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## Digital Evaluation of Campus Media and Online Education Pathways in Universities: Postprint

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### Abstract

**[Purpose]** This study focuses on evaluating the current status of digital campus construction in universities and exploring pathways for online education, analyzing common issues therein, identifying key priorities, challenges, and advantages in the transformation and construction process, and providing theoretical and practical significance for further enhancing the effectiveness of online education. **[Method]** The research was conducted through a combination of questionnaire surveys, field interviews, and qualitative and quantitative analyses. **[Results]** Digitalization has provided strong support for the reform and development of higher education in the new era. Universities have established a certain foundation for transformation in overall system construction, port access, technology integration, credit linkage, program development, and electronic windows, yet they must still overcome bottlenecks to further advance digital upgrading. **[Conclusion]** Universities need to collaboratively explore solutions to existing challenges including environmental diversity, organizational structures, resource investment, and personnel limitations, and further promote the development of online education through top-level architecture, discipline integration, technology empowerment, team incubation, and teaching fusion.

### Full Text

#### Preamble

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*(School Party Committee Propaganda Department, Shanghai Jiao Tong University, Shanghai 200240)*

## Abstract

**[Objective]** This study focuses on evaluating the current state of digital campus construction in universities and exploring pathways for online education, analyzing common challenges, identifying key priorities, difficulties, and advantages in the transformation process, and providing theoretical and practical guidance for enhancing the effectiveness of online education. **[Method]** The research employs a mixed-methods approach combining questionnaire surveys, field interviews, and both qualitative and quantitative analyses. **[Results]** Digitalization has provided robust support for educational reform and development in the new era. Universities have established foundational capabilities in system architecture, portal integration, technology adoption, credit linkage, application development, and digital service windows, yet must overcome bottlenecks to advance further digital upgrades. **Conclusion** Universities need collaborative solutions to address existing challenges including diverse environments, organizational structures, resource allocation, and limited personnel. Future development should deepen online education through top-level architecture design, disciplinary integration, technology empowerment, team incubation, and pedagogical fusion.

**Keywords:** Campus Media Digitalization; Online Education; Media Convergence Communication; New Media Research

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## Introduction

In February 2023, the Central Committee of the Communist Party of China and the State Council issued the *Overall Layout Plan for Digital China Construction* [?], emphasizing that building Digital China is a critical engine for advancing Chinese modernization in the digital age and a powerful support for constructing new national competitive advantages. Concurrently, the World Digital Education Conference further clarified that developing digital education and promoting digital transformation in education represents an inevitable trend, developmental necessity, and reform direction. Today, the internet and new media have become fundamental infrastructure in university teaching, deeply integrated into information dissemination, hotspot tracking, logistics services, news gathering and editing, public opinion monitoring, and data management. As an important carrier and tool, educational media convergence has also become a crucial window for university image building and cultural communication in recent years [?]. How to drive innovation and development of university campus media through digitalization, construct a networked, personalized,

service-oriented, professional, and effective online education system, and cultivate applied communication technology talents represents a new challenge for digital workers in the education system.

## 1. Current Status of Digital Transformation in University Campus Media

### 1.1 Phased Transformation with Incomplete Layout

University campus media digital transformation has generally progressed through several stages: from basic content digitization to comprehensive platform matrix development, and then to integrated teaching services. The focus has gradually shifted from traditional campus newspapers and official websites toward new media construction and development. While coordinating units including Party Committee Propaganda Departments and Network Information Centers are involved, an overall scientific and comprehensive macro-level layout has yet to be formed. In May 2019, the Ministry of Education launched pilot programs for educational system media convergence construction, designating the first batch of 15 pilot units. In 2020, a second batch of 15 pilot units was identified, accelerating the integrated transformation and development of university campus media while incorporating core resources such as emerging technologies, typical scenarios, expert think tanks, and online education, providing a institutional foundation for continuously promoting digital campus construction and optimizing the online education system.

### 1.2 Diverse Functions with Flat Structure

Digital transformation demands for university campus media primarily concentrate on content, management, and services, including improving editorial efficiency, standardizing multi-level workflows, integrating service portals, and consolidating teaching information [?]. However, due to attribute iterations and audience differences, platforms currently operate in silos. For instance, print media, official websites, and electronic screens mainly serve as information clusters; WeChat and Weibo focus on graphic publishing and interactive comments; TikTok and Bilibili emphasize dynamic video output; while Apps and mini-programs concentrate on functional integration. Although each has achieved certain effectiveness, their flat structure prevents effective synergy, limiting digitalization potential.

### 1.3 Technology and Practice at Initial Empowerment Stage

Based on media convergence center construction, universities have launched command systems, such as those at Communication University of China and Beijing Film Academy. Beyond information display, official account back-ends also provide service portals [?]. Universities have linked with credit point systems to access campus sharing services. Institutions like Peking University and Shanghai Jiao Tong University have launched campus navigation mini-programs,

employed Scalable Vector Graphics (SVG) technology for interactive presentations during anniversary events, and developed campus client Apps or systems for academic affairs and logistics to address specific needs, providing a technical foundation for related work.

#### **1.4 Supporting Online Education with Initial Effectiveness**

In recent years, universities have focused on the fundamental task of fostering virtue through talent cultivation, constructing online education carriers supported by “dual micro-platforms + short videos” [?] based on faculty and student reading needs, disciplinary characteristics, and social hotspots. Through thematic planning, series development, and feature-focused mechanisms, they have created outstanding works with value guidance. These online ideological and political contents subtly establish a “third classroom” through value leadership, while simultaneously providing practical platforms for faculty and student teams to apply professional knowledge in operations and creative processes, laying a connotative foundation for campus media online education in the digital environment.

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## **2. Existing Problems in Digital Transformation**

### **2.1 Single Positioning of University Media Convergence Platforms**

Aligned with the core mission of teaching and educating, media convergence platforms are primarily positioned for information dissemination and image display. Although they encompass all-media windows including “newspapers, websites, micro-platforms, terminals, screens, and broadcasts,” they essentially operate independently with differentiated content production and audiences. No integrated system has been established for measurement, gathering, editing, distribution, review, and commentary, with digital access and back-end services treated as additional rather than primary considerations.

### **2.2 High Security Risks from Third-Party Technology Integration**

Campus media construction inevitably involves third-party interface connections. On one hand, internal professional support remains fragmented: journalism and communication students and faculty are not proficient in software coding, while computer professionals lack media literacy. On the other hand, third-party portal integration presents security risks in technology, personnel, approval, management, and monitoring processes.

### 2.3 Immature Operation Teams and Supervision Mechanisms

Currently, Fudan University and Xi'an Jiao Tong University have established media convergence centers to coordinate news propaganda and public opinion management. However, their main work still focuses on graphic content, video products, and visual image, without targeted training in technology application, including development, maintenance, and updates. No mature mechanism has been formed for integrating campus team resources.

### 2.4 Insufficient Integration with Teaching and Education

University campus media operations are highly professional, homogenized, and specialized. How to achieve value leadership through content dissemination and further improve online education effectiveness represents an urgent exploration topic. Currently, in digital transformation, content creation remains focused on news information or hotspot events without deep integration with teaching and education processes, including open course resource connectivity and teaching consultation and feedback platforms.

## 3. Evaluation Indicators and Transformation Analysis

### 3.1 Indicator Establishment Approach

Campus media digital transformation refers to universities' comprehensive upgrading and transformation of traditional media content, channels, and operations using information technology to adapt to the digital media environment and user needs. This transformation includes digital media application, news gathering and editing reform, diversified information push methods, social media integration, and data analysis and mining application.

Among these, media form digitization [?] represents the primary entry point for current campus media platform transformation. Most university campus media have attempted and explored platform digital transformation. Beyond early WeChat and Weibo platforms, campus media have recently entered short video platforms such as TikTok, Kuaishou, and Bilibili, as well as interactive platforms like Xiaohongshu, with numerous schools also experimenting with campus client applications and professional technology development.

However, media form digitization is only the preliminary form of university media platform transformation. Digitalization should represent an upgrade from informatization. Beyond campus media business driven by internet technology and data, new communication models of media convergence should be formed and deeply integrated with the core of digitalization— "artificial intelligence." Based on investigation and analysis of current university campus media construction, and considering both the multi-platform access and electronic construction covered by preliminary digital forms and the media convergence construction and artificial intelligence empowerment contained in upgraded digital forms, the

process of university campus media digital transformation can be primarily assessed through dimensions including traditional media digitization, new media graphic platforms, short video platforms, interactive product applications, and media convergence center establishment, with first-level dimensions and detailed second-level indicators. Considering their positioning and importance, each sub-item adopts linear weighting with 1 point each, totaling 25 points. The specific indicator scheme for university campus media digital construction is shown in Table 1 .

### 3.2 Model Effectiveness Analysis

The top 30 universities from the 2022 Chinese University Official WeChat Top 100 list published by *China Youth Daily* were quantitatively analyzed using the proposed indicator scheme through document review and interview research. Results show that leading universities have basically completed the above indicator layout. Among them, traditional internet media platforms WeChat and Weibo have a 100% operation rate, with content basically updated daily or on working days. The certification rate for emerging short video platforms such as TikTok, Kuaishou, and Bilibili is nearly 80%. A few universities have not yet launched these platforms due to limited personnel or graphic-focused positioning but are actively promoting them. Xiaohongshu, as an emerging interactive platform favored by young people, has been adopted by nearly 40% of universities.

Using the above indicator model with equal weighting for the top 30 universities, the scores are shown in Table 2 . The results indicate that universities' digital transformation progress basically aligns with their comprehensive new media communication rankings. For example, except for Tsinghua University and Peking University, few universities have opened Xiaohongshu accounts. Shanghai Jiao Tong University has no campus radio station, and South China Normal University has not developed a VR campus panorama. The results also reveal considerable room for improvement in emerging technology empowerment. Although many universities have initiated development of integrated media systems, they have not completed or deployed them for daily use. The practical effectiveness of virtual anchors and AI editing has not yet become widespread.

### 3.3 Transformation Strategy Recommendations

Based on the indicator model and scores of high-influence universities, traditional media digitization and new media platform construction have basically matured. However, short video platform operations vary significantly. While universities have generally established core accounts, comprehensive layout has not been formed. Greater improvement space exists in interactive product applications and integrated institution construction. Addressing these issues, future university campus media digital transformation should focus on interactive product applications, integrated institution establishment, and emerging technology empowerment. From a top-level mechanism, content production models and resource sharing channels should be reorganized to connect school-college levels

and regional collaborations, achieving comprehensive resource integration and information sharing. Through technology integration, interactivity, practicality, innovation, and efficiency should be enhanced to improve campus media communication efficiency and influence. Strengthened application of interactive products and construction of integrated institutions will raise the overall level of campus media digital transformation.

Regarding the “official account menu bar window” in interactive product applications, an online questionnaire survey was conducted among five comprehensive universities including Shanghai Jiao Tong University, collecting over 200 valid responses. Analysis revealed that audiences primarily desire four service types: information query, resource sharing, interactive communication, and paid access. High-frequency co-selected items include card recharge (66%), visit appointment (62%), class schedule (60%), and campus forum (55%). Some faculty and students also 关注 morning reading check-in (18%), online transactions (17%), and alumni donations (15%). These findings provide valuable references for designing university media platform windows and functional development, enabling gradual improvement and optimization of interactive product design and services based on audience needs and concerns, thereby enhancing user satisfaction and experience. The results also reflect audience demand for digital campus services and significance for promoting digital transformation and technology adoption. The specific categories and proportions are shown in Table 3 (multiple-choice question, showing top 4 selections).

#### **4. Path Recommendations for Online Education via Campus Media in the Digital Context**

In the digital context, addressing practical needs of campus media, digital transformation can enable more flexible, efficient, and personalized content dissemination, enhance university campus media discourse power and influence, and promote in-depth development of university education work. It can optimize media operation costs and management efficiency, improve communication effectiveness and user experience, expand revenue channels, and strengthen sustainable development capabilities. It can also enhance university brand image and reputation, further promoting brand building [?] and campus culture construction. To further broaden university campus media transformation channels and activate online education vitality, the following pathways can be pursued.

##### **4.1 Reconstruct Campus Media Matrix Framework to Enhance Online Education Capacity**

Based on the digital context and media convergence transformation, reconstruct the campus media matrix framework to enhance organizational capacity of the online education system. Mechanistically, under the leadership of university Party Committee Propaganda Departments, overall planning and management of ideological and cultural work should be implemented across campus media in-

cluding official platforms, secondary unit platforms, and online culture studios, covering planning, orientation management, public opinion guidance, operation supervision, and certification assessment. Structurally, school news communication models and team building should be strengthened to form a multi-level coordinated, comprehensively covered, internally and externally radiating campus media network matrix, enabling full-chain smoothness in clue sharing, information collection, review and modification, and release analysis for maximized voice empowerment. In production, conventional new media positioning should be broken, combining moral education themes and network communication characteristics to create value-led content based on demand orientation. In interface design, resources including “content libraries, interactive comments, release patterns, and communication data” should be fully utilized to optimize network platform interfaces, development, and connectivity. In channel management, internal cohesion should integrate campus accounts while external expansion strengthens media cooperation, achieving connectivity between online and offline, small and large screens, and traditional and emerging media to enhance social influence and communication power.

#### **4.2 Transform Online Discourse System to Stimulate Online Education Potential**

In conducting online ideological and political education, controlling the “new high ground” of discourse systems is crucial for university campus media facing diverse, rapidly evolving, and digitally transforming network media and culture. As “digital natives,” Generation Z youth frequently use and widely apply internet language, significantly influencing college students’ consciousness, values, and psychology. Their information acquisition and communication methods are primarily online. Campus media should actively plan and promote hot topics, online posts, and video works closely related to college students’ learning and life, combining popular online language forms with mainstream value connotations. This transforms models of “single output, self-talk, I-speak-you-listen, and indoctrination,” establishing online language concepts, standardizing online expression methods, and innovating online discourse systems [?]. Based on value leadership, visualization, interaction, interest, and visualization should be enhanced to truly make online education “come alive” and “become popular.”

#### **4.3 Integrate Professional Disciplinary Resources to Enhance Online Education Strength**

Open courses and expert lectures enable faculty, students, and audiences to access “golden courses” without leaving campus [?]. Full integration with teaching processes should provide students with practical opportunities to participate in platform operation and management, with 前置 mechanisms such as incorporating campus media practice into course assessment scores and jointly cultivating high-end new media technology talents. Meanwhile, interdisciplinary research integrating journalism and communication with artificial intelligence

and machine learning should be consolidated, using new technologies like high-performance computing to connect terminals, clouds, and databases, synergistically building back-end systems with university big data laboratories, AI laboratories, and cybersecurity units. Through multi-dimensional resource integration and multi-effective platform development, the “content + practice + application + transformation + feedback” model will inject strength into online education.

#### **4.4 Strengthen Technology Empowerment for Value Leadership to Optimize Online Education Effectiveness**

Under the metaverse logic, scenarios and applications created by new technologies such as VR, AR, and AI will bring challenges and opportunities to media transformation. Future media [?] will not merely be platforms and windows but complex systems constructed by information, data, and algorithms. Campus media convergence development in the digital context has greater space. In early-stage content planning, natural language processing technology can mine text feature vectors to obtain user reading and viewing preferences, thereby optimizing customized content recommendations, providing precise guidance for original production, and increasing user stickiness. In mid-stage production and presentation, universities can integrate and develop client Apps linked with credit points, covering learning, information, activities, social interaction, and public welfare services for intelligent campus experiences. For special topics, SVG technology can create interactive click-based posts, while H5 and mini-program development can integrate diverse jump formats. In later-stage data analysis, AI technology should be reasonably applied to information collection and editing, typo correction, communication analysis, and public opinion monitoring, enhancing front-end and back-end efficiency while serving content-centric operations.

#### **4.5 Build Versatile Talent Teams to Form Online Education Synergy**

In organizational structure, integrate campus personnel resources to form four integrated work teams: a core university team, departmental propaganda teams, a media convergence expert think tank, and a student communication society. This 完善 the entire closed-loop work system from top-level design, overall management, process promotion, content supply, and joint production to broad dissemination, with regular exchanges and assessments. Professionally, practical training and salons on media literacy, editing and layout, news photography, basic videography, online culture, and post-production should cultivate all-media work thinking and skills among propaganda staff, enhancing cross-team collaboration and cross-domain learning capabilities while forging strong “footwork, vision, thinking, and writing skills.” For sustainability, campus media should be cultivated as a “one-stop” platform for faculty and student practice, transforming professional knowledge into work output while enhancing media background and digital technology capabilities, forming an “all-media + professional + characteristic” online education model [?].

## Conclusion

In the context of Digital China construction, digital transformation of university campus media represents an inevitable trend, developmental necessity, and reform direction. Driving innovation and development of university campus media through digitalization presents a new challenge for digital workers in the education system. Addressing practical digital needs, this study proposes quantifiable evaluation indicators for university campus media digital transformation and conducts case analysis of the top 30 universities from the 2022 Chinese University Official WeChat Top 100 list. Results show that leading universities have basically completed indicator layout, though improvement space remains in interactive product applications and integrated institution construction. To comprehensively enhance education effectiveness, universities must reconstruct campus media matrix frameworks, transform online discourse systems, integrate professional disciplinary resources, strengthen technology empowerment for value leadership, and build versatile talent teams, thereby activating fresh vitality in campus media through digitalization.

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*Note: Figure translations are in progress. See original paper for figures.*

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