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Empowering Island Cultural Resource Education through Generative Artificial Intelligence: Value Logic, Challenges, and Implementation Strategies

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Abstract

The digital era has significantly transformed education and cultural dissemination through Generative Artificial Intelligence (GAI). This technology presents innovative opportunities to optimize Island Cultural Resources (ICR) for education by employing intelligent analysis and personalized recommendations to enrich learning experiences, enhance resource utilization efficiency, and support cultural heritage preservation and innovation. However, GAI also poses challenges alongside its potential, particularly concerning ethics, information security, and academic integrity. This study aims to identify the negative impacts of GAI in education, including the diminishing role and agency of teachers and students, the emergence of information cocoons that limit diverse perspectives, and the growing trend of knowledge homogenization. Additionally, it highlights the urgent need to restructure the educational ecosystem to remain relevant in the face of rapid technological advancements. The research employs a literature review and case study analysis to explore the application of GAI in education, particularly in island-based cultural learning. The findings indicate that GAI may reduce students' creativity and critical thinking without proper implementation while exacerbating digital inequalities. As a recommendation, this study proposes strategies based on human-centric technological ethics, enhanced media literacy, and the deep integration of technology and education to ensure that GAI enriches learning experiences, fosters cultural diversity, and upholds ethical academic values.

Keywords: *Educational Practices, Generative Artificial Intelligence (GAI), Island Cultural Resources (ICR).*

A. Introduction

The rapid advancement of Artificial Intelligence (AI) technology is profoundly transforming the education sector. Among various AI developments, Generative Artificial Intelligence (GAI) has emerged as a disruptive force, introducing creative and adaptive capabilities and reshaping traditional educational models (Ahuerma, 2024). In island regions, where geographical isolation often limits access to quality educational resources, GAI presents

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a promising solution by enriching content, enhancing learning quality, and aligning with national policies aimed at educational modernization and regional development. Initiatives such as China's Education Modernization 2035 and the Education Informatization 2.0 Action Plan emphasize the role of information technology in driving educational innovation and addressing systemic disparities (Liu, Zhang, & Zhang, 2025). These policies advocate for integrating intelligent systems to ensure educational equity, particularly in remote and underserved areas.

Despite its potential, the integration of GAI into island cultural resource (ICR) education presents several critical challenges. A growing concern is the erosion of educational agency, where teachers and students may become overly dependent on AI-generated content, limiting critical thinking, creativity, and personalized learning experiences (Alamri, 2025). While GAI can provide personalized recommendations and adaptive learning paths, excessive reliance on AI-driven content could lead to standardized, homogenized knowledge dissemination, reducing the role of educators in shaping student learning (Winberg & Engel-Hills, 2024). Furthermore, the influence of AI in defining cultural narratives raises concerns about the authenticity and contextual accuracy of the knowledge it generates (Tsai & Chen, 2024). Another pressing issue is the ethical risks and security concerns associated with GAI implementation. The widespread use of data-driven AI models raises potential threats related to bias, misinformation, and privacy violations. For instance, AI algorithms trained on limited or biased datasets may reinforce stereotypes or misrepresent cultural heritage, leading to distorted understandings of history and traditions (Hellman, 2024). Additionally, plagiarism, content authenticity, and the misuse of AI-generated materials seriously threaten academic integrity. Without proper regulation, GAI could inadvertently facilitate intellectual dishonesty, weakening the foundation of ethical scholarship in educational institutions (Deguara, 2024).

While existing literature has explored the role of AI in education, there remains a significant gap in research examining its impact on educational agency and cultural learning in island regions. Studies often focus on the technological capabilities of AI, emphasizing its ability to enhance content delivery, automate administrative tasks, and personalize learning experiences (Meng & Liu, 2025). However, fewer studies critically evaluate how AI-driven education affects the roles of teachers and students, especially in culturally diverse, geographically isolated communities. The intersection between AI, education, and cultural preservation remains underexplored, necessitating further investigation into GAI integration's long-term social, cognitive, and cultural implications (Derakhshan, 2025). To address this gap, this study examines the role of GAI in optimizing Island Cultural Resources (ICR) while critically assessing its implications for educational practices, academic integrity, and cultural authenticity. The research focuses on balancing technological advancements with ethical considerations, ensuring that GAI is an educational enabler rather than a replacement for human agency (Siddiqi, 2024). It proposes a human-centric approach that emphasizes media literacy, responsible AI adoption, and enhanced teacher-student engagement to mitigate the risks associated with AI-driven education (Chen, 2024). By developing strategic frameworks, this study aims to promote sustainable, ethical AI integration that upholds educational equity, diversity, and cultural integrity.

This study is crucial for informing policymakers, educators, and researchers about best practices for integrating GAI responsibly in island-based educational ecosystems. Ensuring AI is a supportive tool rather than a controlling force will be key to fostering technological innovation while preserving cultural diversity and academic integrity. The study contributes to the growing discourse on ethical AI adoption in education, offering recommendations to guide the development of policies that balance AI's transformative potential with the need for ethical oversight and human-centered learning approaches (Nadhira & Mahuli, 2024).

B. Methods

This study employs a qualitative research design that integrates literature review, case study analysis, and logical argumentation to explore the role and implementation of Generative Artificial Intelligence (GAI) in Island Cultural Resource (ICR) education. The research adopts a systematic exploratory approach, focusing on theoretical foundations and practical applications of GAI. The study does not conduct empirical fieldwork but instead synthesizes insights from existing research and real-world case studies to develop a structured framework for assessing GAI's educational impact. This approach ensures a comprehensive understanding of GAI's potential, limitations, and ethical considerations in ICR education.

The research process is structured into three key phases. First, a systematic literature review is conducted to establish a theoretical foundation by analyzing existing research on AI in education, particularly its applications in cultural resource learning. Relevant academic databases, books, and government reports are searched using predefined keywords, ensuring the inclusion of high-quality, peer-reviewed sources. The second phase involves case study analysis, examining multiple real-world cases of GAI implementation in ICR education. These cases include AI-driven personalized learning materials, virtual cultural assistants, and AI-powered educational platforms. Each case is analyzed to identify implementation strategies, challenges, and educational outcomes, allowing a deeper understanding of how GAI is applied in various contexts.

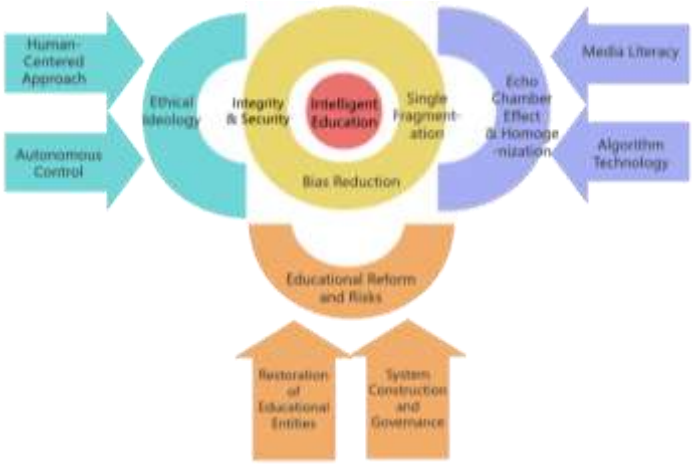

Figure 1. Logic Diagram of Practical Dilemmas and Implementation Pathways for GAI in Empowering Educational Practices of ICR

The third phase focuses on logical synthesis and framework development, where insights from the literature review and case studies are integrated to identify key patterns, knowledge gaps, and potential risks associated with GAI in ICR education. Qualitative content analysis is employed to classify findings into thematic categories such as personalization, cultural preservation, ethical concerns, and AI-driven pedagogy. A comparative analysis is also conducted to highlight differences and similarities between various GAI applications, enabling the construction of a framework that outlines GAI's value, dilemmas, and strategic applications in ICR education. This framework is a guideline for policymakers, educators, and researchers to ensure responsible AI integration.

The data collection relies on two primary methods: the systematic literature review and case study documentation. Academic sources are retrieved from Google Scholar, IEEE Xplore, ScienceDirect, SpringerLink, and JSTOR, ensuring methodological rigor and relevance. Case study data is sourced from published reports, institutional records, and AI education platforms, providing real-world insights into GAI-driven educational transformations. The findings are analyzed through qualitative content analysis and comparative evaluation, allowing the study to formulate recommendations for ethical and effective GAI integration in ICR education. By synthesizing theoretical insights with practical applications, this study provides a comprehensive perspective on GAI's role in advancing cultural education while addressing its challenges and ethical considerations.

C. Findings and Discussion

1. Value Logic of GAI in Empowering Educational Practices of ICR

GAI technology enables machines to exhibit creativity by generating novel content based on learned data patterns. It has been widely applied in art, entertainment, design, and healthcare while catalyzing educational transformations. GAI can produce personalized learning materials, tailored curricula, and virtual teaching assistants within educational contexts, delivering interactive learning experiences that adapt to students' diverse abilities and interests. The essence of GAI lies in its generative capacity to create entirely new data instances rather than merely replicating existing data. GAI demonstrates diversity and interactivity through adaptive content adjustments based on user feedback (Zhou, 2024). Compared to traditional analytical AI, GAI's strengths reside in its creativity and adaptability. While analytical AI primarily identifies and classifies patterns in existing data, GAI generates novel content and provides personalized solutions. GAI accommodates varying learning paces in education, stimulates creative thinking and inquiry-driven approaches, and propels pedagogical models toward personalization and flexibility. GAI exhibits significant advantages in text, code, image, and video generation (Zhou, 2024), encompassing subdomains such as natural language generation (NLG), image synthesis, and audio synthesis, constituting a cross-disciplinary research field. As the technology evolves, GAI is poised to assume an expanded role in education, driving innovation and transformation in pedagogical paradigms.

Technological Evolution of GAI and Educational Transformation

GAI provides technological support for party member education in higher education institutions, driving innovations in cultivation models, pedagogical reforms, and enhancements in educational governance capabilities (Zhou, 2024). This marks an extension and deepening of traditional analytical AI. The technological evolution has progressed from early rule-based simple pattern generation (e.g., music composition) to the widespread application of deep learning techniques. The emergence of Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs) enabled GAI to generate more sophisticated content. In 2014, the proposal of Generative Adversarial Networks (GANs) significantly improved the quality and realism of image generation through adversarial training. The self-attention mechanism of Transformer models in 2017 revolutionized natural language processing, resulting in more fluent and natural text generation.

The advancement of GAI is closely tied to transformer models, transformer-based architectures, Reinforcement Learning from Human Feedback (RLHF), instruction fine-tuning techniques, and chain-of-thought methodologies (Miao, 2023), which endow it with

core capabilities such as heuristic content generation, conversational context comprehension, sequential task execution, and programming language parsing. Notably, RLHF technology enables GAI to iteratively generate content that meets or exceeds human expectations through interactive human-AI communication.

GAI has catalyzed generative inquiry-based learning in the educational domain, emphasizing student-centered pedagogical approaches where learners engage in independent thinking, critical analysis, and creative problem-solving with GAI-assisted instruction to optimize learning outcomes. This paradigm fosters knowledge construction through human-machine dialogues, teacher-student collaborations, and peer interactions, cultivating students' comprehensive competencies. By delivering customized learning experiences tailored to individual needs, GAI equips educators with rich instructional resources through its generative capabilities. These developments suggest GAI's pivotal role in future educational models, supporting the cultivation of innovative thinking and practical skills.

Table 1. Evolutionary Trajectory of Information Technology-Driven Pedagogical Reform

Transformation of Learning Methods	Teaching Organization	Ratio of Vitality	Technological Development	Year
Programming Teaching Experiment	Group Teaching	N:1	IBM Personal Computer	1958
Multimedia Teaching	Class Collective Teaching	N:1	Multimedia Computer	1990
Network Inquiry Learning	Individualized Teaching	1:1	Internet +	2000
Generative Inquiry Learning	Personal Intelligent Assistant/Mentor	1:1	GenAI +	2023

Mission Value of Integrating ICR into Practice-Based Education

In today's globalized world, the diversity and richness of cultural resources have become integral to education. ICR, characterized by its unique geographical and cultural attributes, offers a lens through which to examine the educational value of cultural heritage. For instance, the mangrove ecosystems and fishing culture of Techeng Island educate students about respecting labor, valuing resources, and understanding environmental conservation through field studies and demonstrations of traditional lifestyles.

The mission of cultural resources in education extends beyond transmitting knowledge and skills to cultivating students' holistic development. Folk arts in island cultures—such as weaving, pottery, and other handicrafts—enhance students' practical abilities while stimulating creativity and imagination. These activities facilitate experiential learning and creative growth, providing a platform for self-expression and personal fulfillment. Against the backdrop of globalization, the educational role of cultural resources becomes even more critical, helping students develop cross-cultural awareness, foster intercultural communication skills, and embrace global opportunities while preserving cultural identity.

Similar to how GAI transitions from "disorder" to "order" through scientifically grounded educational applications (Wu et al., 2023), the integration of ICR into education carries a parallel mission: promoting students' comprehensive development via systematic and structured approaches. The impact of cultural resources in education is multidimensional. They embody history, traditions, and values, playing an irreplaceable role in nurturing students' sense of responsibility, innovative spirit, and global perspectives. As a microcosm of this mission, ICR underscores the imperative to preserve and leverage

cultural heritage, laying a robust foundation for the holistic development of future generations.

Epochal Value of Integrating GAI into Cultural Education

The integration of GAI with cultural education drives technological innovation and cultural preservation. AI not only automates the creation of digital teaching materials and intelligent pedagogical tools but also excavates the spiritual essence of cultural resources. By learning data distributions, GAI achieves massive data assimilation, content innovation, and deep interaction (Zhou, 2024). For instance, AI analyzes the historical archives of Techeng Island to produce interactive picture books, offering scenario simulations and role-playing activities that enrich learning experiences.

GAI enhances personalized learning through adaptive mechanisms that stimulate active cognition and efficient knowledge acquisition(Zhou, 2024). It delivers customized content tailored to learners' backgrounds, habits, and interests. When studying Techeng Island's culture, AI provides curated reading materials, videos, and gamified interactions to boost engagement and efficacy. Simultaneously, GAI optimizes educational resource utilization by automating material management—reducing teachers' preparation time—and dynamically adjusting content complexity based on student progress and feedback (Wu et al., 2023), ensuring equitable access to tailored resources.

In knowledge dissemination, GAI demonstrates unparalleled advantages. Leveraging linguistic, visual, and multimodal large models, AI synthesizes, reconstructs, predicts, and generates novel content through deep learning (Zhou, 2024). Compared to traditional methods, AI delivers personalized and innovative materials while automating curriculum updates to maintain relevance. Its interactive systems—equipped with speech recognition and natural language processing—enable human-machine dialogues, mitigating educational alienation through enhanced engagement (Zhou, 2024). The incorporation of ICR disrupts conventional pedagogies by diversifying knowledge sources and instructional strategies, yielding positive student outcomes.

GAI holds profound epochal value in cultural education by democratizing and personalizing resource access, enabling learners from diverse backgrounds to engage with rich cultural heritage. It innovates pedagogical models through novel teaching and assessment tools, facilitates the preservation of endangered cultures, and strengthens global cultural diversity. By improving resource accessibility and customization, GAI propels educational innovation and deepens cultural continuity. Future efforts must explore its applications to achieve equitable, efficient, and individualized education while aligning technological development with human values and cultural plurality. Through synergistic integration, we anticipate an educational future characterized by openness, inclusivity, and creativity.

2. Practical Dilemmas of GAI in Empowering Educational Practices of ICR

Societal Dimension: AI Ethics and Ideological Security

Text generation in GAI relies on natural language models, where training data selection and algorithmic design may reflect developers' subjective preferences, leading to value-laden outputs that trigger ethical risks. These risks manifest at technical and application levels: technical risks include data biases, algorithmic biases, and information security vulnerabilities. GAI's susceptibility to erroneous or inappropriate data may result in overreliance on its outputs—a phenomenon termed "data traps" (Zhang & Xu, 2024)—

threatening national cultural security. As heritage embodies historical memory, national ethos, and regional identity, ICR risks distortion through biased training data during GAI-assisted cultural education, potentially compromising students' cognitive accuracy and ideological security.

Information bias constitutes a primary ethical concern. Training data for GAI predominantly sourced from the Internet often contains prejudicial content regarding gender, race, and religion (Xiao, 2024), undermining output fairness and accuracy while destabilizing social harmony. Such biases may skew pedagogical decisions and learning experiences in education, exacerbating societal inequities (Feng, 2024). Concurrently, AI applications expose university ideological education platforms to cyberattacks, jeopardizing ideological security. Opaque algorithms ("algorithmic black boxes") create vulnerabilities for malicious actors to infiltrate academic systems, steal data, and disrupt stability (Mi, 2021). Western nations may exploit technological supremacy and "algorithmic hegemony" to conduct targeted ideological infiltration, destabilizing higher education's ideological frameworks. Furthermore, GAI lowers barriers to producing deepfakes, enabling low-cost fabrication of synthetic media that threatens national security, public order, and individual rights (Shen, 2024). The rapid, widespread dissemination of AI-generated content risks escalating social instability.

Information security issues demand urgent attention. In medical education, GAI-generated facial images, if misused, erode personal autonomy and public trust in healthcare (Eugene et al., 2023). Educational software risks exposing students' personal information and learning records—sensitive data potentially exploited for model training—violating privacy rights and endangering personal safety(Han,2023). Improper handling of educational data may infringe on privacy, degrade human dignity, and breach student rights.

Regarding ideological security, GAI's capacity for intelligent, low-cost disinformation triggers cognitive overload and ideological subversion, challenging cyber governance. Data sources and algorithmic designs with inherent ideological biases—particularly when trained on Western-dominated datasets—risk propagating foreign values and infiltrating China's mainstream ideology. Globalization exacerbates this as multinational training data embedding diverse ideologies, if uncurated, subtly influences students' worldviews and value judgments, threatening the ideological integrity of island cultural education (Feng, 2024). Critical challenges include preventing GAI from distorting island cultural narratives, diluting ideological authority, or becoming a tool for ideological manipulation while blocking Western cultural infiltration via AI technologies.

Educational Dimension: Transformative Risks in Pedagogical Model

Artificial intelligence triggers educational transformation, with preset programs becoming fixed and homogenized, reflecting developers' biases and affecting teaching fairness. The roles of teachers and students are impacted, urban autonomy is dissolved, and island regions are even more vulnerable. The educational ecosystem requires reconstruction; traditional models change, impacting educational quality and governance. Maintaining the essence of education during this transformation is a forward-looking issue.

Firstly, regarding reducing the principal status in education, From the teachers' perspective, GAI challenges traditional teaching methods, leading to an evolution in the teacher's role. It provides new channels for students to acquire knowledge, challenging the teacher's dominant position and putting the teaching responsibility system at risk. In island

regions, educational philosophies are often rigid, and there is low acceptance of new technologies, necessitating the scientific use of GAI to empower cultural nurturing. Integrating GAI into education shifts educational control, requiring reevaluating the teacher's status. The role of frontline teachers remains significant, but the correct use of technology is critical (Zhang et al., 2024). Teachers need to cultivate critical thinking and moral awareness, and selecting or cultivating teachers who can effectively utilize artificial intelligence is a breakthrough point. The weakening of the teacher's position, inadequate mastery of technology, and fears of being replaced impact teaching and professional development. Enhancing teachers' ability to master new technologies, fostering their thinking and awareness, protecting their principal status, and developing strategies tailored for island regions to promote the transformation of the teacher's role is essential.

From the students' viewpoint, weakening student autonomy under technological assistance and increased learning dependency lead to diminished investigative awareness and critical thinking. GAI fosters a learning model that relies heavily on technology, reducing autonomy and potentially trapping students in an "information cocoon" (Zhang & Xu, 2024). The widespread application of technology reduces collective activities among students, limits social skills, and neglects emotional needs. Its misuse also leads to academic dishonesty. Academic integrity and educational quality face challenges as well. GAI can produce seemingly plausible but unverified texts, challenging the bottom line of academic integrity and leading to frequent occurrences of academic misconduct by students. The authenticity of generated content cannot be guaranteed, which may mislead students, affect the construction of their knowledge systems, result in academic dishonesty and trust crises, and threaten national cultural security and confidence (Jin, 2022). Educational quality refers to the degree to which the educational process, methods, and content results meet specified standards. Intelligent content driven by data and algorithms may erode the educational content system, leading to uncontrollable content dissemination and posing risks to quality. Students' excessive reliance on GAI, neglecting independent thinking and critical thinking cultivation, will severely impact academic literacy and personal development. The influence of GAI on student autonomy makes it difficult for traditional measurements to reflect student benefits and challenges students' social and emotional development, especially regarding emotional experiences and creative thinking. Evaluation orientations limit its effectiveness, making students learn for exams rather than genuine understanding. Its application induces mental laziness and weakens the mainstream values of cultural dissemination, particularly among university educators. The alignment between products and educational scenarios needs validation, and opportunities for independent thinking and group discussions in "one-on-one teaching" decrease, further diminishing the student's principal status. Emphasis should be placed on heuristic teaching, fostering critical thinking and problem-solving abilities, encouraging collective activities, nurturing social skills and group consciousness, strengthening policy support, and conducting in-depth research to assess the effectiveness and safety of applications.

Secondly, concerning changes in the educational system and risks in educational governance, Education is shifting from a teacher-centered approach to a problem-centered one. While GAI facilitates knowledge acquisition, it tends to overlook problem-solving skills, prompting a shift in educational focus toward fostering students' ability to ask good questions and transform their thinking. However, challenges such as resource inequality leading to the "Matthew effect," equipment and paid services exacerbating educational inequality, ethical challenges complicating AI integration, and information barriers and "cocoon" effects limiting cultural dissemination persist. The introduction of GAI technology

increases educational governance risks; opaque algorithms add uncertainty, insufficient credibility impacts the authenticity of knowledge, and negative influences undermine trust between teachers and students. Island region educational systems are fragile, and intelligent content erosion affects the educational system, leading to uncontrollable content dissemination, copyright barriers impacting academic credibility, and affecting educational quality (Wu et al., 2023). Multi-level coordination is needed to foster critical thinking, ensure fair resources, break down information barriers, strengthen technical supervision, guarantee educational innovation and academic credibility, and build a fair, effective, and sustainable educational ecosystem.

Individual Dimension: Information Cocoons and Homogenization

The advancement of AI technologies has intensified the "information cocoon" phenomenon, threatening sociocultural diversity. As Cass Sunstein theorized, individuals confined to preference-aligned information spaces exhibit diminished perceptions of heterogeneous viewpoints. Enhanced GAI algorithms, leveraging deep learning and neural networks, precisely identify user preferences—exemplified by social media platforms analyzing behavioral data to push homogeneous content. This confines users to echo chambers, marginalizes divergent perspectives, and narrows cognitive boundaries through "confirmation bias," undermining cultural education functions (Mi, 2021). Optimized predictive models prioritize content alignment with user cognition, reducing exposure to diverse perspectives and fostering homogenized information ecosystems that reinforce self-perpetuating "information cocoons" (Mi, 2021). Such dynamics constrict individual knowledge horizons and ossify societal misconceptions about island cultures, polarize public opinions, and erode collective consensus-building—cumulatively exacerbating intergroup cultural divides. In the digital dissemination of island cultures, AI recommendation systems' over-filtering of homogeneous content homogenizes public understanding, obstructing cultural diversity and social cohesion.

While China's GAI advancements facilitate island cultural propagation, they pose concurrent challenges. Fragmented dissemination homogenizes information, labels audience cognition, and erodes cultural uniqueness (Ye & Zhang, 2021). Algorithm-dependent outputs—often formulaic and templated—flatten cultural exchanges into homogenized interactions, depriving the public of opportunities for cognitive deepening and stripping cultural narratives of their inherent complexity. Despite operational efficiencies, GAI reshapes information ecologies by amplifying "cocoon" effects, where users gravitate toward gratifying content, accelerating homogenization. This necessitates vigilant mitigation of societal impacts through strategies balancing personalization with pluralism. Cultivating dialectical thinking, open-mindedness, and scientific cognition structures is critical to sustaining open, inclusive, and healthy information ecosystems (Tang et al., 2024).

3. The Practical Path of Empowering ICR Education through GAI

Social Level: Ethical Human-Centric Technology and Ideological Security

To ensure the healthy development of GAI, governance must be strengthened from multiple aspects. Firstly, reinforce the governance of training data to ensure its authenticity, diversity, and lack of bias. Establish strict algorithmic auditing mechanisms to evaluate and monitor generated content's fairness, accuracy, and truthfulness, promptly correcting or phasing out problematic algorithms. Ensuring data integrity involves clarifying protocols for collection, storage, security, and sharing and clearly defining the sources, transformations,

and ownership of data to facilitate long-term audits. Enhancing third-party regulatory forces by establishing cultural technology cooperation teams can enrich regulatory methodologies, ensuring that the safety risks of algorithms in cultural dissemination are controllable. Meanwhile, enhancing the central responsibility awareness of internet enterprises, improving algorithm transparency, and actively cooperating with national algorithm governance is crucial (Wang & Wang, 2023).

Secondly, adhere to human-centric technology ethics and safeguard ideological security. While technological advancements bring benefits, they also come with ethical risks. President Xi Jinping's concept of "technology for good" emphasizes that technological development should enhance human welfare, ensure manageable risks, and benefit the populace (Central Party Literature Research Institute, 2021). By constructing technical assessments and moralized design interventions into the lifecycle of AI technology development, strengthening legislative protection, establishing a multi-faceted collaborative governance framework, and improving existing laws, responsibilities for infringing personal information security can be clearly defined. Special laws protecting personal information security should be enacted, setting legal standards for data collection, analysis, and processing stages. This ensures that technology applications promote educational innovation and protect and inherit cultural resources, achieving authenticity in educational content, correct value guidance, and respect for cultural diversity.

In response to the ideological challenges posed by GAI, society, and schools need to leverage their advantages to develop high-quality educational resources and interactive platforms showcasing the charm and value of island culture. Simultaneously, it is essential to strengthen ideological guidance, uphold human-centric technology ethics, and safeguard ideological security. The Chinese national cultural community encompasses online virtual and offline real-world domains, closely connected and complementary, forming a complete entity. GAI aids in mutual acceptance and inclusiveness among ethnic groups, enhancing consensus on values and emotional cohesion, thus strengthening the cultural community. Ensure that technology applications promote educational innovation while protecting and inheriting ICR to achieve authentic educational content, correct value orientation, and respect for cultural diversity.

Self-control is key to maintaining ideological security. Given that GAI could become a tool in ideological struggles, China must take preemptive actions to dominate technological heights. Measures include upgrading regulatory technologies, optimizing review interfaces, and increasing algorithm transparency to counteract the ability to mass-produce false narratives. Upholding Marxist ideology in leading technology research and development and developing early warning systems to intelligently identify, expose, and critique Western false ideologies is essential (Chu, 2024). Western ideologies often falsely present class interests as universal interests through GAI, engaging in infiltration. Aligned with people's fundamental interests, Marxist ideology holds truth and scientific validity. Technological upgrades are necessary for GAI to correct algorithmic biases, prevent data pollution and discourse "poisoning," overcome the falsity of Western ideologies, and strengthen Marxist dominance and discourse power.

Educational Level: Integrating Tech and Education with Ethical and Risk Prevention Mechanisms

GAI should be viewed dialectically. British educational practices have shown that neither a complete ban nor a laissez-faire approach is ideal; instead, integrating technology with humanities is fundamental. Educational reforms should delve into concepts, goals, and

values. In addressing the challenges of nurturing talents through island culture, practical suggestions should be proposed by combining technological applications with real-world problems, covering aspects such as technology application, renewal of educational philosophies, innovation in methods, and improvement in governance.

Firstly, regarding the restoration of the principal status in education, From the teachers' perspective, collaboration and division of labor between teachers and AI must be achieved, along with fostering the teacher's sense of responsibility and critical thinking skills. GAI can assist teachers in sharing their workload, allowing them to focus on deeper educational tasks. While AI provides customized resources, the pivotal role of teachers in "nurturing talents" cannot be replaced. It is necessary to clarify the auxiliary role of technology and ensure the primary position of teachers. When introducing AI, teachers should be responsible for reviewing content to avoid negative guidance. Training new-era educators to incorporate innovative uses of AI into their competencies is essential. Enhancing teacher training and technical support, offering tailored courses and technical support teams covering AI operations, teaching applications, and critical thinking cultivation are crucial (Wu, Chen, & Feng, 2023). Teachers' critical thinking and moral awareness should be integrated into the training system, guiding them to adhere to educational ethics. Educational researchers should scrutinize AI technologies from an educational standpoint, focusing on students' personalized growth and holistic education. Under AI assistance, teachers should play a leading role in ensuring technology serves the fundamental purpose of education. Through training, technical support, and moral-ethical education, teachers can better utilize AI, maintaining core educational values and humanistic care and guiding students to form correct worldviews, life perspectives, and values, thereby promoting comprehensive development.

From the students' viewpoint, student autonomy should cultivate adaptability, creativity, critical thinking, and self-directed learning abilities. AI technology has sparked a learning revolution, with precision, simulation, and personalization becoming trends due to GAI's capacity to handle information and provide solutions. However, technology may weaken independent thinking and harm academic integrity. Students need guidance on properly using tools, integrating ideological and political education with professional instruction to strengthen value orientation, enabling them to understand AI's instrumental nature and become proficient users who can reasonably apply technology in specialized studies. Addressing diverse forms of academic misconduct requires joint efforts from law and education. Educators should guide students in developing independent thinking and judgment capabilities, exploring appropriate applications of AI in education, providing guidelines for its usage, and explaining restricted areas (Zhang & Xu, 2024). Encouraging participation in collective discussions and investigative activities can foster social skills and critical thinking. Reflection segments should encourage questioning and verifying AI answers, enhancing self-directed learning abilities and laying the foundation for knowledge selection, analysis, and application in the information age. GAI offers both opportunities and challenges for nurturing talents through ICR. Student autonomy should focus on technology application, emphasizing integrating ideological and political education with professional instruction, cultivating critical thinking and self-directed learning abilities, utilizing AI advantages while avoiding risks, and laying the groundwork for comprehensive development and innovation capability enhancement.

Secondly, an intelligent educational ecosystem should be constructed concerning the educational system and governance, seeking innovative paths for educational governance.

The educational ecosystem faces challenges of digital transformation, with gAI introducing new teaching models and evaluation methods. Educational management needs to adjust mechanisms to maintain academic rigor and integrity. Teachers should be able to support students in effectively using AI, providing resources and training, ensuring regular communication, and devising targeted strategies. Universities should support students and faculty in becoming proficient in AI, offering guidance and training to improve AI literacy and ensure proper tool usage suitable for teaching and learning. Research suggests that future higher education should transform, preparing students for employment in a GenAI-driven society, emphasizing new learning outcomes, interdisciplinary and maker learning, and focusing evaluations on classroom and practical experiences. Six research directions are recommended: assessing future workforce capabilities, measuring AI literacy, understanding new literacy relationships, interdisciplinary teaching, evaluating innovative pedagogies, and accepting new assessments (Chiu, 2024). Theoretically, universities need to collaborate and share practices to achieve coordinated progress and systematic management improvements. In educational governance, the reasonable use of GAI necessitates stringent and efficient review and supervision systems to prevent academic misconduct and encourage technological research and enhanced regulation. The education sector should provide swift and reliable software tools and offer categorized guidance based on different university and discipline education models, aiding educational equity. University cooperation is the optimal vehicle for leveraging the potential of GAI, enhancing tool credibility through large-scale management platforms, exchanging experiences, and exploring developments. Enhancing teachers' AI technology literacy is key to transforming the educational ecosystem. Educators need innovative awareness, improved technological literacy, redefined human-technology relationships, proactive teaching philosophies and model shifts, and driving changes. Improving educational risk governance systems promotes the ethical use of AI technology, establishing blocking and traceability mechanisms, reinforcing primary responsibilities, and protecting student privacy and information security (Zhang, Wang, & Shang, 2024).

Individual Level: Enhancing Media Literacy, Content Innovation, and Channel Expansion

Firstly, breaking through the predicament by cultivating the media literacy of the audience(Jin,2022). In the era of intelligent dissemination of island culture, information homogenization weakens the audience's subject consciousness and thinking tendencies. Enhancing media literacy becomes crucial, encompassing the ability to select, understand, critique, and create media messages. Collaborating with media institutions to promote media literacy education can cultivate the public's critical thinking and information discernment capabilities, encouraging cross-field exploration to break down information silos and enhance the autonomy and depth of thought among audiences and, secondly, utilizing algorithmic technological innovations to broaden channels for cultural dissemination. To address the challenge of information cocoons, it is essential to innovate algorithm technologies to expand the channels for disseminating island culture. Using GAI algorithms to analyze users' cultural preferences, targeted recommendations can match user needs with online information. Content creators should strive for depth and differentiation, adopting novel perspectives to integrate cultural knowledge (Tang,2024). Utilizing AI technology to refine user profiles can create personalized cultural promotion plans and exclusive content sections. Both users and platforms must work together to expand information acquisition channels, optimize algorithm design, increase exposure of cross-field content, and build an

open and diverse information ecosystem, ensuring a healthy and diverse information environment that promotes individual and societal progress.

GAI holds application value in the digital transformation of education but also faces issues such as information alienation(Wu et al., 2023). Addressing problems like information cocoons and homogenization requires social collaboration to enhance media literacy, drive content innovation, and broaden information channels, creating an open and inclusive environment. This demands that the public possesses the ability to distinguish between true and false information, content providers seek novelty and change, and platform operators optimize recommendation mechanisms to increase information diversity and depth. GAI is an indispensable presence on the path toward efficient teaching and personalized learning in modern education (Zhang & Xu, 2024). Thus, the ultimate goal is to establish an information ecosystem that meets personal needs and promotes social development, allowing everyone to freely navigate the ocean of island cultural information, enjoy a feast of knowledge, and drive societal advancement to a higher level.

Although GAI brings unprecedented opportunities for nurturing talents through ICR, current practices still face numerous practical problems and challenges. From a societal perspective, issues such as data governance, algorithmic bias, and ideological security have not been thoroughly resolved, and the balance between technology application and ethical norms still requires further exploration. In the educational field, there are differences in teachers' and students' adaptability and application capabilities regarding GAI, and the improvement of educational governance mechanisms remains a long way off. At the individual level, inadequate media literacy, the dilemma of information cocoons, and bottlenecks in content innovation somewhat restrict the effective dissemination of ICR and the realization of their educational value. These issues indicate that empowering talent cultivation through ICR via GAI is still exploratory, necessitating more profound research from multiple dimensions and levels to ensure technology applications' scientificity, safety, and effectiveness. Future research should focus on how to coordinate technological development with ethical norms better, how to enhance the technical application capabilities of educational subjects, and how to optimize the information acquisition and dissemination environment for individuals, thereby promoting the sustainable development of talent cultivation practices through ICR and genuinely achieving the goals of technology empowerment in education and cultural nourishment of society.

D. Conclusion

In the digital age, GAI is revolutionizing education and cultural dissemination. This study focuses on GAI's value logic, practical dilemmas, and implementation strategies in empowering ICR education. Through literature reviews, case analyses, and logical reasoning, we explored its educational applications. GAI's ability to generate new data instances offers innovative applications like personalized learning materials and adaptive teaching assistants, shifting education towards personalization and flexibility. Technological advancements, from early rule-based generation to deep learning and Transformer models, have enabled GAI to drive generative inquiry-based learning, emphasizing student-centered approaches and optimizing learning outcomes through human-machine interactions. However, GAI's application in ICR education faces challenges. Socially, ethical risks arise from data and algorithmic biases, threatening cultural security and student cognition. In education, the status of teachers and students is compromised, and the educational ecosystem

needs restructuring. Individually, information cocoons and homogenization limit knowledge horizons and cultural diversity.

To address these, we propose strategies: socially, uphold human-centric tech ethics, strengthen data governance, and enhance regulatory oversight; in education, deepen tech-education integration, clarify technology's auxiliary role, and build intelligent ecosystems; individually, boost media literacy, innovate content, and broaden channels. In conclusion, GAI presents both opportunities and challenges for ICR education. Future research should focus on aligning technological development with ethical norms, enhancing users' tech capabilities, and optimizing the information environment to ensure sustainable, effective, and secure applications, achieving a technology-empowered education and a culture-driven society.

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