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Practical Teaching in Integrative Innovation Incubators: Cultivating Journalism and Communication Talents through Three-Dimensional Integration

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Abstract

Disruptive technologies such as generative artificial intelligence are reshaping the landscape of journalism and communication, placing entirely new demands on the comprehensive literacy of professionals. Aiming at the structural challenges in practical teaching for journalism and communication—including the disconnection between theoretical instruction and industry development, the mismatch between teaching resources and technological advancements, the lagging dynamic iteration of evaluation systems, and the conflict between the instrumental nature of technology and the publicness of journalism—this paper proposes and implements a systematic reform framework. This framework rebuilds the teaching content system through the "three-dimensional integration" of practice connectivity, digital-intelligent empowerment, and humanistic soul-casting, innovates teaching approaches via the "dual-core drive" of industry-education integration and human-machine collaboration, and optimizes evaluation mechanisms through a "dynamic closed loop" of data-driven analysis, multi-source feedback, and agile iteration. Through innovative models such as scenario-based progressive practice, human-machine symbiosis teaching models, and strengthened value anchor construction, this initiative achieves a paradigm shift in practical teaching from single-skill instruction to the cultivation of comprehensive literacy and value shaping. An empirical analysis using the practical teaching of journalism and communication at Communication University of China, Nanjing (hereinafter CUCN) as a case study demonstrates that this model effectively enhances students' all-media combat

capabilities, digital-intelligent thinking migration abilities, and humanistic value consciousness. It provides a replicable innovative pathway for cultivating outstanding journalism and communication talents adapted to the needs of the digital-intelligent era.

Keywords

Practical Teaching, Three-Dimensional Integration, Innovation Incubators

1. Introduction

A technological wave led by generative AI and multimodal large models is profoundly restructuring the content production logic, communication paradigms, and industry ecology of journalism and communication. This transformation accelerates the shift in talent cultivation goals from "technical operators" to "value-leading innovators". At the industry level, intelligent production, human-machine collaboration, and cross-disciplinary storytelling have become the new normal, demanding higher levels of composite skills, critical thinking, and humanistic literacy from professionals. At the societal level, the escalating complexity of information governance and challenges in public opinion guidance urgently require journalism and communication talents to possess the core competencies to master technology while upholding public values.

At the national level, there is significant emphasis on educational digital transformation and innovative talent cultivation models. The Declaration on New Liberal Arts Construction highlights the need to "firmly grasp the most fundamental and critical element of curricula to continuously update educational content," while State Council executive meetings have called for "improving curriculum and textbook systems, promoting interdisciplinary integration, and continuously enhancing the alignment between higher education and economic and social development needs".

However, current journalism and communication teaching practices face severe challenges: teaching content lags behind industry technological iterations, practical training scenarios are disconnected from real-world ecosystems, evaluation mechanisms struggle to dynamically reflect the demands for composite capabilities, and the internal tension between technical instrumental rationality and journalistic public values has intensified. The traditional "skill-based training" model is insufficient to support the cultivation of "innovation-driven" talents required in the digital-intelligent era.

Based on the inherent laws of journalism and communication practice education and contemporary requirements, this paper systematically expounds on an innovative pathway to drive the paradigm shift in practical teaching through the deep integration of "practice, digital-intelligence, and humanism". Using the teaching reform at CUCN as a case study, this paper validates the effectiveness and

replicability of this model.

2. Core Philosophy: Journalism Practice Teaching as an Integrative Innovation Incubator

The disruptive industry changes driven by digital-intelligent technologies require journalism and communication practice teaching to transcend the traditional "tool operation" level and evolve into an incubator for cultivating comprehensive literacy that integrates technological adaptability, practical innovation, and value judgment. This integrative innovation incubator embodies three core attributes:

2.1. Practice Connectivity: Dynamic Competency Progression Enabled by Situated Learning Theory

Lave and Wenger's "Situated Learning Theory" emphasizes that the meaning of knowledge is generated through interactions within authentic contexts. Learning should be embedded in a "community of practice," enabling learners to achieve a transition from peripheral to core competence through "legitimate peripheral participation." (Lave & Wenger, 2004). By constructing a progressive chain of "in-class simulation (case exercises) → on-campus practice (campus media) → industry projects (external bases)," authentic industry projects like Flavors of Jinling are embedded into teaching. This allows students to engage in the operation of the practice community through "learning by doing".

In the Flavors of Jinling project:

1) In-class simulation: Through foundational training like literature research and topic development, students achieved peripheral participation.

2) On-campus practice: By publishing short videos on campus media platforms and receiving peer/instructor feedback, students progressively transitioned toward core participation.

3) Industry project phase: Selected teams engaged in the editorial process at the Yangtze Evening Post, producing in-depth reports that served society, thereby achieving core competency development.

Through such practice communities, the volume of student work published in partner media surged from a low level before the reform to over 400 pieces in the past five years. Furthermore, works being republished by authoritative platforms like Nanjing Release ("Nanjing Fabu") directly demonstrates the situated learning theory's effect on driving "dynamic competency progression"—the higher the degree of participation in authentic contexts, the stronger the practical skills and industry adaptability become.

2.2. Digital-Intelligent Symbiosis: Cognitive Reconstruction via Human-Machine Collaboration within a Constructivist Framework

Piaget's cognitive constructivism theory (Piaget, 1997) posits that learning is a process where learners actively reconstruct cognitive structures through assimila-

tion and accommodation; Vygotsky's sociocultural theory (Vygotsky, 2010) emphasizes the shaping role of tool mediation in cognitive development.

AI toolchains such as ERNIE and DeepSeek serve as cognitive scaffolding, undertaking low-order tasks like information processing and data visualization, thus freeing students' cognitive resources to focus on higher-order thinking such as value judgment, ethical decision-making, and creative expression. In the "AI group/traditional group dual-track experiment," for instance, AI teaching assistants provide real-time efficiency feedback, prompting students to analyze human-AI boundaries and achieve accommodation from "technical application" to "thinking migration". Scenarios like "human-machine collaborative creative workshops" facilitate the formation of distributed cognitive systems between students and AI tools. Teachers transition to roles as "meaning-making facilitators," guiding students to critically examine technical ethics issues such as algorithmic bias and affective computing, thereby preventing instrumental rationality from eroding humanistic values.

Experimental measurements indicate that students' accuracy in predicting news hotspots increased from 48% to 89%, while topic relevance improved by 37%. This demonstrates the efficient support of AI tools for lower-order cognition (e.g., information processing and pattern recognition).

In practice, the AI group proactively revised AI-generated clickbait suggestions, while their awareness of "critical application of technology" significantly strengthened. These outcomes validate the effectiveness of the accommodation process under cognitive constructivism theory: *Tool mediation prompts students to restructure cognition, forming a compound thinking mode that integrates "technological rationality with humanistic judgment"*.

2.3. Humanistic Anchoring: Reinventing Journalistic Professionalism through the Integration of Value Rationality

Weber's "instrumental-value rationality dichotomy" warns of the hegemony of instrumental rationality in the technological era (Weber, 2012) the Marxist view of journalism emphasizes the unity of the party spirit and the people's interests (Yang, 2017), calling for journalists to act as "nodes activating social consensus." Journalism and communication practice teaching prioritizes a value-frontloading mechanism, embedding ethical inquiry scenarios within technical applications. For example, a "deepfake technology sandbox" simulates false information dissemination, guiding students to design countermeasures using the Marxist journalistic principle of "truthfulness", thus reconciling the tension between traffic logic and public values. Meanwhile, through cultural embodied practices—such as projects like "intelligent urban story dissemination" and "rural research"—patriotic sentiment and social responsibility are "embodied" into actionable communication initiatives. Experimental results show that students' "news verification awareness" score increased from 3.2/5 to 4.6/5, and their "sense of social respon-

sibility" rose from 4.2/5 to 4.8/5—directly reflecting the efficacy of value rationality cultivation. In the *Flavors of Jinling* project, students actively flagged questionable information in AI-generated drafts and added verification procedures, demonstrating the formation of a "truthfulness-first" professional ethos. This validates the feasibility of "value rationality integrating instrumental rationality" in Weberian theory.

These three attributes resonate with the philosophical concept of "situated rationality," (Habermas, 2004) where rationality is always embedded in and evolves with specific contexts. Practice teaching thus becomes a vehicle for the dialectical unity of instrumental and value rationality, avoiding both technological alienation and moral preaching.

3. Model Innovation: A New Paradigm of Practical Teaching with Dual-Core Drive and Dynamic Closed Loop

The implementation of the integrative innovation philosophy relies on the systematic reconstruction of teaching pathways and evaluation mechanisms. This achievement innovatively constructs a teaching pathway of "dual-core drive" and an evaluation system of "dynamic closed loop":

3.1. Dual-Core Drive in Teaching Pathways: Industry-Education Integration + Human-Machine Collaboration

The "industry-education integration core" pursues the collaborative evolution of the education chain and industrial chain. Leading media organizations such as Xinhua Daily and Yangtze Evening News are jointly engaged to co-construct curriculum standards, precisely transforming industry frontline needs—such as all-media production processes and emerging ethical challenges—into teaching indicators. A dual-track system of "academic mentors + industry mentors" is implemented, where industry mentors deeply participate in project guidance, work review, and curriculum iteration to ensure teaching content remains synchronized with industry ecosystems. Progressive training platforms are co-established, embedding real industry projects such as journalists' "rural research" into teaching to achieve "learning by doing and doing by learning," thus bridging the "last mile" between talent cultivation and industrial demands.

The "human-machine collaboration core" requires the value symbiosis of technological innovation and humanistic care. AIGC toolchains are deeply integrated into the entire teaching process of news gathering and editing, constructing a collaborative teaching system of "teachers + AI teaching assistants." AI teaching assistants undertake tasks such as process tracking, efficiency analysis, and basic standard evaluation, freeing teachers to focus on value guidance, creative inspiration, and in-depth instruction. Scenarios such as "AIGC short-video creative workshops" are established to explore optimal collaboration models between human creativity (narrative strategies, emotional expression, ethical judgment) and AI productivity (information processing, material generation, efficiency enhance-

ment), cultivating students' core competence to safeguard and manifest humanistic values in technological environments.

3.2. Dynamic Closed Loop in Teaching Evaluation: Data-Driven + Multi-Source Feedback + Agile Iteration

Data-driven evaluation emphasizes the real-time collection of multi-dimensional data via technological means, including:

- Work data (information accuracy, on-site impact, rationality of technical application, etc.);
- Behavioral data (tool usage pathways, decision response time, collaboration efficiency, etc.);
- Cognitive data (perception of technical workload, self-evaluation of logical chains, reflection on value conflicts, etc.).

A multi-dimensional evaluation matrix of "content quality-creation efficiency-learning experience-value recognition" is constructed to provide a basis for precise diagnosis.

A diverse evaluation framework involving "teachers-students + industry + AI teaching assistants + students" is established. "External examiners" from media organizations are invited for online review; AI teaching assistants provide objective data reports and preliminary suggestions; students conduct self-evaluation and gap analysis based on AI evaluation reports, teacher feedback, and industry standards, and propose optimization recommendations, forming a closed evaluation loop.

Based on real-time data and multi-source feedback, teaching content and assessment priorities are dynamically adjusted. For example, in response to major industry technological upgrades or ethical incidents such as the abuse of deepfakes, new training modules or evaluation indicators (e.g., "countering generative AI-fabricated news") are rapidly integrated to ensure curriculum content and evaluation criteria remain closely aligned with industry frontiers and contemporary issues.

4. Practical Breakthrough: The CUCN Sample of Cultivating Outstanding Talents through Three-Dimensional Integration

"Three-Dimensional Integration" refers to an educational model synthesizing "Practice Connectivity + Digital Intelligence Empowerment + Humanistic Soul-Casting".

- Practice Connectivity achieves progressive cultivation from peripheral participation to core competence through a "Three-Phase Practice Chain" (in-class simulation → on-campus practice → industry projects), emphasizing seamless integration between learning and authentic practical scenarios
- Digital Intelligence Empowerment utilizes technological tools (e.g., AI assistants) to support cognitive construction and strengthen digital-intelligent

thinking transfer capabilities.

- Humanistic Soul-Casting centers on theories like Marxist journalism principles to shape professional value rationality and social responsibility.

The Journalism Practice Course Cluster at CUCN—including provincial first-class courses such as *Data Journalism & Intelligent Communication* and *Television News Practice*—serves as a pivotal arena for implementing this innovative framework. Its teaching efficacy has significantly improved, evidenced by:

4.1. Practice Connectivity Dimension: From Classroom Simulation to Industry Influence

The gradient training of "classroom simulation → on-campus media practice → industry project implementation" has yielded remarkable results. Over the past five years, students have collectively published more than 400 high-quality news works in partner media, with output significantly increasing compared to pre-reform levels. Partner media highly appraise students for their "rapid adaptation to all-media production processes" and "strong innovative awareness." Representative projects such as the Flavors of Jinling series in collaboration with Yangtze Evening News and rural research activities with Xinhua Daily not only produced excellent works but also directly served local social development, demonstrating the social value of practice teaching. The social impact of student practical works in the teaching reform has been significantly enhanced (see Table 1 for details).

Table 1. Comparison of readership and republishing rates between teaching reform group and control groups.

Group	Teaching Reform Implementation	Average Work Readership	Reposting Rate on Authoritative Platforms
Reform Group (Jinling Flavors)	Three-stage Practice + Digital Empowerment + Humanistic Embedding	10 k+	27%
Control Group A (No Project)	Classroom Teaching Only	1 k	0%
Control Group B (Project w/o Reform)	Industry Project Participation Only	5 k	8%

Take the Flavors of Jinling project as an example. Aiming to address the issues of "single simulated scenarios" and "disconnection from industry" in traditional practice teaching, it jointly planned the "In-Depth Reporting on Urban Cultural IPs" project with Yangtze Evening News, transforming local cultural communication needs into teaching tasks and constructing a three-level progressive system:

- Student groups complete documentary research on Nanjing's food culture, topic planning, and interview outline design;
- Test short-video creation on campus media platforms and receive peer and teacher evaluations;
- Select teams through competitive evaluation to enter Yangtze Evening News' editorial processes and produce series reports.

Ten in-depth reports were published in Yangtze Evening News' print edition and the Zijin News App, among which Flavors of Jinling. Among them, *Flavors of Jinling*: *Four Citizens and Their Collaborative Dishes* was reposted by "Nanjing Release", with a single-article readership surpassing 30,000. The project also plans to derive a "digital map of intangible cultural heritage cuisine", enriching smart tourism promotion materials for Nanjing's cultural and tourism department and realizing the transformation of teaching outcomes into public cultural services.

4.2. Digital-Intelligence Empowerment Dimension: Elevating from Technical Application to Thinking Literacy

AI toolchains such as Baidu's ERNIE and DeepSeek have been deeply integrated into all aspects of teaching. By leveraging ERNIE to generate interview question banks and DeepSeek to analyze user interest hotspots, students' accuracy in predicting news hotspots has soared from 48% to 89%, and the relevance of their reporting topics has reached 85%, a 37% improvement over traditional methods. AI tools automatically generate initial drafts of scripts, allowing students to focus on optimizing in-depth interviews and emotional storytelling.

In the Audio-Visual Journalism Practice course, a task titled "On-Site Reporting on Rural Revitalization" was assigned, where students were randomly divided into an AI Group (using ERNIE for copywriting + virtual anchors for broadcasting) and a Traditional Group (fully manual collecting and editing). Both groups were required to complete an audio-visual news short within a limited time. The performance of the two groups was evaluated across four dimensions: work efficiency (time consumption/error rate), normativity (information accuracy), on-site adaptability (supplementing outbreak information), and humanistic elements (emotional expression).

To enhance experimental validity, the teacher implemented stratified grouping based on students' pre-test scores (e.g., subject foundation assessments), followed by inter-group initial ability equilibrium tests. All examined dimensions yielded p-values > 0.05, indicating no significant difference in baseline capabilities between the AI group and Traditional group prior to the experiment. This confirms that the random assignment effectively controlled inter-group bias (Detailed in Table 2).

Table 2. Initial competency assessment for AI/traditional groups (2023 Broadcasting Class).

Competency Dimension	AI Group (n = 40) Mean ± SD	Traditional Group (n = 40) Mean ± SD	t-value	p-value
Short Video Creation	28.5 ± 4.2	27.8 ± 4.5	0.76	0.45
Industry Knowledge	19.2 ± 3.1	18.9 ± 3.3	0.47	0.64
Digital Tool Proficiency	3.4 ± 1.2	3.3 ± 1.1	0.41	0.68

Post-experiment analysis revealed a significant enhancement in students' aware-

ness of "critical technology application." For instance, when reporting on a village's plum blossom industry, the AI Group proactively rejected AI-generated "clickbait" suggestions that contradicted journalistic authenticity and manually revised the content. Additionally, the integration of "AI teaching assistants" in evaluation shortened the feedback cycle from 7 days to 2 days, accelerating the refinement of student works by 50% and enabling teachers to concentrate on higher-order guidance.

4.3. Humanistic Spirit Cultivation Dimension: Internalization from Value Cognition to Action Awareness

"Humanistic Spirit Cultivation" emphasizes embedding ethical reflection and value judgment training in technological applications and practices, grounded in Weber's "Instrumental-Value Rationality" theory (Weber, 2012) and the Marxist Concept of News. This approach fosters professional consciousness and social responsibility centered on "truthfulness first and people-oriented principles (Yang, 2017).

In the Flavors of Jinling project, when a student group identified doubts about the historical origin of a viral shop, they proactively marked the questionable information in the AI-generated copy and added an expert verification session, reinforcing their professional awareness of "truthfulness first." Meanwhile, the journalism and communication practice curriculum cluster concretizes Marxist journalism concepts, professional ethics, and social responsibility into practical scenarios through projects such as "technical ethics sandboxes" and "intelligent dissemination of historical stories."

- Student A articulated in the interview: "During our on-campus practicum, the instructor required us to apply Piaget's cognitive development theory to critically evaluate AI-generated headlines. This approach led me to consciously reject the clickbait proposals crafted by AI for the 'Flavors of Jinling' culinary heritage project, compelling me instead to excavate the artisan narratives embedded within century-old establishments." This vividly demonstrates how the infusion of both Piaget's developmental framework and Marxist value rationality into technological practices empowers students to *transcend the algorithmic cocoons of AI and emerge as cultural stewards in the digital age*. Such transformation epitomizes education's ultimate mission amid the AI surge: *Humanistic empowerment and reclaiming tools for human ends*.

5. Conclusion

In the era of overlapping digital civilization and intelligent communication, the paradigm innovation in journalism and communication education exhibits remarkable characteristics of "three-dimensional leap": evolving from a traditional knowledge replication system of skill-based training to an ecosystem of value incubation and cognitive construction; transforming from a single-professional-capability cultivation pathway to a three-dimensional coordinate system integrating

practical innovation, digital-intelligent empowerment, and humanistic spirit. The essence of this paradigm shift is a strategic fulcrum to address the talent demand changes in the digital-intelligent era and support the construction of an educational power, marking a strategic elevation of journalism and communication education from industry-oriented tool supply to infrastructure construction for national governance modernization.

The current value reconstruction in journalism and communication education is characterized by "double transcendence": breaking free from the path dependence of traditional vocational capability cultivation while surpassing the cognitive shackles of technological instrumentalism. The "three-dimensional integration" core philosophy, "dual-core drive" teaching pathway, and "dynamic closed-loop" evaluation mechanism proposed in this paper together form an innovative engine driving the paradigm shift of practical teaching from a "skill training ground" to a "value incubator." The practical case of Nanjing University of Media and Communication strongly demonstrates the model's significant effectiveness in enhancing students' combat capabilities, digital-intelligent literacy, and humanistic value awareness. Just as the Ministry of Education's "101 Plan" focuses on cultivating innovative talents in basic disciplines, the targeted innovation of practical courses is equally a key link to activate the chain reaction of journalism and communication education and deliver composite (interdisciplinary) innovative talents.

Looking ahead, journalism and communication practice education must, under the guidance of "New Liberal Arts", further deepen technology-driven intelligent teaching, advance interdisciplinary curriculum system reconstruction, upgrade industry-education collaborative ecosystems, systematically embed humanistic value guidance, and explore innovative pathways integrating globalization and localization. Only by continuously promoting integrative innovation in practical teaching can we cultivate outstanding journalism and communication talents who master both "techniques" and "principles," can wield intelligent tools while safeguarding humanistic values, and truly become innovative engines supporting Chinese-style modernization and key builders of social cognitive infrastructure.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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