Exploration of Teaching Methods and Innovative Paths for Artificial Intelligence General Education Courses in Media Colleges from the Perspective of New Engineering

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Abstract: Against the backdrop of artificial intelligence deeply reshaping the media industry ecology, the new engineering concept puts forward a composite requirement of "technical literacy+humanistic background+cross-border ability" for talent cultivation in media colleges. This article addresses the problems of interdisciplinary superficiality, practical teaching tools, and marginalization of ethics education in current media colleges' general education of artificial intelligence. Based on the perspective of new engineering, it proposes innovative teaching methods such as constructing interdisciplinary knowledge graphs, implementing "case driven+project practical" three-dimensional practical teaching, and using intelligent technology to achieve personalized learning support. At the same time, exploring innovative paths such as dynamic adaptation of curriculum system reconstruction, deep integration of industry and education in collaborative education mode, and multi-dimensional teaching evaluation system, and proposing countermeasures for challenges such as teacher shortcomings, resource integration difficulties, and insufficient support for differentiated learning of students. Research has shown that through the deep coupling of technological logic and humanistic logic, it is possible to effectively cultivate the "hard skills" of media students in mastering AI tools and the "soft power" in adhering to media ethics, providing a strategic pivot for media colleges to connect with new engineering disciplines and empower new media.

Keywords: New Engineering; Media Related Colleges and Universities; Artificial Intelligence General Education; Teaching Methods; Innovation Path.

1.Introduction

1.1 The Dual Variation of Technological Revolution and Educational Paradigm

In the current explosive development of AIGC technology, the media industry is undergoing unprecedented changes. According to the "China Media Industry Development Report (2024)", the application coverage of intelligent content generation tools in the field of news production has exceeded 65%, and the proportion of content distribution based on algorithm recommendations on short video platforms is as high as 82%. This technology driven industrial transformation requires media talents not only to possess traditional content creation abilities, but also to master core skills such as data mining, algorithm applications, and intelligent interactive design in the context of new engineering disciplines. However, there is still a significant lag in the talent cultivation system of current media colleges. Taking a "Double First Class" media college as an example, the employment feedback of its 2023 graduates shows that only 23% of students are proficient in using AI tools to solve practical problems in job hunting, reflecting the disconnect between curriculum design and industry demand.

1.2 Research Value and Problem Orientation

This study focuses on the particularity of artificial intelligence general education in media colleges from the perspective of new engineering disciplines. It is not only a positive response to the Ministry of Education's "Guidelines for Research and Practice Projects in New Engineering", but also a key measure for media education to adapt to technological changes. Through in-depth analysis of key issues such as interdisciplinary knowledge

integration mechanisms, construction of practical teaching systems, and cultivation of ethical literacy, we attempt to break the dilemma of the "separation of technology and humanities" in traditional education, and provide theoretical support and practical paths for cultivating composite media talents with both innovative thinking and practical abilities.

2.Review of the Current Situation and Core Contradictions of Artificial Intelligence General Education in Media Colleges

2.1 The Realistic Landscape of Curriculum Construction

1. The superficial dilemma of interdisciplinary studies. Currently, most universities' AI general education courses still focus on computer science foundations and have not effectively integrated into the special application scenarios of the media field. Taking a provincial media college as an example, in its "Introduction to Artificial Intelligence" course, the content related to media applications only accounts for 15% of the total class hours, and mostly focuses on conceptual introductions, lacking specific practical case support. A survey shows that only 32% of media colleges in China have set up a media industry case library in their curriculum, making it difficult for students to establish the transfer ability of "AI technology media practice".

1. The limitation of tool based practical teaching is that existing courses focus on imparting AI theoretical knowledge, while neglecting tool application and scenario based training. The practical section of the "Artificial Intelligence and Media" course in a certain university only accounts for 20% of the class hours, and most of them are general programming experiments, such as MNIST handwritten digit recognition, lacking specialized training for media content production, dissemination effect evaluation, and other aspects. Students generally reflect that what they learn in the classroom is difficult to directly apply to practical work scenarios in the media industry.

1. The marginalization tendency of ethical education. Against the backdrop of frequent technological ethical issues such as algorithmic bias, deep forgery, and data privacy, media AI general courses generally have weak ethical modules. Only 18% of universities have included "Intelligent Communication Ethics" and "Media Data Security" as compulsory content, and the teaching methods are mainly theoretical lectures, lacking in-depth analysis of real-life cases. Taking a certain university as an example, the class hours related to ethical discussions in its relevant courses are less than 10% of the total class hours, making it difficult to cultivate students' sense of responsibility in dealing with technological risks.

2.2 Analysis of Core Contradictions in the Perspective of New Engineering

1. The tension between technical progressiveness and professional adaptability In limited class hours, how to balance AI basic theories (such as machine learning algorithms) and media professional needs (such as intelligent content review), and avoid falling into the polarization of "technology piling" or "superficial" has become a difficult point in curriculum design. For example, excessive emphasis on in-depth explanations of algorithm principles can lead to students developing a fear of difficulty; However, simplifying the technical content too much cannot meet the media industry's requirements for technological application capabilities.

1. The conflict between knowledge integration and personalized learning. There are significant differences in the mathematical foundation and technical acceptance of media students, and the traditional unified teaching mode is difficult to meet the needs of different learning paths. Taking a certain university as an example, in the course of "Artificial Intelligence General Education", the pass rate of technical practice assessment for students with a humanities background is only 68%, while for students with a science background it is as high as 92%. This significant difference requires the construction of a hierarchical and classified teaching system.

1. The disconnect between industry demand and education supply is a structural contradiction between the urgent demand for AI tool operation ability and cross platform data processing ability in the media industry and the weak practical modules in university courses and shallow cooperation between schools and enterprises. According to industry research, the annual growth rate of demand for media talents with AI content generation capabilities in enterprises exceeds 30%, but the

scale of talent cultivation for relevant courses in universities is far below market demand.

3. Multidimensional Integration: Innovative Teaching Method System under the Guidance of New Engineering

3.1 Stereoscopic Construction of Interdisciplinary Knowledge Graph

3.1.1. Modular design of "technology base+media application"

Technical core module: covering AI core technologies such as machine learning basics, natural language processing, and computer vision, adopting a teaching method of "principle explanation+tool practical operation", focusing on the popularization of principle knowledge (avoiding complex mathematical deduction). For example, when explaining decision tree algorithms, building a simple model of a news recommendation system can help students understand the practical application logic of the algorithm.

Media empowerment module: develop characteristic units such as "AI and data news", "intelligent communication algorithm analysis", "media content generation technology", and introduce practical cases of Caixin data visualization team and ByteDance algorithm engineers. Taking the "AI and Data News" module as an example, by dismantling the production process of Caixin's "Vaccine Data Visualization Report", students can master the full process technology application from data collection, cleaning to visualization presentation.

Ethical reasoning module: Set up topics such as "Algorithm Fairness and Media Responsibility" and "Legal Boundaries of Deep Falsification Technology", and conduct debate based teaching in conjunction with hot events such as "ChatGPT Generating Fake News" and "Information Cocoon Effect". For example, organizing students to debate whether AI generated content should be labeled with identity, guiding students to deeply consider ethical issues in technology applications.

3.1.2Collaborative teaching of cross disciplinary faculty team:

Establish an interdisciplinary teaching team composed of AI teachers from the School of Computer Science, practical mentors from the School of Journalism and Communication, and ethics experts, using a rotating teaching mode of "main teacher+industry mentor+interdisciplinary guests". When teaching the "Intelligent Recommendation Algorithm", computer teachers explain the principles of the algorithm, invite Tencent News product managers to analyze the application logic and ethical considerations of recommendation systems in information distribution, and finally, ethical experts guide students to explore fairness issues in algorithm recommendations.

3.2 Three Dimensional Practical Teaching of "Case Driven+Project Practical"

3.2.1. Construction of a stepped case library

Basic cases: Select entry-level cases such as "sentiment analysis of news texts using Python" and "AI generated news headlines", focusing on the cultivation of tool operation skills. For example, through the case of "news text sentiment analysis", students can master the usage of the NLTK library in Python and achieve automated analysis of the sentiment tendency of news comments.

Industry case: Introduce real projects such as "CCTV AI Virtual Anchor Research and Development" and "Pengpai News Data News Production Process" to analyze the specific application path of AI technology in media production. In the case study of "CCTV AI Virtual Anchor Development", invite project team members to share the modeling, motion capture, speech synthesis and other technical aspects of virtual anchors, so that students can understand the cutting-edge technology applications in the industry.

Innovative case: Conduct role-playing of "ethical dilemmas in intelligent communication", simulate the handling process of "deeply forged videos triggering public opinion crises", and cultivate problem-solving abilities. Students are grouped to play the roles of media practitioners, technical experts, government regulatory departments, etc., and through negotiation, develop crisis response plans to enhance their ability to handle ethical issues in technology.

3.2.2.Deep application of project-based learning (PBL)

Set up a course design section on "Media AI Application Innovation", requiring students to complete specific tasks in groups. For example, developing a simplified version of the "Intelligent Public Opinion Monitoring

System" to achieve sentiment classification and hot topic clustering of news texts; Design an AI assisted news writing tool to generate structured articles for specific fields such as sports events and financial news; Produce a "Technology Ethics Warning Short Film" to visually present risk scenarios such as algorithmic discrimination and privacy breaches. During the project implementation process, a "dual mentor system" will be adopted, with on campus teachers providing technical guidance and enterprise mentors conducting industry demand checks.

3.3 Personalized Learning Support Empowered by Intelligent Technology

Construction of Adaptive Learning Platform: Utilizing AI learning systems to analyze students' leading course grades and learning behavior data, dynamically generating personalized learning paths. For students with weak technical foundations, push pre course resources such as "Python Programming Micro Course" and "Machine Learning Popular Interpretation"; Open advanced content such as "Media AI Open Source Project Library" and "Industry Frontier Technology Live Streaming" to students with outstanding practical abilities. For example, the system automatically identifies students with weaker programming abilities by analyzing their completion of programming assignments, and pushes targeted programming practice question banks and video tutorials.

Innovation of blended learning mode: adopting a three line integration mode of "online theoretical learning+offline workshops+cloud based practical training". Online platforms (such as MOOCs) carry knowledge lectures and basic testing, utilizing AI question banks to achieve intelligent test paper generation and real-time feedback; Offline classroom focuses on case studies and thinking training, stimulating critical thinking through forms such as "World Caf é" and "Debate Arena"; The cloud laboratory provides unified computing power support, allowing students to complete practical tasks such as data crawling, model training, and visualization online. For example, in the course of "AI and Data Journalism", students first learn the theoretical knowledge of data crawling and processing online, pass the test, participate in offline workshops for case analysis and group discussions, and finally complete data visualization project practice in the cloud laboratory.

4. Innovation Path: Building a Curriculum Development System of "Demand Oriented Capability Based Ecological Collaboration"

4.1 Dynamic Adaptation of Curriculum System Reconstruction

4.1.1.Hierarchical structure of "core compulsory courses+directional elective courses"

Core compulsory courses: aimed at all media students, lay the foundation of AI cognition (48 hours), covering modules such as "Artificial Intelligence and Media Transformation" and "Fundamentals of Intelligent Communication Technology". The course adopts a mixed teaching mode of "theory+practice+discussion", which strengthens students' understanding and application of AI basic knowledge through group assignments, classroom presentations, and other methods.

Direction elective courses: Set differentiated modules according to the branches of media majors, such as "AI special effects in film and television media", "intelligent marketing in advertising communication", and "data mining in news communication", for students to choose according to their interests. Taking the elective course "AI Special Effects in Film and Television Media" as an example, the course content includes AI character modeling, special effects synthesis, virtual shooting and other technologies, and invites the technical director of a film and television production company to provide practical guidance.

4.1.2.Real time integration mechanism of cutting-edge technology:

Establishing a dynamic update mechanism for course content, with 20% of class hours reserved each semester for inserting the latest technological achievements. In 2024, the special topic of "Application of Big Language Model in Media Content Generation" will be added to analyze the practical value and potential risks of ChatGPT, ERNIE Bot and other tools; Introduce the topic of "Generative AI and Digital Copyright Protection" in 2025 to explore the disruptive impact of AIGC technology on media content production models. By inviting industry experts to give lectures and organizing students to participate

in cutting-edge technology seminars, we ensure that the course content keeps pace with industry development.

4.2 Collaborative Education Model with Deep Integration of Industry and Education

Practice teaching base jointly built by schools and enterprises: cooperate with ByteDance, Xinhua News Agency Technology Bureau, Migu Media and other enterprises to establish "Media AI Practice Base" and carry out three types of practice projects. During on-the-job internships, students participate in practical work such as enterprise intelligent content review and user profiling analysis; In joint research and development, a team of teachers and students and enterprise engineers jointly develop "media AI assisted tools", such as "short video intelligent editing system" and "news article intelligent proofreading platform"; In case co construction, the difficult problem of enterprise technology application is transformed into a course design topic, such as "How to use AI to reduce the risk of false news dissemination" as the final assessment task. By signing a school enterprise cooperation agreement, the rights and responsibilities of both parties in talent cultivation, technology research and development, resource sharing, etc. are clarified to ensure the sustainability of the cooperation.

Industry certification oriented ability cultivation: Introduce professional certification standards such as "Full Media Operations Specialist (AI Application Direction)" and "Data News Analyst", embed certification assessment content in the curriculum, and achieve integrated training of "course learning skill certification employment connection". Integrate the "Intelligent Communication Effect Evaluation" course with the Google Analytics data analysis certification system, and students can directly participate in the certification exam after completing the course. By collaborating with certification agencies, we provide students with pre exam training, simulated exams, and other services to improve their certification pass rate.

4.3 Innovation of Multi dimensional Teaching Evaluation System

Multidimensional data collection for process evaluation: Construct an evaluation system that includes "knowledge mastery (30%)+practical innovation (40%)+ethical judgment (30%)", and collect data through various methods. Online learning tracks behavior data such as video viewing duration, test accuracy, and forum participation; Indicators such as innovation, technological implementation, and team collaboration effectiveness of the evaluation plan for practical projects; Ethical assessment assesses students' ability to make technical ethical decisions through scenarios, case analysis reports, group debates, and other forms. By utilizing learning analysis techniques, the collected data is comprehensively analyzed to generate students' learning profiles, providing a basis for teaching improvement.

Value added evaluation and dynamic feedback mechanism: Utilize educational big data to analyze students' ability growth curves and provide precise interventions for individual weak links. Push customized training task packages to students with lagging technical operation abilities; Students with insufficient depth in ethical analysis are recommended to read expanded reading materials such as "Twelve Lectures on AI Ethics" and "Philosophy of Media Technology". Through regular learning feedback meetings, showcase students' learning progress and existing problems, and guide them to develop personalized learning improvement plans.

5. Challenges and Countermeasures: Cracking the Deep Bottlenecks of Curriculum Reform

5.1 Shortcomings in Interdisciplinary Competence of the Teaching Staff

Problem: Most media teachers lack a background in AI technology, and computer teachers find it difficult to grasp the characteristics of the media industry, resulting in "technical specialization" or "professional disconnection" in course teaching.

Countermeasure: Implement the "Dual Teacher Capability Enhancement Plan", assign media teachers to technical positions in technology enterprises, and involve computer teachers in media practice training; Establish an interdisciplinary research community and regularly organize "Media AI Education Workshops" to promote knowledge complementarity and experience sharing among teachers from different disciplines. For

example, arranging 10-15 teachers to participate in corporate practice every year, organizing quarterly interdisciplinary teaching and research activities, and inviting industry experts to provide specialized guidance.

5.2 The Difficulty of integrating Resources in Practical Teaching

Problem: The construction cost of AI computing power platforms is high, and the depth of school enterprise cooperation is insufficient, resulting in a lack of practical teaching.

Countermeasure: Jointly build a "Media AI Cloud Laboratory" with universities in the region, and reduce costs through government purchases of services and corporate donations of computing power; Promote the "project contract system" of school enterprise cooperation, clarify the rights and responsibilities of enterprises in curriculum construction, internship bases, scholarship settings, etc., and enhance the stickiness of cooperation. For example, collaborating with companies such as Alibaba Cloud and Huawei Cloud to obtain computing power resources at a lower cost; Sign a long-term cooperation agreement with the enterprise, stipulating that the enterprise will provide a certain number of internship positions and project cooperation opportunities for students every year.

5.3 Insufficient Precise Support for Differentiated Learning Among Students

Problem: Humanities students generally have a fear of technical difficulties, while science students have weak humanistic thinking abilities, making it difficult to balance unified teaching. Countermeasure: Establish "AI Technology Literacy Class" and "Advanced Media Ethics Course" for students with different backgrounds to choose from; Adopting a project-based learning approach with heterogeneous grouping, allowing technical and creative students to complement and enhance each other in team collaboration. For example, when grouping projects, ensure that each group has both students with programming skills and students skilled in creative planning and copywriting, and achieve complementary advantages through team collaboration.

6. Conclusion

The general education of media related artificial intelligence from the perspective of new engineering is essentially a deep coupling of technological logic and humanistic logic. Through the organic integration of interdisciplinary knowledge, the reconstruction of practical teaching scenarios, and the innovation of the mechanism of industry education integration, not only can the technological anemia of traditional media education be overcome, but also the core competitiveness of students in the era of intelligence can be cultivated - possessing both the "hard skills" to master AI tools and the "soft power" to adhere to media ethics, ultimately growing into composite talents who can lead industry changes. In the future, it is necessary to further strengthen the dynamic iteration ability of courses, build a virtuous cycle of "technological innovation education response industry feedback", and make artificial intelligence general education truly a strategic pivot for media colleges to connect with new engineering disciplines and empower new media.

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