooms during the AI era. The study reveals that AI not only reshapes the transmission of explicit knowledge but also propels the classroom's transformation from a teaching space to a wisdom ecosystem. This process validates the applicability of knowledge management theory in education and illustrates the new positioning of the classroom in the age of AI.

6.1 Repositioning Knowledge Management in AI-Era Classrooms

6.1.1 From "knowledge transmission" to a "knowledge ecology"

The integration of AI has shifted knowledge acquisition from a linear transmission model to a multi-source interactive structure. Students now access explicit knowledge through AI before class, transforming the classroom from the "starting point of knowledge" into a space for knowledge reorganization and meaning-making.

This transformation aligns with the SECI model proposed by Nonaka and Takeuchi [4]: within

classrooms, the continuous spiral of socialization, externalization, combination, and internalization forms a dynamic cycle of knowledge re-creation. While AI acts as a "knowledge flow accelerator", the core of wisdom generation remains inherently human. Consequently, the classroom evolves from a knowledge transmission arena into a knowledge ecosystem, and knowledge management expands from the management of resources to the management of meaning.

6.1.2 The decentralization and reconstruction of knowledge authority

Although AI weakens teachers' status as the sole source of knowledge, it simultaneously reinforces their critical role in knowledge curation and meaning facilitation. Teachers are transitioning from "knowledge authorities" to learning designers and knowledge curators [5].

Their primary task is to guide students in using AI critically, deepening understanding, and fostering the generation of tacit wisdom. This reconfiguration signifies a redistribution of educational authority—from the possession of knowledge to the co-construction of wisdom.

6.2 Rediscovering the Educational Value of Tacit Wisdom

6.2.1 The classroom as an irreplaceable space for humanistic wisdom

While AI can efficiently present knowledge, it cannot replicate the emotional resonance and value-based understanding that emerge within classroom interactions. The unique value of the classroom lies in its capacity to generate tacit wisdom—including ethical judgment, contextual awareness, and interpersonal understanding.

This finding echoes Polanyi's notion of the "tacit dimension of knowledge" [3], which holds that genuine understanding stems from experience and relationships, not from the mere accumulation of information. Hence, the significance of the classroom in the AI era has not diminished; rather, it returns to the essence of education—the cultivation of human-centered

wisdom and moral meaning.

6.2.2 The mechanism of tacit wisdom generation: experience–expression–reflection

The study indicates that the formation of tacit wisdom follows a three-stage process of experiential participation, expressive externalization, and reflective internalization. AI enhances the first two stages by accelerating knowledge flow and expression, yet true wisdom generation relies on teacher-guided reflection and dialogic exchange.

In this sense, AI enables knowledge to become explicit, whereas the classroom transforms it into understanding—a symbiotic relationship through which the deeper educational value of learning is realized.

6.3 The Knowledge Management–Oriented Transformation of Teachers' Roles

6.3.1 From "knowledge provider" to "learning designer"

As AI facilitates unprecedented access to information, teachers are shifting from traditional transmitters of knowledge to designers of learning ecosystems (Redecker, 2017). Their primary function no longer lies in delivering content but in designing AI-supported learning structures, integrating multi-source information, and guiding students in constructing meaning through interaction.

6.3.2 Core dimensions of teachers' knowledge management competence

The study identifies three core dimensions of teachers' knowledge management competence in the AI era (see Table 6).

Teachers' level of knowledge management competence determines whether the classroom can evolve from a knowledge space into a wisdom ecosystem.

This transformation—teachers becoming knowledge managers—represents a central driving force for educational innovation in the AI era.

Table 6. Core Dimensions of Teachers' Knowledge Management Competence

Competence Dimension	Core Meaning	Typical Manifestation
Knowledge Integration	Selecting and organizing AI-based multi-source information	Reinterpreting and synthesizing AI-generated content
Learning Facilitation	Stimulating students' thinking and reflection	Designing questions, debates, and reflective activities
Wisdom Generation	Fostering students' values and creativity	Guiding students to move beyond AI-provided answers and form original insights

6.4 Educational Implications of AI–Classroom Symbiosis

6.4.1 Balancing technological empowerment and humanistic wisdom

The essence of AI-enabled education lies in achieving a balance between technological efficiency and humanistic wisdom.

AI can effectively support the integration and presentation of explicit knowledge, yet it is the teacher's responsibility to foster reflection and moral judgment through emotional guidance and value-based dialogue.

Education must resist technological determinism by maintaining a dynamic symbiosis between AI-driven capability and human-centered wisdom.

6.4.2 Innovation in university classroom knowledge management systems

Universities should develop teaching innovation systems centered on the integration of AI and knowledge management, which include:

(1) Establishing AI-supported knowledge management platforms to facilitate content integration and learning analytics;

(2) Promoting teacher–student co-creation of course resources, forming an open and iterative knowledge cycle;

(3) Strengthening mechanisms for tacit wisdom generation, such as reflective journals, contextual debates, and collaborative inquiry.

These strategies enable AI to become a catalyst for wisdom generation, rather than a substitute for educational meaning.

6.5 Theoretical and Practical Implications

At the theoretical level, this study validates the transfer ability of Knowledge Management (KM) theory to educational contexts.

AI, as a novel knowledge intermediary, optimizes the flow of explicit knowledge; however, the generation of tacit wisdom still relies on the classroom's social mechanisms and the teacher's guidance in meaning-making.

Rather than replacing the classroom, AI compels it to rediscover its core value—the generation of wisdom and the cultivation of humanity.

At the practical level, the findings offer several pathways for higher education reform:

(1) Conceptualize the classroom as a dynamic knowledge management system;

(2) Focus teacher professional development on knowledge integration and wisdom facilitation;

(3) Position AI as a partner in knowledge co-creation, not as a substitute for teaching.

Together, these approaches promote a structural transformation of university classrooms—from knowledge transmission toward co-constructed wisdom.

In conclusion, higher education in the AI era is undergoing a fundamental shift—from a paradigm of knowledge delivery to one of wisdom ecology. AI expands the boundaries of explicit knowledge, yet the soul of education remains profoundly human. Teachers are evolving from knowledge holders to wisdom facilitators, and classrooms are transforming from learning spaces into collaborative ecosystems. AI is not the terminator of the classroom—it is the catalyst of educational evolution.

Future teaching should be AI-supported yet human-centered, achieving educational renewal and transcendence through a continuous cycle of technological empowerment, knowledge flow, and wisdom generation.

7. Conclusion and Implications

7.1 Overview of the Study

This study, titled From Explicit Knowledge to Tacit Wisdom: The Challenges and Opportunities of Knowledge Management in University Classrooms in the AI Era, explores classroom transformation in higher education following the integration of generative artificial intelligence (AI) from a Knowledge Management (KM) perspective.

Grounded in Nonaka and Takeuchi's SECI model, the study incorporates the AI–Teacher–Student triadic interaction mechanism to examine how AI reshapes knowledge flow, teacher roles, and the mechanisms of tacit wisdom generation.

Using a qualitative research design that combines classroom observation and semi-structured interviews, the study applies thematic analysis to summarize the defining features and educational implications of classroom knowledge management in the AI era.

7.2 Major Findings

7.2.1 AI restructures the flow of explicit knowledge

AI significantly enhances the accessibility and velocity of explicit knowledge, transforming classrooms from closed systems of knowledge transmission into open systems of knowledge integration. Students use tools such as ChatGPT

and Perplexity for pre-class preparation, while teachers act as curators, filtering and integrating AI-generated content into meaningful learning.

This produces a new model of "AI generation – classroom integration – meaning construction."

However, this acceleration also brings challenges—information fragmentation and superficial understanding—which require teachers to develop stronger knowledge integration and reflective facilitation skills.

7.2.2 The classroom remains the core site of tacit wisdom generation

Although AI efficiently presents explicit knowledge, it cannot reproduce the emotional understanding and value judgment inherent in human interaction. Through discussion, debate, and reflection, classrooms enable students to generate tacit wisdom via the SECI cycle of socialization, externalization, combination, and internalization. This process cultivates critical thinking and ethical reflection, making the classroom a human–AI coexistent space of meaning-making.

7.2.3 Teachers' roles shift from knowledge transmitters to knowledge managers

While AI diminishes teachers' monopoly over knowledge, it reinforces their central role in instructional organization and wisdom facilitation. Teachers are redefined as knowledge curators, learning designers, and wisdom facilitators, maintaining the classroom's knowledge ecology by integrating AI resources and guiding reflective learning. Their knowledge management competence serves as a key intermediary in transforming explicit knowledge into tacit wisdom.

7.2.4 AI drives the ecological transformation of classroom knowledge management

AI transforms the classroom from a linear transmission system into an open, ecological knowledge network. AI, teachers, and students co-construct a cyclical system of technological empowerment, humanistic reflection, and wisdom generation. AI functions not as a substitute for teachers, but as a catalytic node within the classroom knowledge ecosystem, extending both the boundaries of teaching and its innovative potential.

7.3 Educational and Administrative Implications

7.3.1 Integrating knowledge management into teaching innovation

Universities should strategically embed Knowledge Management (KM) principles into teaching quality evaluation and curriculum design systems, shifting the classroom focus from knowledge presentation to knowledge creation. Through AI-assisted integration and reflective learning mechanisms, educators can foster the synergistic generation of explicit and tacit knowledge, aligning instructional innovation with the goals of deep learning and wisdom formation.

7.3.2 Strengthening teachers' knowledge management competence

Teachers in the AI era must possess a hybrid skill set that combines information curation, AI application, knowledge integration, and wisdom facilitation. Higher education institutions can promote this transformation through "AI + Pedagogy" professional development programs and teacher learning communities, supporting teachers' transition toward knowledge-oriented and wisdom-driven professionalism in their educational practice.

7.3.3 Developing AI-enabled knowledge management systems

Universities may establish an AI-based Knowledge Management for Learning (KMS-L) platform to collect, analyze, and visualize knowledge data, as well as document the development of tacit wisdom.

Such systems enable real-time monitoring of classroom knowledge dynamics and support continuous improvement in instructional design and learning effectiveness.

7.3.4 Stimulating mechanisms for tacit wisdom generation

Classroom design should emphasize reflective and co-creative learning activities, such as open-ended discussions, AI–human content comparisons, case co-creation, and reflective learning journals.

These strategies help students transform AI-generated explicit knowledge into personalized wisdom, enhancing both understanding and judgment.

7.4 Policy and Institutional Recommendations

7.4.1 At the institutional level, universities should develop AI teaching application and ethics guidelines; Include teachers' KM competence in promotion and evaluation standards; Encourage interdisciplinary teams to co-develop innovative *AI + Education* curricula and model classrooms.

7.4.2 At the educational policy level, authorities

should integrate AI literacy education into both faculty and student development programs; Establish national research and innovation centers for intelligent classrooms; Formulate ethical and data privacy standards for AI in education, ensuring a balance between technological empowerment and humanistic care.

The advent of AI has made knowledge ubiquitous, yet it has not diminished the essence of education. This study demonstrates that the classroom remains an irreplaceable human learning space—the core site for tacit wisdom generation and collective meaning-making. The integration of AI propels education from knowledge transmission toward wisdom creation, and from teacher-centered instruction toward collaborative co-construction. Future university classrooms should evolve into intelligent ecosystems where AI empowerment and humanistic values coexist harmoniously.

In this new ecology, teachers become knowledge managers, wisdom facilitators, and co-constructors of meaning. Only through this integration can education sustain its humanistic essence and creative vitality in the age of intelligence.

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