IMPROVING THE EFFICIENCY OF EDUCATIONAL MANAGEMENT IN GANSU PROVINCE UNIVERSITIES: CHALLENGES, STRATEGIES, AND FUTURE DIRECTIONS

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ABSTRACT

Against the backdrop of global digital transformation and China's Education Modernization 2035 strategy, digital leadership has become a core driver to upgrade university governance and operational efficiency (Zhu & Li, 2024). As China's national pilot zone for revitalizing higher education in central and western regions, Gansu Province is featured by weak fiscal capacity and multi-ethnic populations, bringing unique opportunities and dilemmas to local university digital construction (Liu, 2024). This study takes universities in Gansu as research objects, constructs a five-dimensional digital leadership framework including strategic digital planning, data-driven decision-making, digital resource allocation, organizational digital culture and digital security governance, and systematically analyzes their internal action mechanisms. Adopting literature analysis and regional contextual deduction as core research methods, this paper sorts out prominent challenges restricting educational management efficiency, such as inadequate top-level digital design, uneven administrator digital literacy, imbalanced resource distribution and cross-department data silos (Wang, 2022). Corresponding targeted optimization strategies are proposed, and feasible future research directions are summarized. The results can provide theoretical basis and practical references for digital governance and high-quality development of higher education in western ethnic border regions of China.

Keywords: Digital Leadership; Educational Management Efficiency; Universities in Gansu Province; Digital Transformation; Higher Education Governance

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INTRODUCTION

AI, big data and cloud computing have thoroughly penetrated all social sectors and reconstructed global educational governance modes since the 21st century (OECD, 2022). China's national strategy prioritizes educational informatization and deep integration of digital technology and schooling, lifting digital transformation to a top national agenda (Ministry of Education of China, 2024). Universities undertake dual missions of talent cultivation and scientific research, whose internal governance efficiency directly decides regional higher education quality and innovation output (Bie, 2021). Digital leadership has evolved from simple IT management to an integrated capacity covering strategy layout, data governance, resource integration and cultural construction (Hallinger & Huber, 2023). Distinct from eastern coastal provinces with mature digital infrastructure, Gansu in northwest China has been designated the national pilot for western higher education revitalization, with obvious ethnic and economic constraints (Gansu Provincial Department of Education, 2023). Local authorities have issued a series of supporting policies, yet unbalanced digital resources, low data sharing efficiency and insufficient manager digital literacy still severely hinder the improvement of educational management efficiency (Yang, 2023).

Under such context, exploring digital leadership influencing factors, sorting out practical challenges, constructing localized optimization strategies and proposing future research ideas is an urgent practical demand for Gansu's higher education high-quality development, as well as a supplementary research perspective for western university digital governance research (Li & Zhang, 2023). Existing domestic studies on university digital leadership mostly focus on eastern first-tier universities, lacking targeted discussion on western multi-ethnic provinces with insufficient financial support (Li & Zhang, 2023). This paper builds a regionally adapted digital leadership factor system and reveals differentiated influence mechanisms in underdeveloped inland areas. It enriches the theoretical system of higher education digital governance and expands educational leadership research in ethnic regions, offering theoretical references for similar western provinces.

Universities in Gansu face realistic difficulties including incomplete digital top-level design and weak collaborative governance awareness (Wang, 2022). This research systematically sorts core restrictive factors and region-specific challenges, and puts forward operable improvement strategies. The conclusions can support Gansu education bureaus to formulate digital policies and help university administrators upgrade their digital leadership, promoting the modernization of local educational governance capacity.

RELATED RESEARCH

2.1 International Research

Overseas research on university digital leadership started in the 2010s, concentrating on three directions: dimension division of digital leadership, its correlation with organizational performance and systematic training modes (Hallinger & Huber, 2023). Sheninger (2019) defined digital leadership as managers' capability to drive organizational change via digital tools. Hallinger (2020) pointed out that strategic planning, resource integration and data governance are core components of university digital leadership. Most international papers adopt questionnaire and structural equation quantitative methods, but their theoretical models are built on developed economies and cannot be directly applied to developing regions (OECD, 2022).

2.2 National Research

Driven by national digital education policies, domestic research has grown rapidly in recent years (Zhu & Li, 2024). Main research directions include the connotation of digital leadership, practical transformation dilemmas, its impact on teaching quality and promotion paths. Ma and Tan (2025) divided university digital leadership into macro strategy, meso implementation and micro

application three layers. Cai and Hu (2024) argued inconsistent value recognition and backward infrastructure are major transformation obstacles for domestic universities.

Nevertheless, domestic literature has three obvious defects: geographical imbalance with insufficient western samples; single research perspective overemphasizing teaching rather than management efficiency; excessive dependence on Western theories without localization adaptation for western China's ethnic and economic characteristics (Li & Zhang, 2023).

2.3 Related Research of Higher Education Management in Gansu Province

Gansu launched the "Six Mutual" resource sharing project and built the provincial Higher Education Smart Education Platform to realize cross-school resource linkage among 20 undergraduate institutions (Gansu Provincial Department of Education, 2023). However, inter-university digital gaps, low data asset utilization and widespread manager digital literacy gaps remain prominent (Liu, 2024). Current local research only stays on policy interpretation and simple case summaries, lacking systematic analysis of the causal link between digital leadership and management efficiency (Wang, 2022).

2.4 Literature Analysis: Collect domestic and foreign papers, monographs and Gansu provincial policy documents about digital leadership and western university management efficiency, sorting research progress and theoretical foundation (Hallinger & Huber, 2023).

Contextual Deduction: Combine Gansu's weak economy, multi-ethnic features and western higher education pilot positioning, deduce region-specific digital leadership influencing mechanisms (Li & Zhang, 2023).

Comparative Analysis: Compare gaps between Gansu and eastern universities in digital construction and management efficiency, absorb advanced experience to form localized improvement strategies (Zhou & Wang, 2023).

CORE CONCEPTS AND THEORETICAL FOUNDATIONS

3.1 Core Concepts

Digital leadership refers to the integrated competency of school, middle and grassroots managers to promote organizational transformation, optimize workflows and lift overall efficiency through digital technologies (Zhu & Li, 2024). Different from traditional IT management, it highlights strategic guidance, data-driven decision-making, cross-department resource sharing, cultural innovation and risk prevention. For Gansu's universities, digital leadership must match weak digital foundations and multi-ethnic student groups, focusing on resource allocation, literacy upgrading and collaborative governance.

3.2 Educational Management Efficiency of Universities

University educational management efficiency refers to the input-output ratio of human, financial and material resources in daily administration, covering strategic planning, resource allocation, decision execution, service response and risk governance efficiency (Chen & Yang, 2022). Its improvement is the core target of university governance modernization and fundamental guarantee of high-quality higher education development.

3.3 Universities in Gansu Province

The research object covers all full-time undergraduate and vocational colleges in Gansu, including key universities (Lanzhou University, Northwest Normal University), local municipal colleges and vocational schools. These schools scatter across east, central and west Gansu with huge gaps in funding, digital equipment and talent reserves, undertaking tasks of local economic service and ethnic minority talent cultivation (Liu, 2024).

THEORETICAL FOUNDATIONS

4.1 Strategic Leadership Theory

Strategic leadership theory holds that outstanding leaders possess long-term vision and organizational change capability, matching internal resources with external environmental changes to realize long-term organizational goals (Mintzberg, 2020). It provides theoretical support for analyzing the influence of strategic digital planning on overall management efficiency.

4.2 Data Governance Theory

Data governance regards multi-source teaching, research, personnel and financial data as core organizational assets, emphasizing standardized collection, integration, mining and security management to improve decision accuracy (Zhu & Li, 2024). This theory supports the discussion of data-driven decision-making and digital security governance dimensions.

4.3 Resource Dependence Theory

Organizations rely on external resources for survival and development; resource acquisition and allocation capacity determine operational performance (Li & Zhang, 2023). Restricted by regional fiscal limits, Gansu's universities face digital resource shortages, making rational allocation a key factor lifting management efficiency.

4.4 Collaborative Governance Theory

Collaborative governance advocates equal negotiation and resource sharing among government, universities, enterprises and social organizations to break departmental barriers and data silos (Ansell & Gash, 2022). It explains the internal driving role of organizational digital culture and cross-stakeholder collaboration.

CURRENT STATUS AND CORE CHALLENGES OF EDUCATIONAL MANAGEMENT IN GANSU'S UNIVERSITIES

5.1 Current Achievements

Driven by national western higher education revitalization policies, Gansu's universities have gained staged progress:

Complete policy and internal governance systems: Provincial government issued multiple planning documents, universities optimized administrative workflows to realize standardized management (Gansu Provincial Department of Education, 2023).

Rapid digital infrastructure construction: The provincial smart education platform realizes cross-school resource sharing; campuses completed campus network, smart classroom and digital administrative system construction.

Improved service efficiency: Digital online office replaced offline errands, shortening service response time and raising teacher-student satisfaction (Wang, 2022).

5.2 Progress of Digital Transformation

Most universities formulated medium-long digital campus construction plans. Relying on the provincial shared platform, massive digital courses and academic resources are accumulated. Digital management tools are widely applied in student, personnel and financial administration; online assessment and smart teaching classrooms are popularized to reform traditional teaching modes (Yang, 2023).

5.3 Five Core Challenges

Many leaders confuse digitalization with simple informatization, overinvesting hardware while ignoring software and business matching. Digital plans lack long-term systematic layout, causing repeated construction and resource waste. Specialized digital governance committees and professional teams are absent with ambiguous responsibility division (Liu, 2024). Key comprehensive universities own sufficient funds and advanced equipment, while local colleges and vocational schools face tight budgets and backward infrastructure. Internal allocation emphasizes construction over application; data silos block cross-department and cross-school

resource circulation, leading to low asset utilization efficiency (Liu, 2024). And most administrative decisions still depend on subjective experience rather than data assets. Multi-source data cannot be fully integrated, and professional data mining talents are scarce. Data is only used for simple statistical reports, lacking deep application in risk early warning and performance evaluation (Wang, 2022). Middle and grassroots administrators lack systematic data analysis training; school training courses are disconnected from daily management demands. Teachers and students hold low recognition of digital reform, generating internal resistance and low participation in digital construction (Yang, 2023). And Imperfect Digital Security Governance System: Expanding digital scenarios bring frequent risks including data leakage and network attacks. Universities lack full-time security teams, complete emergency response plans and standardized sensitive data management rules, leaving teacher-student personal information with long-term hidden dangers (Huang, 2022).

FIVE-DIMENSIONAL DIGITAL LEADERSHIP INFLUENCING FACTOR FRAMEWORK

6.1 Strategic Digital Planning

It refers to leaders' capability to formulate coordinated digital development strategies, including long-term strategic thinking, systematic goal setting and overall cross-college coordination. Scientific planning avoids fragmented construction and aligns digital investment with school-running demands; vague positioning leads to resource waste and disconnection between digital tools and daily management (Li & Zhang, 2023).

6.2 Data-Driven Decision-Making

It covers data value recognition, unified platform construction, multi-source data integration and in-depth data mining. It fundamentally transforms experience-based management into precise data governance, improving decision timeliness and accuracy and accurately locating administrative weak links (Zhu & Li, 2024).

6.3 Digital Resource Allocation

Based on school resource endowments, reasonably distribute limited funds, technology and talents, carry out cross-department and cross-school sharing, and set efficiency evaluation mechanisms. For resource-scarce Gansu universities, optimized allocation maximizes limited digital asset value and eliminates idle resources (Liu, 2024).

6.4 Organizational Digital Culture

Including digital identity, reform acceptance, collaborative awareness and lifelong learning atmosphere. Positive digital culture reduces internal transformation resistance, stimulates all staff's participation and encourages administrators to continuously update digital management skills (Cai & Hu, 2024).

6.5 Digital Security Governance

Composed of risk awareness, complete security systems, technical protection equipment and emergency disposal mechanisms. Sound security governance ensures stable operation of all digital platforms and data assets, avoiding security incidents that disrupt normal teaching and administration (Huang, 2022).

TARGETED OPTIMIZATION STRATEGIES

7.1 Strengthen Strategic Top-Level Digital Design

Establish digital transformation-oriented strategic thinking, compile operable short, medium and long-term digital development plans matching school positioning;

Set president-led digital transformation leading groups covering all functional departments to unify resource allocation and construction supervision;

Organize regular policy training for managers to strive for provincial digital special funds and policy support (Gansu Provincial Department of Education, 2023).

7.2 Upgrade Full-Process Data Governance System

Unify provincial data standards relying on the shared smart education platform, break data silos and build integrated university big data platforms. Introduce professional data analysts to provide data support for teaching monitoring, resource distribution and risk warning, and institutionalize data-supported decision-making requirements (Zhu & Li, 2024).

7.3 Optimize Digital Resource Distribution Mechanismy

Build regular resource demand assessment systems, prioritize funds for data platform and digital talent introduction. Promote internal equipment and talent sharing; deepen cross-school, school-enterprise resource cooperation. Establish efficiency assessment and reward mechanisms to motivate reasonable resource utilization (Liu, 2024).

7.4 Cultivate All-Staff Digital Culture and Hierarchical Training System

Carry out universal digital publicity to eliminate reform resistance. Design categorized training for school leaders, middle managers and frontline teachers, combining online theory and offline practical operation. Set digital innovation rewards to create continuous learning atmosphere (Wang, 2022).

7.5 Perfect Full-Cycle Digital Security Governance

Launch regular security risk training and hidden danger inspection. Complete data protection regulations and emergency response plans, set full-time security management teams. Increase investment in firewalls, encryption and intrusion detection systems to build comprehensive technical protection barriers (Huang, 2022).

CONCLUSION

First, Gansu's universities have gained staged digital transformation results, yet five core challenges restrict educational management efficiency: insufficient top-level strategic design, unbalanced digital resource allocation, weak data decision capacity, insufficient overall digital literacy and imperfect security governance systems.

Second, the five dimensions of digital leadership (strategic digital planning, data-driven decision-making, digital resource allocation, organizational digital culture, digital security governance) are core influencing factors, with clear hierarchical positioning: premise, core driving force, key guarantee, internal driving force and bottom-line guarantee respectively. Third, five localized operable optimization strategies are proposed matching Gansu's economic and ethnic characteristics, which can effectively solve existing transformation dilemmas. This research only adopts literature analysis and contextual deduction, lacking questionnaire and structural equation empirical verification; the sample scope is limited to Gansu without horizontal cross-regional comparison; the dynamic evolution law of digital leadership factors is not deeply explored. Four directions for follow-up research are put forward:

Carry out quantitative empirical research, design questionnaires for Gansu university administrators to quantitatively verify factor influence mechanisms;

Conduct comparative research between eastern, central and western universities to absorb cross-regional advanced experience;

Launch longitudinal dynamic research to explore long-term evolution rules of digital leadership in multi-stage transformation;

Carry out typical case studies of representative universities to summarize targeted localized reform schemes (Zhou & Wang, 2023).

In general, digital leadership is a decisive factor to lift educational management efficiency of universities in Gansu Province. With deepening national education digitalization, digital leadership construction will become a core task for western regional higher education institutions.

This study expects to offer practical references for digital governance modernization of Gansu's universities and boost high-quality development of western China higher education.

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