Digital Transformation of Cultural Resources in Vocational Colleges: A Psychological Empowerment Approach to Student Mental Health

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Abstract: This study investigates the digital transformation of cultural resources in vocational colleges as a crucial carrier for shaping students' professional identity and psychological competence. It explores how such transformation empowers the cultivation of cultural identity, autonomy, social connectedness, and psychological capital (PsyCap), addressing the digital era's need for "dual-focused talent development in technological literacy and positive psychological resources." Based on a tripartite motivational analysis—covering strategic imperatives, technological enablement, and pedagogical innovation—this study proposes a systematic psychological empowerment mechanism for digital cultural resource transformation. This mechanism includes digital mirroring of psychological traits through intelligent data acquisition; precision psychological well-being provision using knowledge graphs for personalized resource matching; and immersive cognitive-affective fields that transform abstract cultural values into participatory experiences. A corresponding digital transformation roadmap is devised with the goal of psychological empowerment, focusing on technological integration to construct an intelligent support system, ecological restructuring to build a collaborative empowerment community, and institutional innovation to strengthen standardized governance frameworks. Together, these form a synergistic ecosystem that promotes the dual objectives of "integrating ethics with technical skills and holistically cultivating mind and body," providing paradigmatic support for resilient technical talent development in the digital age.

Keywords: Digital Transformation; Cultural Resources; Psychological Empowerment; Vocational College Students; Mental Health Promotion

1. Introduction

Vocational college cultural resources constitute a collection of material and spiritual elements—including educational philosophies with vocational education characteristics, campus ethos, institutional frameworks, and psychological environments—jointly created and formed by teachers and students through long-term educational practices. These resources not only represent the core soft power of institutional development but also serve as a critical domain for shaping students' professional identity and psychological literacy, playing a vital role in advancing the substantive growth of vocational colleges and enhancing talent cultivation quality.

Currently, human society is immersed in the Fourth Industrial Revolution dominated by digital technologies [1]. The rapid iterative development of artificial intelligence—particularly machine learning, natural language processing, and affective computing—presents new opportunities and challenges for both the development of cultural resources in vocational colleges and their psychological well-being promotion functions. In May 2022, China released the Guiding Opinions on Promoting the Implementation of the National Cultural Digitalization Strategy, advocating to "deepen the integration of culture and technology, leverage advanced applicable technologies comprehensively, and enhance cultural dissemination power, appeal, and impact". This injects new momentum into cultural education while raising new requirements for student psychological well-being support systems. Within this context, vocational colleges must seize this opportunity by leveraging their distinctive educational

positioning to empower cultural education through AI technologies, accelerating the digital transformation of cultural resource development. The core objectives extend beyond cultural preservation and technological advancement to focus on psychological empowerment—enhancing cultural resources' responsiveness to students' psychological needs and effectively fostering critical psychological well-being elements such as cultural identity, autonomy, social connectedness, and PsyCap. This cultivates compound talents meeting industry demands for both technical proficiency and psychological resilience.

2. Background of Psychological Empowerment-Oriented Digital Transformation for Cultural Resources in Vocational Colleges

2.1 Imperative Drivers: Policy Mandates and Industrial Transformation

The deep integration of global digital transformation and educational modernization has propelled cultural resource development in vocational education into a phase of comprehensive reform. From a policy perspective: China's Education Modernization 2035 explicitly lists "accelerating educational transformation in the information age" as a strategic task, with holistic student development—including physical and psychological well-being—as a core objective; The Ministry of Education's digital education strategy has established the world's largest educational resource repository and issued standardization frameworks, serving not only knowledge transfer but also providing digital foundations for cultural education and psychological well-being support; Vocational-specific policies like the Action Plan for Improving Quality and Cultivating Excellence in Vocational Education (2020–2023) have elevated tools such as virtual simulation training and digital textbooks from conceptual proposals to institutional requirements. The deeper intent is to create more engaging and supportive educational environments that foster students' positive psychological attributes. From a societal demand perspective: Technological advancements drive rapid economic and industrial transformation; smart manufacturing and service-sector digitization redefine professional competency standards; emerging occupations require dual capabilities: technical expertise with digital literacy, alongside psychological resilience, effective communication, and adaptive collaboration in volatile environments. This dual policy-market impetus fundamentally reflects a new imperative: the coordinated advancement of educational modernization and cultural governance capabilities. Vocational colleges must digitally reconstruct the complete "resource development–cultural dissemination–literacy cultivation chain". This achieves integrated value across domains: supporting industrial upgrading, promoting educational equity, enhancing talent competency, and crucially, advancing the coordinated development of digital literacy and psychological well-being literacy.

2.2 Feasibility: Technological Enablement and Resource Revitalization

Digital technology clusters represented by 5G (Fifth-Generation Mobile Networks), AI (Artificial Intelligence), and XR (Extended Reality) provide comprehensive technical support for the digital transformation of cultural resources and their psychological well-being promotion functions through innovative applications such as cloud-edge collaboration, intelligent computing, and virtual-real integration. At the resource development level, these technologies enable remote high-definition collection and real-time transmission of cultural resource elements; they facilitate automated annotation, classification, and preliminary processing through AI-powered image analysis and natural language generation; ultimately, they excavate the emotional value and spiritual essence of cultural resources. At the resource sharing level, technologies break geographical and temporal constraints to establish an open, collaborative circulation system; they achieve real-time cross-campus and inter-institutional resource access and sharing, thereby expanding coverage; simultaneously, algorithm-based personalized delivery precisely targets student interests and psychological needs, providing timely cultural enrichment and psychological support. At the resource application level, virtual cultural exhibitions transform static resources into interactive immersive content, creating low-anxiety environments that alleviate social pressure and boost engagement; contextualized teaching overlays virtual cultural

elements onto real settings, enhancing emotional involvement and psychological identification; AI analysis of learning behavior data identifies preferences, interaction patterns, and latent psychological states, generating data-driven insights for personalized psychological empowerment strategies; this transitions cultural resource management from experiential to precision governance. Digital technologies fundamentally establish a virtuous cycle of "technical support → resource revitalization → psychological empowerment", not only resolving fragmentation and homogeneity in traditional cultural resources but also pioneering new pathways for vocational education modernization through cultural resource development, governance innovation, and student psychological well-being advancement.

2.3 Value Realization: Pedagogical Innovation and Cultural Consciousness

The digital transformation of education profoundly aligns with the fundamental task of "fostering virtue through education" and practical requirements of "cultivating people through culture" in vocational colleges. The former emphasizes digital literacy and psychological development, while the latter focuses on cultural immersion and value guidance; together, they synergistically advance the cultivation of high-quality technical talent—particularly fostering sound character and psychological resilience—propelling vocational education toward triple value enhancement. First, scene reconstruction strengthens cultural identity and psychological connection: Chongqing Youth Vocational & Technical College developed the Hongyan Spirit virtual simulation series, utilizing "5G+VR" to transform local red cultural resources into gamified puzzle experiences[2]. This immersive interaction sparks emotional resonance, deepens value internalization, reduces psychological distance from traditional didactic approaches, and integrates cultural heritage, ideological education, and positive affective experiences. Second, model innovation enhances pedagogical efficacy and psychological security: Digital twin technology constructs virtual simulation platforms for high-speed train cockpits. These hyper-realistic environments simulate high-pressure scenarios, lowering training costs while ensuring safety during high-risk operations. This significantly alleviates students' operational anxiety and fear of failure, providing robust psychological assurance for skill acquisition. Third, resource sharing promotes educational equity and social connectedness: Shandong Polytechnic established an online vocational education platform supporting Xinjiang institutions like Xinjiang Jiaotong Vocational and Technical University. Hybrid online-offline teaching enables synchronous "cross-regional classrooms" between eastern and western China, extending quality resources to border regions[3]. This cross-regional collaboration bridges spatial divides, fosters intercultural exchange, builds belonging, and mitigates geographical alienation. This transformation embodies vocational education's cultural consciousness in the digital era. By technologically activating cultural education and extending it to psychological empowerment, it cultivates well-rounded talent integrating technical proficiency with ethical cultivation and holistic physical-mental wellness through virtual-real integration.

3. Psychological Empowerment Mechanism of Cultural Resource Digital Transformation for Psychological Well-being

Cultural identity constitutes a foundational element for psychological well-being[4], reducing students' identity confusion while enhancing psychological security and belonging. The digital transformation of cultural resources integrates cutting-edge technologies—including artificial intelligence, the Internet of Things (IoT), virtual reality, and digital twins—throughout the cultural resource development chain[5], achieving both technological advancement and value reengineering. Its fundamental purpose extends beyond improving the efficiency and reach of cultural education; it lies in establishing a tripartite "technology-culture-education" ecosystem to pioneer novel pathways for empowering student psychological well-being. This transformation forms a systematic psychological empowerment mechanism for vocational college students: Digital Mirroring: Intelligent data acquisition generates explicit representations of students' cultural interactions and psychological traits; Precision Matching & Delivery: Knowledge-graph resource management enables accurate alignment and proactive delivery of cultural content tailored to individual psychological states; Immersive

Internalization: Tangible communication scenarios transform abstract cultural values into perceptible, participatory, and co-creative experiences, fostering positive PsyCap—including self-efficacy, meaning-making, and resilience—through deep engagement

3.1 Digital Mirroring: Intelligent Data Acquisition and Representation

The excavation of cultural resource elements and information collection form the foundation of cultural development in vocational colleges. Under digital transformation, these processes have progressively transcended the limitations of manual recording, evolving into intelligent and dynamic paradigms. Leveraging IoT sensors alongside AI image recognition, affective computing, and other smart technologies, campus entities—from bricks and tiles to equipment, and even the behavioral trajectories of teachers and students—acquire digital identities [6], forming "digital twins" of cultural resources. Examples include previously unquantifiable details now converted into real-time multidimensional data streams: equipment operation metrics in training workshops; fine motor movements and efficiency fluctuations during student operations; concentration levels and interaction patterns in intangible cultural heritage skill transmission; duration and emotional feedback during cultural activity participation. This transformation replaces static paper-based archives with "living heritage preservation"[7]. Crucially, through tangible data mining and panoramic digital mapping, it synchronously generates "digital mirrors" that reflect students' cultural engagement behaviors and latent psychological traits—capturing individual and group-level engagement intensity in cultural contexts, interest preferences, emotional tendencies, and stress manifestations. Such deep datafication of "human-culture" interactions shifts campus cultural transmission from experience-driven to data-empowered, and from vague perception to precise insight. This establishes a robust data foundation for accurately identifying psychological needs, customizing cultural content delivery, and building profound cultural identity. When students discover tangible evidence that "the school's heritage resonates with me" (campus culture), "my hometown's traditions connect to me" (regional culture), and "future professions align with me" (industrial culture), core psychological well-being elements—belongingness and meaningfulness—are effectively cultivated upon this bedrock of culturally awakened digital identity.

3.2 Precision Matching & Delivery: Knowledge-Graph Resource Management

The management and operation of cultural resources directly determine the realization of cultural education value in vocational colleges and their effectiveness in promoting student psychological well-being. Big data-driven resource adaptation has catalyzed a new paradigm for cultural resource management, whose core advantage lies in achieving deep insights into students' cultural needs and psychological traits through precise data analysis and intelligent matching [8], thereby fulfilling the "personalized response" imperative of psychological empowerment. Vocational colleges can leverage knowledge graph technology to semantically interconnect and systematically integrate previously fragmented resources—including skill standards, institutional history, industry ethos, and psychological education—establishing a multidimensional cultural resource management system encompassing material artifacts, institutional frameworks, spiritual values, and psychological well-being support. This graph-based integration overcomes resource fragmentation; more critically, through continuous tracking and preference mining of user behaviors (e.g., browsing duration, click frequency, saved content) [9], it dynamically identifies students' interest focus and latent psychological needs. A personalized resource recommendation engine is thus constructed to accurately deliver digital cultural content aligned with students' psychological states and developmental requirements. For instance: Students displaying heightened "vocational anxiety" receive digital story collections like "Industry Role Models' Growth Journeys" to reinforce positive perceptions of career development possibilities; Students showing signs of "belongingness deficits" are recommended digital interviews such as "Alumni Homecoming Shares" or collaborative projects in "Cross-disciplinary Virtual Cultural Communities" to strengthen emotional connections to institutional growth and social

integration. This “on-demand provision” and “proactive response” model intrinsically aligns with the core tenets of Self-Determination Theory[10]—satisfying students’ need for autonomy (the perception that “resources are designed for me”). Consequently, it enhances their identification with cultural resources and willingness for active engagement. Cultural resources thus evolve from static “exhibits” into a dynamic, precise, and adaptive organic ecosystem for psychological well-being service provision.

3.3 Immersive Internalization: Scenario Construction and PsyCap Cultivation

Cultural dissemination serves as the critical nexus for activating cultural resource value and achieving psychological empowerment. Digital technologies redefine the spatiotemporal boundaries of cultural transmission in vocational colleges, with their core value lying in transforming abstract cultural ethos and values into tangible, participatory, and co-creative experiences through virtual-real integrated immersive scenarios—providing students with profound psychological immersion beyond traditional didactic approaches. In industrial heritage transmission, students wearing VR equipment can traverse century-old factory ruins. By completing collaborative virtual tasks amidst roaring machinery in simulated production environments, they overcome social limitations inherent in practice-oriented learning. In traditional craftsmanship instruction, holographic projection magnifies masters’ intricate operations. Students digitally recreate observed techniques (e.g., the ingenuity of mortise-tenon joints) through modern cultural designs, receiving instant peer feedback and instructor guidance—strengthening their identity as “cultural participants” and self-efficacy. In professional ethics cultivation, multimodal interactive devices simulate authentic workplace dilemmas. Through role-playing under pressure, students experience responsible decision-making. Their operational outcomes and emotional responses trigger system-generated "psychological adaptation toolkits," enhancing emotional regulation and resilience. This concrete communication transcends unidirectional display by fundamentally reconstructing cultural resources’ “social attributes”[11]. Through interactive scenarios—virtual cultural communities, online co-creation platforms, and VR collaborative activities—cultural resources become “mediators connecting people”. Vocational education thus evolves from passive reception to an “experience-as-empowerment” paradigm, where immersive scenarios function as incubators nurturing psychological well-being and cultivating positive PsyCap.

4. Digital Transformation Pathways for Cultural Resources Oriented Toward Psychological Empowerment

Digital technologies profoundly reshape the construction logic of cultural resources in vocational colleges. Through the integration of culture and digitalization, they reconstruct the value objectives, practical scenarios, and interaction modalities of cultural education[12], pioneering novel pathways for student psychological empowerment. Building upon the Technology Acceptance Model and Diffusion of Innovations theory, American scholars Louis G. Tornatzky and Mitchell Fleischer proposed the Technological Innovation Adoption framework, which attributes the influencing factors of new technology application in specific contexts to the “Technology-Organization-Environment (TOE)” dimensions [13]. Accordingly, vocational colleges can explore transformation pathways from traditional education to digital ecosystems through three dimensions—technological integration, ecological restructuring, and institutional innovation—guided by psychological empowerment objectives.

4.1 Technological Integration: Constructing an Intelligent Support System

4.1.1 Implementing multi-source data acquisition

By leveraging 5G and IoT technologies, an intelligent sensing network with campus-wide coverage is established to hierarchically acquire behavioral data of teachers and students, institutional achievements, cultural heritage, and other campus cultural resources while simultaneously capturing key behavioral signals reflecting students’ psychological states. For teaching and research activities, multimodal data recording is implemented in scenarios such as practical training and intangible cultural heritage skill transmission; for instance, smart sensors deployed in mechanical manufacturing

workshops acquire real-time equipment operation trajectories, process parameters, and indicators including concentration levels and efficiency fluctuations during operations, while 3D scanning and motion capture technologies enable digital archiving of traditional crafts, establishing an "operational behavior → skill standards → cultural transmission → psychological engagement" data chain to form an interactive digital repository of technical crafts. Concurrently, holographic digital twin modeling is applied to physical cultural resources like archival documents and historical artifacts; cultural research outcomes are integrated to build shared platforms, creating dynamic databases that synthesize cultural resources with behavioral-psychological profiles to achieve deep mapping between physical and digital spaces, thereby transforming distinctive resources into shareable, interactive, and iterable digital assets that establish a holistic data foundation for precisely identifying students' cultural interaction patterns and latent psychological needs.

4.1.2 Establishing an intelligent data processing platform

A big data platform centered on data services, management, presentation, and governance is constructed, integrating natural language processing and knowledge graph technologies to achieve intelligent annotation, correlation analysis, and dynamic updating of cultural data, thereby deeply deciphering psychological trait information embedded within datasets. Crucially, a "cultural gene" computational model is developed to algorithmically excavate implicit cultural elements such as craftsmanship spirit and professional ethics; these elements are then correlated with student psychological well-being promotion objectives to form quantifiable educational indicator systems. For example: Enterprise production cases are transformed into multidimensional knowledge nodes encompassing skill standards, cultural connotations, and psychological adaptation points; traceable digital resource graphs are established. A hierarchical protection mechanism for cultural resource classification is implemented at the application layer; blockchain technology authenticates copyrights for digitized intangible cultural heritage achievements. At the service layer, a data middle platform integrates multi-source data from teaching, training, and cultural activities; comprehensive digital profiles are built based on learning behaviors, interest preferences, and emotional feedback; this enables personalized delivery integrating cultural content with psychological well-being support resources, ultimately sustaining the efficient operation of the "monitoring–analysis–intervention" closed loop within psychological empowerment frameworks.

4.1.3 Innovating immersive experience scenarios

Leveraging XR and digital twin technologies, "virtual-physical integrated" cultural experience spaces and educational scenarios are created to transform abstract values such as revolutionary heritage and craftsmanship spirit into tangible perceptions; these establish safe, low-stress environments that foster positive psychological experiences while enabling panoramic presentation and interactive dissemination of cultural resources. Digital museum clusters—including virtual archives and institutional history exhibitions—are developed; physical spaces like revolutionary education bases undergo digital replication; innovative platforms such as digital intangible heritage workshops and industrial culture metaverses are explored; equipment demonstration zones are upgraded with interaction-oriented designs allowing students to engage in cultural practices through gesture-based interaction and spatial positioning. For instance, the "Red Craftsman" VR course enables students to converse with AI role models in historical settings via virtual avatars while completing dual tasks of technical operations and cultural Q&A—simultaneously cultivating technical confidence and psychological resilience through immersive challenges. Such scenarios reconstruct cultural experiences via virtual-physical integration, not only enhancing vocational education's impact but also serving as effective psychological empowerment spaces for emotion management training, social skill development, and professional identity reinforcement within highly controlled settings.

4.2 Ecological Restructuring: Building a Collaborative Empowerment Community

4.2.1 Exploring institution-enterprise-medical collaboration mechanisms

Collaborating with leading enterprises to co-construct an industry-education integrated cultural resource repository transforms

corporate ethos and industry technical standards into pedagogical resources; simultaneously integrating EAP (Employee Assistance Program) experts or occupational health consultants embeds professional psychological well-being literacy—such as stress management, team collaboration, and career identity—into training content. Digital platforms establish cross-institutional cultural exchange channels: horizontally building industry-education integrated information service platforms to dynamically publish industry talent demands and workplace psychological challenge data while establishing correspondences between occupational competency standards and cultural literacy/psychological adaptability elements; vertically connecting to the National Cultural Network incorporates vocational colleges' specialized courses and industry-education cases into public cultural service systems. Exemplified through "Dual-Qualified Teacher" workshops as an interface: enterprise culture, standards, and equipment are integrated to evolve teaching environments toward authentic workplaces; modular project-based curricula are implemented in contextualized settings[14]; enterprise technicians and campus psychologists jointly observe students' stress responses, collaboration patterns, and emotional fluctuations during real tasks; this provides a unified practice field for targeted psychological resilience training and career adaptation counseling. Such bidirectional collaboration not only drives deep integration of industrial culture into talent cultivation but also constructs an "institution-enterprise-medical" tripartite intervention foundation for identifying, preventing, and addressing workplace psychological risks.

4.2.2 Integrating regional professional resources

Regional collaborative platforms for psychological well-being and cultural education are established through local governments, vocational education consortia, and industry-education integration communities, introducing and integrating specialized medical resources including regional psychological well-being centers, university psychology departments, and social psychological counseling institutions. Rooted in local cultural DNA, psychological empowerment resources with regional characteristics are developed by fusing cultural heritage with psychological intervention techniques such as expressive arts therapy and narrative therapy. For example: Art vocational colleges may partner with provincial psychological well-being centers to digitally restage local opera repertoires using converged media technologies, embedding emotional recognition and expression training modules to create specialized teaching repositories combining intangible heritage transmission with emotional regulation; Deep collaborations are forged with local museums, cultural centers, ICH conservation centers, and community psychological well-being service agencies[15] to develop modular resource packages integrating "regional culture, vocational features, and psychological well-being"; Professional psychologists provide content review and efficacy evaluation support, as exemplified by the Yangtze River Delta establishing a vocational education psychological well-being service alliance to co-build the Jiangnan Craftsmen Digital Museum—consolidating intangible crafts and industrial heritage across three provinces while developing "Occupational Psychological Resilience Online Workshops" contextualized to local industries; Cross-institutional course selection, credit reciprocity, and psychological service referrals are enabled. By establishing clear multi-stakeholder (including medical parties) service valuation, copyright authentication, and revenue distribution mechanisms, sustainable provision of professional psychological services is ensured, ultimately constructing a regional student psychological well-being safeguarding network covering prevention, support, and intervention.

4.2.3 Expanding social service functions

Vocational colleges may open cultural resource platforms to provide public services such as craftsmanship lectures, micro-courses on technical training, and intangible cultural heritage experience programs; they collaborate with social psychological service organizations to establish online/offline initiatives including "vocational psychological care stations" and "community classes for positive psychological development" for students and community residents, extending cultural resources from "intra-campus education" to "societal services" while enhancing accessibility to professional psychological support. Under the professional guidance of psychological practitioners, students participate in community cultural services like intangible heritage skill

transmission, strengthening their self-efficacy, sense of social value, and communication skills to realize bidirectional psychological empowerment cycles. Cross-domain service ecosystems are expanded through market-oriented pathways: collaborating with enterprises to develop customized training products, such as virtual bamboo-weaving toolkits incorporating achievement feedback and mindfulness guidance—utilized both for professional training and cloud-based services for rural artisans and community stress-relief groups; at the international level, establishing multilingual cultural sharing platforms with Digital Silk Road partner countries, adapting Luban Workshop curricula through localization while inviting international psychologists to co-develop "cross-cultural adaptation and global competency psychological support modules", forming an international vocational education brand distinguished by cultural identity and psychological well-being care. This digital collaboration model not only extends the cultural influence radius of vocational education but also constructs an external empowerment ecosystem for students—reinforcing identity formation, PsyCap, and social support systems through integrated psychological services and positive societal feedback.

4.3 Institutional Innovation: Strengthening Standardized Governance Frameworks

4.3.1 Enhancing ethical and policy safeguards

Governments at all levels should introduce policies encouraging AI technology R&D and application in cultural resource development while pioneering ethical guidelines governing student psychological data collection, usage, and protection; specialized regulations addressing data ownership verification, circulation rules, and security supervision must be established to explicitly prohibit algorithmic discrimination and manipulative psychological applications. Educational authorities may issue Guidelines for Digital Cultural Resource Development in Vocational Colleges, establishing comprehensive standards covering data collection protocols, intellectual property attribution, and outcome conversion incentives—for instance, mandating ethical review for psychological well-being-themed resources and incorporating enterprise-co-built digital repositories into industry-education integration enterprise certification systems. Vocational colleges must formulate digital strategic plans, establish ethics committees to review projects involving student psychological data, allocate dedicated funding, and integrate resource development efficacy and ethical compliance into performance evaluations. Cross-departmental collaborative governance mechanisms should be refined: education, cultural affairs, science and technology, and health departments must jointly construct resource development alliances; as exemplified by Guangdong Province's Three-Year Action Plan for "Digital Bay Area Construction", which supports enterprises, universities, and research institutions across Guangdong-Hong Kong-Macao in co-building high-level digital collaborative innovation platforms while exploring cooperative frameworks for psychological privacy protection in cross-border data flows. This multi-tiered policy system ensures normative digital transformation and fortifies the foundation of trust for psychological empowerment through ethical prioritization and multi-agency coordination.

4.3.2 Establishing psychological well-being-integrated standard systems

Cultural resource development must coordinate international standards with industry practices to formulate comprehensive technical specifications while incorporating specialized requirements for psychological well-being promotion. A unified resource description framework should transform cultural elements into structured data through standardized metadata templates, specifically adding "psychological empowerment elements" fields—such as efficacy triggers and stress management strategies within resources—enabling teaching systems to identify and apply abstract concepts like "craftsmanship spirit" and "professional ethics" alongside their psychological well-being value. "A Psychological Positivity Assessment Standard for Digital Cultural Resources" must be established, mandating the integration of positive psychological elements (e.g., career optimism case studies, collaborative empathy scenarios) into resource design; lightweight psychological scales (such as belongingness and self-efficacy micro-assessments) should be embedded to dynamically track usage effectiveness. Cross-platform interoperability requires breaking data silos: interface protocols based on the National Cultural Network must

define unified data exchange rules and resource invocation mechanisms. Ethically, data security and privacy protection must be reinforced through blockchain-based immutable verification and encrypted authorization technologies to strictly safeguard students' behavioral data, emotional feedback, and creative content; dynamic watermarking should protect core cultural resources, while algorithmic bias review mechanisms prevent recommendation systems from amplifying anxiety or creating information silos. Unified technical standards, psychological value assessment norms, and ethical safeguards collectively enable secure, trustworthy, and efficient cultural resource circulation—delivering reliable infrastructure for psychological empowerment.

4.3.3 Implementing data-driven evaluation mechanisms

Learning analytics technologies are leveraged to construct cultural education effectiveness assessment models that incorporate psychological well-being promotion outcomes as core evaluation dimensions. Multidimensional indicators—including behavioral data, affective computing, and semantic analysis—quantify the enhancement effects of cultural immersion on PsyCap elements such as self-efficacy, belongingness, and resilience. Integrated tools like Learning Management Systems (LMS) and wearable devices track and collect real-time process data (e.g., operational trajectories, collaboration frequency), affective data (e.g., eye-tracking focus, vocal emotion), and engagement metrics (e.g., usage duration, digital badges); with informed consent and ethical approval, comprehensive evaluations of educational outcomes encompassing skill mastery, cultural identity, and psychological well-being literacy are achieved. A cyclic improvement mechanism of "institutional self-assessment → industry validation → psychological expert evaluation → social feedback" is established, integrating application data (e.g., practical training course click rates, intangible heritage course subscriptions, cultural module reuse rates) and psychological metrics (e.g., micro-assessment results, post-usage anxiety level changes) into the evaluation framework. This dynamic model shifts assessment from static examination to value-added measurement; more critically, it refines psychological empowerment strategies and cultural resource allocation through data feedback, providing scientific decision-making foundations for digital transformation while ultimately transitioning students from passive reception to proactive psychological growth.

5. Conclusion

Vocational college cultural resources constitute a critical domain for shaping students' professional identity and psychological literacy. Against the backdrop of digital transformation, triple driving forces—policy mandates and industrial transformation, technological enablement and resource revitalization, pedagogical innovation and cultural consciousness—collectively propel the digital evolution of cultural resources. Through intelligent acquisition and visualization, knowledge graph-driven demand response, and scenario reconstruction with experiential empowerment, this transformation establishes a systematic mechanism for cultural resources to empower psychological well-being. This shift represents a systemic engineering endeavor spanning technology, organization, and environment. Vocational colleges must build intelligent infrastructure through technological integration, forge collaborative empowerment networks via ecological restructuring, strengthen standardized governance frameworks with institutional innovation, ultimately achieving a profound transition from cultural education to psychological empowerment. This transformation not only addresses the digital era's demand for high-caliber talent possessing technical excellence, digital literacy, and positive PsyCap but also embodies vocational education's intrinsic pursuit of "integrating ethics with technical skills and holistically cultivating mind and body". It provides an innovative paradigm for educational modernization where cultural governance empowers psychological well-being. Looking forward, with advancing technologies like affective computing and brain-computer interfaces, vocational education's cultural resources will deepen toward context-aware intelligence, emotionally resonant engagement, and autonomous evolution. This will continuously energize the cultivation of psychologically resilient, professionally rooted digital citizens.

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