RESEARCH ON DIGITAL TRANSFORMATION PERFORMANCE OF UNIVERSITY TEACHERS - A CASE STUDY OF XIANGSIHU COLLEGE OF GUANGXI MINZU UNIVERSITY

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AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION
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This Independent Study Has Been Approved as a Partial Fulfillment of the Requirements for the Degree of Master of Business Administration

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Title: Research on Digital Transformation Performance of University Teachers - A Case Study of Xiangsihu College of Guangxi Minzu University

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ABSTRACT

With the rapid development of global information technology, digitalization has become an important strategic direction to promote the modernization of higher education. Governments of various countries have put the strategy of digitalization of education into the national development agenda. At present, research in various countries focuses on technology and policy, while research on teachers' digital literacy and transformation ability is relatively insufficient. Taking Xiangsihu College of Guangxi Minzu University as a case, this study explored the role change and capacity building of university teachers in the process of digital transformation, aiming to enrich the theoretical system of digital education, respond to policy needs, and provide feasible paths and practical experience for local colleges and universities, especially western ethnic universities, to promote the fair and high-quality development of regional education.

This study had three main purposes: (1) To explore the effect of digital conscious thinking on the digital transformation of university teachers; (2) To explore the effect of digital technology capability on the digital transformation of university teachers; (3) To explore the effect of digital teaching practice on the digital transformation competency of university teachers.This study adopted quantitative research methodology, and a questionnaire survey was conducted to collect data for analysis.

The findings reveal that in Xiangsihu College of Guangxi Minzu University, young and short-term teachers perform better, and there are significant differences in digital transformation by genders and professional titles in some competency dimensions. Based on the data analysis, it is found: (1) Digital conscious thinking has

a positive effect on digital transformation; (2) Digital technology capability has a positive effect on digital transformation; (3) Digital teaching practice has a positive effect on digital transformation.

On the basis of these findings, several suggestions are proposed: Institutions should optimize mechanisms of institutional guarantees and incentives to strengthen the role of digital conscious thinking. A hierarchical empowerment system should be built to bridge the gaps in group capacity, thereby enhancing the influence of digital technology capability. The kinetic energy of professional development should be activated through ecological cooperation to improve the role of digital teaching practice.

Keywords: digital transformation, digital conscious thinking, digital technology capability, digital teaching practice

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DAI XUAN

DECLARATION

I, Dai Xuan , hereby declare that this Independent Study entitled "*Research on Digital Transformation Performance of University Teachers-A Case Study of Xiangsihu College of Guangxi Minzu University*" is an original work and has never been submitted to any academic institution for a degree.

(DAI XUAN)
Jul. 29, 2025

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Chapter 1 Introduction

1.1 Background of the Study

With the rapid development of global information technology, digitalization has become the core driving force to promote the modernization and high-quality development of education (Jing & Zhongbo, 2024). Governments of various countries have incorporated the digital education strategy into the national development agenda to enhance the resilience and adaptability of the education system. The European Union released the Digital Education Action Plan (2021-2027) in 2020, which emphasizes improving digital skills, building an inclusive and sustainable digital education ecosystem, and clearly proposes to strengthen the digital literacy training of educators to adapt to the profound changes in teaching mode. In the United States, educational technology policies gradually focus on personalized learning and data-driven decision-making and promote the construction of digital infrastructure in colleges and universities through federal funding and educational innovation projects. Australia, Singapore, and other countries have also launched the digital transformation plan of higher education, focusing on the construction of online learning platforms and the integration and application of teachers' professional development and data analysis systems to promote the intelligent and open development of the higher education system.

In China, digital transformation has been elevated to a national strategic level. In 2022, the Ministry of Education issued the Strategic Action on Education Digitalization, which clearly proposed to basically build a digital education system that everyone can learn, everywhere can learn, and always can learn by 2035, emphasizing the deep integration of information technology and education and teaching. The "digital literacy for teachers" standard released in the same year constructs a literacy framework covering five dimensions: digital awareness, digital technology application, digital content creation, digital communication and collaboration, and digital ethics, providing policy support and an evaluation basis for the digital transformation of university teachers. In addition, the 2035 document on the modernization of education in China also proposes to build a "smart education" system to promote the reform of the education governance mode. In this context, university teachers are not only the applicators of digital tools but also the key force to promote educational innovation. Their digital literacy and transformation ability have become important indicators to measure the effectiveness of university development.

1.2 Questions of the Study

With the continuous promotion of digital transformation in the field of education, college teachers, as implementers and leaders of educational activities, are facing many challenges and problems in the process of digital transformation. Xiangsihu College of Guangxi Minzu University has carried out a number of research and practices in the field of digital transformation and encountered many difficulties: first, the school lacks digital conscious and thinking. Second, the school's digital technology capability is weak. Third, there are few digital teaching practices in schools.

1.3 Objectives of the Study

This study has three main purposes:

(1) To explore the effect of digital conscious thinking on the digital transformation performance of university teachers;

(2) To explore the effect of digital technology capability on the digital transformation performance of university teachers;

(3) To explore the effect of digital teaching practice on the digital transformation performance of university teachers.

1.4 Scope of the Study

This study took the full-time teachers of Xiangsihu College of Guangxi Minzu University as the research subjects. The full-time teachers of other colleges and universities were not included in the study. Teachers were required to have at least one year of teaching experience, had certain experience in teaching, and were able to evaluate. The research period was from May 1st, 2024, to May 1st, 2025. Data were collected by conducting a questionnaire survey. The questionnaire contains two main parts: the first part is the basic information of the survey sample, covering gender, age, educational background, professional title, and teaching experience and teaching discipline.The second part focuses on digital conscious thinking, technical technology capability, and teaching practice. Statistics showed that 520 electronic questionnaires were distributed, 502 were recovered, 491 were valid, and the questionnaire response rate was 97.8%.

1.5 Significance of the Study

With the continuous advancement of global education modernization, digital transformation has become an important strategic direction for the development of higher education in various countries. This study focuses on the role change and capacity building of university teachers in the process of digital transformation, especially taking Xiangsihu College of Guangxi Minzu University as a case, to explore the path and mode of university teachers' digital transformation from the theoretical and practical levels, which has important theoretical value and practical significance.

1.Theoretical significance

First of all, the current research on the digital transformation of higher education mostly focuses on the macro policy, technology platform construction, and students' learning effectiveness, while the systematic research on the role of teachers, transformation mechanism, and literacy improvement is relatively insufficient (Capogna & Greco, 2024). As the "first responsible person" of digital education, the role of teachers has changed from the traditional knowledge imparter to the designer, organizer, and promoter of digital learning (Ji et al., 2024). Through case analysis and empirical research, this study explores the transformation of teaching philosophy, technology adaptability, and innovative practice of teachers in the digital environment, which can enrich and improve the theoretical system of digital education, especially the research on teachers' professional development and educational reform. Secondly, this study responds to the requirements for teachers' digital ability construction in the Digital Education Action Plan (2021-2027) and Education Digital Strategic Action and other policies and builds a model for teachers' digital ability training to meet the needs of the development of higher education with Chinese characteristics. This not only complements the theoretical dimension of university digital research but also provides theoretical support for future research on the evolution of university teachers' professional ability and the digital teaching evaluation system.

2. Practical significance

Globally, the European Union, the United States, Australia and other countries and regions attach great importance to the digital transformation of higher education, generally strengthen the training of teachers' digital skills, and improve the sharing and intelligent level of higher education resources, so as to enhance the inclusiveness and adaptability of the education system(Gabriel et al., 2022). In China, the Ministry of Education issued the Strategic Action for Digital Education and the Digital Literacy of Teachers standards in 2022 to promote the in-depth digital integration of

higher education, and clearly proposed to accelerate the improvement of digital literacy of university teachers, so as to promote the equity and quality of education. In this context, this study focuses on the digital reform experience of Xiangsihu College of Guangxi Minzu University, which not only reflects the positive exploration of colleges and universities in Western China in coping with the digital transformation, but also helps to reflect the practice path of private colleges and universities in talent training, digital curriculum reform, teacher capacity building and other aspects, and provides a model and experience for the high-quality development of local colleges and universities. At the same time, this study helps to promote the optimal allocation of regional education resources and the collaborative sharing of digital resources, improve the comprehensive ability of teachers in education governance, teaching reform and social services, and enhance the function of colleges and universities in serving local economic and social development. In addition, as a multi-ethnic region, the digital transformation of colleges and universities in Guangxi also has a certain cultural diversity and particularity. Studying the digital development path of teachers in Guangxi will help to promote educational equity and the process of educational modernization in ethnic areas.

To sum up, this study not only has a positive role in improving the digital theoretical system of university teachers but also provides practical reference and policy support for policy makers, education managers, and front-line teachers in coping with the digital transformation of education, which has a strong practical significance.

1.6 Definition of Key Terms

Digital conscious thinking: in a digital environment, individuals' ability to recognize, understand, and apply digital technology, as well as their sensitivity and utilization of digital elements such as data and algorithms.

Digital technology capability: the comprehensive ability of individuals or organizations to achieve goals by using digital technology, data, and related tools, including technology application, data-driven decision-making, resource integration, innovative application, etc.

Digital teaching practice: a modern teaching mode that widely applies digital technology, network resources, and multimedia tools in the teaching process,optimizes the teaching process, improves the teaching effect, and realizes the sharing of educational resources and personalized learning.

Digital transformation: through the extensive application of digital technology, systematic changes are made to the organization's business model, process, culture, and way of interaction with stakeholders to improve efficiency, create new value, and enhance competitiveness.

Chapter 2 Literature Review

2.1 Digital Conscious Thinking

Digital conscious thinking refers to the individual's cognition, understanding, and application ability of digital technology, as well as the sensitivity and utilization ability of digital elements such as data and algorithms in the digital environment. Vlasova (2021) claimed that it is a way of thinking that combines digital technology with practical problems, emphasizing the optimization of processes, efficiency improvement, and value creation through technical means. In the digital transformation of colleges and universities, digital conscious thinking plays a vital role. First of all, it can help college teachers, students, and managers recognize the necessity and urgency of digital transformation, promote the transformation from traditional concepts to digital concepts, and lay the ideological foundation for the transformation (Tangkish et al., 2024). Secondly, digital conscious thinking helps colleges and universities better integrate resources, break the information island, and realize data sharing and collaborative work (Alenezi et al., 2023). In addition, Lo (2024) claimed that digital conscious thinking can also stimulate the innovative vitality of colleges and universities, urge teachers to explore new teaching modes and scientific research methods, and promote the comprehensive upgrading of colleges and universities in teaching, scientific research, management, and other aspects.

2.2 Digital Technology Capability

Digital technology capability refers to the comprehensive ability of individuals or organizations to use digital technology, data, and related tools to achieve goals, including technology application, data-driven decision-making, resource integration, innovative application, and so on. It not only promotes the upgrading of colleges and universities at the technical level, such as optimizing teaching resources and improving teaching interactivity, but also helps colleges and universities realize process automation, data sharing, and analysis at the management level so as to improve decision-making efficiency (Timotheou et al., 2023). Foreign scholars' research on digital technology capability pointed out that it is not only the basis for enterprises or universities to deal with technological change but also the key to achieving strategic objectives and value innovation (Khin & Ho, 2019). For example, the research points out that digital capability is the ability of enterprises to use digital technology to acquire, allocate, integrate, and reconstruct resources and to perceive opportunities and threats and reconfigure digital resources. Sholikah and Harsono (2021) argued that in the field of higher education, the improvement of digital

technology capability can significantly improve students' satisfaction and experience of digital education (Sholikah & Harsono, 2021).

2.3 Digital Teaching Practice

Digital teaching practice is a modern teaching mode that widely applies digital technology, network resources, and multimedia tools in the teaching process to optimize the teaching process and teaching effect and then realize the sharing of educational resources and personalized learning. Digital teaching practice plays a vital role in higher education. First, digital teaching practice provides students with a flexible and personalized learning experience with the help of online platforms, virtual laboratories, artificial intelligence, and other technologies (Kaswan et al., 2024). This model not only improves the teaching efficiency but also enhances students' participation and learning effect. Secondly, Ma (2024) argued that digital teaching practice promotes the sharing and optimization of educational resources. Colleges and universities integrate high-quality teaching resources through the digital platform to realize the co-construction and sharing of curriculum content (Zhan et al., 2024). For example, the University Alliance has improved the efficiency of resource utilization by integrating teachers and curriculum resources and carrying out credit mutual recognition, micro certificate, and micro degree certification (Yu & Li, 2021). In addition, digital teaching practice has also improved teachers' teaching ability (Mei et al., 2019). European and American universities cultivate teachers' digital ability through a variety of modes, including department project service mode, school system training mode, and national curriculum application mode (Saroyan & Frenay, 2023). These models not only improve teachers' digital literacy but also provide a solid talent foundation for the digital transformation of colleges and universities.

2.4 Digital Transformation

With the rapid development of information technology and the continuous advancement of education modernization, the digital transformation of colleges and universities is gradually evolving from "tool introduction" to "system reconstruction," which has a far-reaching impact on all aspects of higher education. The digital transformation of colleges and universities is not only the update of teaching methods but also the all-round remodeling of educational philosophy, management mode, service system, and social functions.

First of all, the digital transformation has promoted the profound reform of the university teaching mode. That colleges and universities provide students with a more

flexible and personalized learning experience through online learning platforms, virtual laboratories, artificial intelligence-assisted teaching, and other means. For example, teachers use big data technology to track students' learning behavior, dynamically adjust the pace and content of the course, and teach students in accordance with their aptitude (Buchanan & McPherson, 2019).

Secondly, digital transformation has significantly improved the management efficiency and governance level of colleges and universities. Through the integrated information system, colleges and universities build a unified digital platform, which breaks the information island existing in the traditional management and realizes the real-time sharing of data, process automation, and intelligent decision-making (Ma & Feng, 2021). For example, many colleges and universities optimize the curriculum and resource allocation through data analysis, improve the enrollment management process, and then enhance the operation efficiency and service ability of colleges and universities.

Thirdly, digital transformation has effectively promoted the interaction and integration of universities and society. On the one hand, colleges and universities provide flexible learning opportunities for a wider range of social groups by opening online courses, sharing scientific research platforms, and establishing virtual laboratories, which helps to achieve educational equity and lifelong learning goals. On the other hand, digitalization also provides a new channel for the cooperation between universities and external institutions such as government and enterprises (Vasilev et al., 2020). For example, the shared data platform and collaborative R&D system are conducive to the transformation of scientific and technological achievements in colleges and universities and serve the development of the local economy.

International research also emphasizes the strategic value of digital transformation of colleges and universities. Only by integrating technological capabilities with organizational culture, talent mechanisms, and strategic planning can universities truly realize sustainable digital development. At the same time, a number of foreign studies have shown that digital transformation has significantly improved the international competitiveness and social adaptability of colleges and universities, especially in teaching innovation, scientific research cooperation, and global talent attraction.

In China, with the continuous promotion of the "strategic action of education digitalization", the digital transformation of colleges and universities has become an important part of the national strategy. The Ministry of Education advocates the digital integration development mode of "all staff, the whole process, and the whole

domain", which requires colleges and universities to build a systematic and collaborative digital ecology from concept to practice. This transformation not only helps to improve the quality of education and governance ability but also provides solid support for the construction of a high-quality higher education system in China.

2.5 Current Situation of Xiangsihu College of Guangxi Minzu University

Xiangsihu College of Guangxi Minzu University was founded in April, 2002. In February 2004, it became a full-time undergraduate college (Independent College) with the approval of the Ministry of Education. On June 18, 2020, it signed a framework agreement on cooperative education with Geely Talent Development Group Co., Ltd. to jointly promote the transformation of Xiangsihu College into an independent, non-profit, private undergraduate college. Xiangsihu College of Guangxi Minzu University has actively promoted the digital transformation of colleges and universities. Around the development strategy of "digital technology," it has built a discipline system covering five clusters: digital technology, digital economy, digital art, digital humanities, and digital governance, and built a complete framework for the cultivation of digital talents. The school has successively established the Geely Xingrui Data Intelligent Industry College, the Industrial Internet Industry College, the Financial Technology Industry College, and other digital production and education integration platforms to create a digital ecosystem with collaborative development of scientific research, teaching, and industry.

In terms of platform construction, the university invested 100 million yuan to build 114 high-level laboratories, including the AI Supercomputing Center, the virtual simulation and driverless laboratory, the AI smart finance science and innovation center, etc., forming a leading new productivity infrastructure system in Guangxi. With the help of Geely Xingrui big model technology, the school carries out research on multimodal corpus, language services, TTS voice big model, and AIGC-related technologies, promotes the integration of teaching and scientific research, and serves the national and regional digital industry strategy.

In terms of teaching reform, the school has deeply integrated digital technology into the classroom and talent training, relying on the school enterprise collaborative development of teaching cases, setting up multi-type cross-border integrated curriculum systems such as "dawn talent class" and "cornerstone plan," and closely adhering to the technical needs of enterprises to cultivate highly versatile talents with "digital + management" and "technology + art." The university has also established

cooperative relations with many universities in ASEAN to jointly cultivate international talents with AI and digital intelligence integration and developed the "ASEAN big language model" to promote the localized application of digital technology in the "Belt and Road" strategic area.

Through full-scale digital construction and international cooperation, Xiangsihu College of Guangxi Minzu University is gradually becoming a model university for the integrated development of regional digital intelligence education and industry, providing solid support for the coordinated development of the digital economy in Guangxi.

2.6 Conceptual Framework

The digital transformation performance of colleges and universities plays an irreplaceable role in improving the quality of education and teaching, optimizing the management process, strengthening social services, and shaping future competitiveness. This study constructs a model of digital conscious thinking, digital technology capability, and digital teaching practice, which affect the digital transformation of colleges and universities. Digital conscious thinking, digital technology capability, and digital teaching practice are taken as independent variables and digital transformation performance as dependent variable. The model framework is shown in Figure 1.

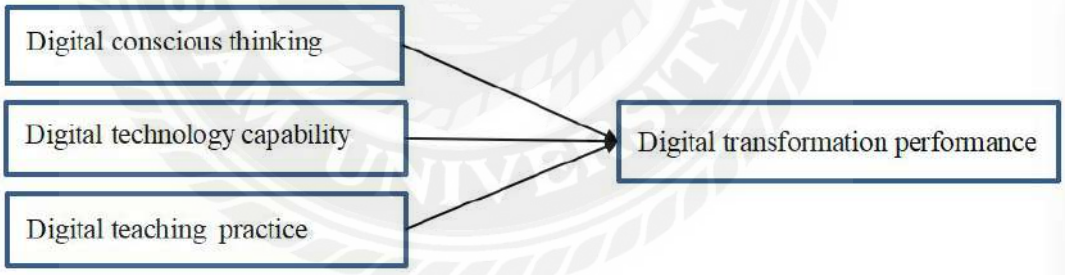

Figure 1. Conceptual Framework

Chapter 3 Research Methodology

3.1 Research Design

This study focused on the influencing factors of the digital transformation performance of Xiangsihu College of Guangxi Minzu University. The independent variables in the research model were determined as digital conscious thinking, digital technology capability, and digital teaching practice, and the dependent variable is digital transformation performance. In the process of the study, a questionnaire was designed by using the classical scale, and hypotheses were constructed according to the relationship between variables. The research sample size was determined according to the research purpose, and data were collected by the "questionnaire star" platform. SPSS was used for analysis, and the significance level was set at $\alpha=0.05$. Multivariate statistical techniques were used based on the data type. An independent sample t-test was used for categorical variables (gender and discipline), and one-way analysis of variance (ANOVA) and the LSD post-test were used for ordered variables (age, teaching experience, and professional title).

3.2 Population and Sample

The research sample was the full-time teachers of Xiangsihu College of Guangxi Minzu University. Teachers were required to have at least one year of teaching experience, had certain experience in teaching, and was able to evaluate. The research used a probability sampling method to randomly select 520 full-time teachers in school for investigation.

3.3 Hypothesis

The research model is based on the analysis of the relationship between variables. The relationship is set through assumptions. Therefore, the following assumptions are put forward:

H1: Digital conscious thinking has a positive effect on digital transformation performance of university teachers.

H2: Digital technology capability has a positive effect on digital transformation performance of university teachers.

H3: Digital teaching practice has a positive effect on digital transformation performance of university teachers.

3.4 Research Instrument

This study used a questionnaire survey and quantitative analysis to design the questionnaire on the current situation of university teachers' digital transformation performance.

The questionnaire uses the five-point Likert scale, and the scores range from 1 to 5, which are "very inconformity," "inconformity," "general," "conformity," and "very conformity."

Table 1. Questionnaire Items

Item	
Digital conscious thinking	
1	Value recognition: Understand the dual impact (opportunities and challenges) of digital technology on education and clarify its strategic value.
2	Application willingness: Proactively explore the application of digital technology in teaching and sustain enthusiasm for innovation.
3	Problem-solving resolve: Demonstrate firm commitment to resolving difficulties encountered during technology implementation.
Digital technology capability	
1	Understanding principles: Grasp the application logic and boundaries of technologies (e.g., AI) in education.
2	Tool operation: Proficiently use digital facilities such as intelligent teaching platforms and data analysis tools.
3	Resource integration: Efficiently collect and reorganize multi-source digital resources to develop a teaching knowledge base.
Digital teaching practice	
1	Instructional design: Customize teaching objectives based on student data and design digitally integrated classroom activities.
2	Classroom implementation: Utilize intelligent tools to enhance classroom interactivity and stimulate student engagement.
3	Academic assessment: Employ data analysis models to achieve precise learning diagnosis and support personalized teaching.
4	Collaborative education: Connect family, school, and societal educational resources through digital platforms.
	Digital transformation performance

1	I think I have made some achievements in digital transformation.
2	My teaching and research methods have been significantly improved due to the application of digital means.
3	Digital transformation has improved my teaching efficiency and students' learning effect.
4	I played an active role in the process of school digital transformation.

3.5 Reliability and Validity Analysis of the Scale

3.5.1 Questionnaire Reliability Analysis

To ensure the reliability of the questionnaire, Cronbach's α coefficient was calculated for each dimension. Cronbach's α is a commonly used indicator to measure internal consistency, usually taking 0.70 as an acceptable threshold. The Cronbach's coefficient of the total scale reflects its reliability level. When the coefficient is greater than 0.7, it indicates that the questionnaire has high reliability. Subsequently, the reliability was verified. It was found that the Cronbach's α coefficient of the total table was 0.938, and the α coefficients of each dimension ranged from 0.82 to 0.89, far exceeding the threshold standard of 0.7.

As shown in Table 2, the Cronbach's α of digital conscious thinking is 0.82, and further shows that the item design of this dimension is reasonable and can effectively reflect teachers' evaluation of digital conscious thinking. The Cronbach's α of digital technology capability is 0.85, which shows that the items measuring teachers' recognition of digital technology tools are reliable, and accurately capture the evaluation of teachers' acceptance of digital technology capability. The Cronbach's α of digital teaching practice is 0.89, indicating that the questionnaire is reliable for the measurement of teachers' digital practice, and the scale is suitable for evaluating teachers' recognition of digital teaching practice as a whole.

Table 2. Questionnaire Reliability Analysis

Dimension	Cronbach's Alpha	Number of Items
Digital Conscious Thinking	0.82	3
Digital Technology Capability	0.85	3
Digital Teaching Practice	0.89	4
Digital Transformation Performance	0.87	4

3.5.2 Questionnaire Validity Analysis

In order to ensure the structural validity of the questionnaire, the items of the questionnaire are constructed according to the theoretical construction (digital conscious thinking, technical ability, and teaching practice), ensuring comprehensive coverage, clear expression, and strong content validity. This study used exploratory factor analysis (EFA), the KMO (Kaiser-Meyer-Olkin) test, and Bartlett's spherical test to evaluate whether the data were suitable for factor analysis. The results are shown in Table 3.

The digital conscious thinking KMO is 0.733, the digital technology capability KMO is 0.762, the digital teaching practice KMO is 0.783, the digital transformation performance KMO is 0.751, and the total value of KMO is 0.751. According to Kaiser criterion, KMO>0.7 means good, KMO>0.6 means acceptable, The KMO values of each dimension and all dimensions are significantly higher than the acceptable threshold of 0.7, indicating that the sample data are suitable for factor analysis.

Bartlett's spherical test results reached extremely significant statistical levels in each dimension and all dimensions ($p<0.001$), and the approximate chi square values were as follows:

The digital conscious thinking is 215.38, the digital technology capability is 238.15, the digital teaching practice is 298.67, the digital transformation performance is 505.16, and the total amount table is 1257.36.

The significant results of Bartlett's spherical test ($p<0.001$) strongly rejected the original assumption that there was no correlation between variables, indicating that there was significant correlation between variables, and the correlation matrix significantly deviated from the identity matrix, further supporting the applicability of factor analysis.

In general, the results of KMO test and Bartlett's spherical test show that the data collected in this study are very suitable for factor analysis, and the questionnaire has a good basis for structural validity.

Table 3. Questionnaire Validity Analysis

Dimension	KMO	Bartlett's approximate chi square	Df	Sig.
Digital Conscious Thinking	0.733	215.38	3	0.000
Digital Technology Capability	0.762	238.15	3	0.000
Digital Teaching Practice	0.783	298.67	6	0.000
Digital Transformation Performance	0.751	505.16	33	0.000
Total	0.751	1257.36	45	0.000

3.6 Data Collection

The list of teachers for this survey was mainly provided by the personnel department of Xiangsihu College of Guangxi Minzu University. 520 teaching staff were randomly selected from the list of full-time teachers as the research sample. Based on the sampling results, researchers sent questionnaires to teachers through the "questionnaire star" platform and explained the purpose, importance, and contribution of the research. In order to improve participation, incentives were set up, such as commitment to participate in the feedback of research results. The questionnaires were distributed from May 1, 2024, to May 1, 2025. Statistics showed that 520 electronic questionnaires were distributed, 502 were recovered, 491 were valid, and the response rate was 97.8%.

Table 4. Questionnaire Collection and Statistics

Category	**Count**	**Percentage**
Questionnaires distributed	520	——
Questionnaires returned	502	96.5%
Invalid/incomplete questionnaires	11	2.2%
Valid questionnaires	491	97.8%

3.7 Data Analysis

3.7.1 Descriptive Statistics

The software used in the descriptive statistics included SPSS, and the statistical analysis on the mean, standard deviation, percentage, normal distribution, kurtosis value, and skewness value was mainly conducted on the demographic characteristics of the sample. Descriptive statistics provided basic support for further analysis of the data.

3.7.2 Inferential Statistics

At the same time, this study used inferential statistical methods including correlation analysis, t-test, and analysis of variance (ANOVA) to analyze the relationships and differences between different variables, elucidates the underlying relationships and interaction mechanisms among key metrics during digital transformation performance.

Chapter 4 Findings and Discussion

4.1 Findings

4.1.1 Descriptive Statistics of Dimensions of University Teachers' Digital Transformation Performance

This study first investigated and analyzed the overall level of each dimension of university teachers' digital transformation performance , and the results are shown in Table 5. On the whole, the average value of each dimension is between 3.82 and 3.88, which is above the medium level as a whole. The scores of digital technology capability and digital conscious thinking are relatively close, which means that teachers still have some room to improve in mastering the application logic of digital technology education, tool operation, and cognition of the value of digital technology. Digital teaching practice is at the medium level, which shows that teachers are in the stage of gradual development and promotion in teaching practice.

Table 5. Descriptive Statistics of Dimensions of Digital Transformation Performance of University Teachers (N=491)

Competency dimension	Mean (M)	Standard deviation (SD)
Digital conscious thinking	3.85	0.81
Digital technology capability	3.82	0.83
Digital teaching practice	3.88	0.84
Digital transformation performance	3.86	0.83

4.1.2 Differences in Digital Transformation Performance by Genders

This study further explored the impact of gender factors on digital transformation performance. The results are shown in Table 6. The difference between male and female teachers in the dimension of digital teaching practice reached a statistically significant level (P=0.041), indicating that there were some differences in the level of digital transformation performance between male and female teachers in this dimension. This may be related to the differences between male and female teachers in the teaching styles, the importance of digital technology in teaching, and the use of teaching resources. In other dimensions, the differences between male and female teachers did not reach a statistically significant level, indicating that in these dimensions, the digital transformation performance of male and female teachers is relatively close on the whole, and the influence of gender on these dimensions is

relatively small, indicating that gender is not the dominant factor determining the digital transformation level of teachers.

Table 6. Comparison of Differences in Digital Transformation Performance of University Teachers by Genders

Competency dimension	Male (n=260)	Female (n=231)	t-value	p-value
Digital conscious thinking	3.82 ± 0.71	3.88 ± 0.53	-1.05	0.295
Digital technology capability	3.91 ± 0.77	3.78 ± 0.58	1.82	0.07
Digital teaching practice	3.95 ± 0.78	3.79 ± 0.55	2.15	0.041
Digital transformation performance	3.87± 0.75	3.85 ± 0.73	0.30	0.764

4.1.3 Differences in Digital Transformation Performance by Age Groups

The differences of ages in the dimensions of digital transformation performance are shown in Table 7. There are significant differences among teachers of different ages in multiple dimensions.

In general, young teachers ≤ 30 years old and 31-40 years old scored relatively high in the dimensions of digital conscious thinking, digital technology capability, and digital teaching practice, while older teachers ≥ 51 years old scored relatively low in these dimensions. This shows that with the growth of age, teachers' performance in digital transformation shows a certain downward trend. In addition, the post-LSD comparison found that the differences between young teachers and older teachers in multiple dimensions reached significant levels, which further confirmed the important influence of age on teachers' digital transformation level.

The differences in the level of digital transformation performance among college teachers of different ages are mainly affected by their growth background, technical contact opportunities, and teaching experience. Young teachers are more exposed to and use digital technology in the process of growing up and can more skillfully apply digital technology to teaching practice. However, due to the limitations of the early teaching environment, older teachers have relatively less contact with and application of digital technology and form a relatively stable traditional teaching mode in their teaching experience, which may face more challenges and difficulties in the process of digital transformation. In addition, with the growth of age, teachers may show more

caution in the face of new technologies, which will also affect their improvement in digital conscious, thinking, and technical ability.

Table 7. Comparison of Digital Transformation Performance of University Teachers by Ages Groups

Competency dimension	≤30 years (n=123)	31-40 years (n=172)	41-50 years (n=133)	≥51 years (n=63)	F-value	LSD Post-hoc Comparisons
Digital conscious thinking	3.99 ± 0.60	3.87 ± 0.57	3.77 ± 0.72	3.54 ± 0.65	6.35	Grp 1 > Grps 3,4; Grp 2 > Grps 3,4
Digital technology capability	4.01 ± 0.62	3.90 ± 0.61	3.88 ± 0.79	3.39 ± 0.81	8.72	Grp 1 > Grps 3,4; Grp 2 > Grps 3,4; Grp 3 > Grp 4
Digital teaching practice	4.06 ± 0.69	3.87 ± 0.52	3.89 ± 0.82	3.45 ± 0.78	8.57	Grp 1 > Grps 3,4; Grp 2 > Grps 3,4
Digital transformation performance	4.02 ± 0.66	3.88 ± 0.63	3.85 ± 0.74	3.46 ± 0.75	7.90	Grp 1 > Grps 3,4; Grp 2 > Grps 3,4

4.1.4 Differences in Digital Transformation Performance by Educational Backgrounds

University teachers with different educational levels show different levels in the process of digital transformation, as shown in Table 8. There are some differences in the performance of teachers at various levels in the digital transformation, but the overall difference is not significant. Specifically, the average score of doctoral teachers in the dimensions of digital conscious thinking, digital technology capability, and digital teaching practice is slightly higher than that of master teachers, while master teachers are slightly higher than undergraduate teachers. This shows that teachers with higher educational levels may have certain advantages in digital transformation. However, the F test found that the differences of teachers at all levels of education did not reach a statistically significant level (P values were greater than 0.05), indicating that education is not the only key factor determining the level of teachers' digital transformation performance. Although there are differences in

educational levels, the performance of teachers of all educational levels is relatively similar in the overall trend of digital transformation.

Table 8. Comparison of Digital Transformation Performance of University Teachers by Educational Backgrounds

Competency dimension	Bachelor's (n=15)	Master's (n=270)	Doctoral (n=206)	F-value	p-value
Digital conscious thinking	3.98 ± 0.31	3.90 ± 0.61	3.86 ± 0.68	0.28	0.758
Digital technology capability	4.15 ± 0.24	3.87 ± 0.79	3.92 ± 0.66	0.91	0.404
Digital teaching practice	4.35 ± 0.34	3.84 ± 0.65	3.94 ± 0.66	1.32	0.269
Digital transformation performance	4.16 ± 0.30	3.87 ± 0.68	3.91 ± 0.66	0.83	0.437

4.1.5 Differences in Digital Transformation Performance by Professional Titles

The different professional titles may reflect the differences of teachers' professional development stage, accumulation of teaching experience, and acceptance of new technology. The differences in the digital transformation performance of university teachers with different professional titles are shown in Table 9. Lecturers scored relatively high in the dimension of digital teaching practice, while professors scored relatively low in this dimension. This may reflect that lecturers are in the middle stage of their career development and are more active in exploring and applying new teaching methods and technologies. In other dimensions, such as digital conscious thinking, digital technology capability and digital teaching practice, the scores of teachers with different professional titles are relatively close, and the difference is not significant. This shows that the influence of professional titles on these dimensions is relatively small. Overall, the professional title has a certain impact on the digital transformation performance of university teachers, but it is not a decisive factor.

Table 9. Comparison of Digital Transformation Performance of University Teachers by Professional Titles

Competency dimension	Teaching assistant (n=49)	Lecturer (n=196)	Assoc. professor (n=172)	Professor (n=74)	F-value	p-value
Digital conscious thinking	3.90 ± 0.53	3.96 ± 0.60	3.86 ± 0.60	3.71 ± 0.67	2.48	0.061
Digital technology capability	3.67 ± 0.71	3.99 ± 0.65	3.88 ± 0.63	3.74 ± 0.79	1.85	0.137
Digital teaching practice	4.03 ± 0.38	4.07 ± 0.62	3.84 ± 0.65	3.78 ± 0.78	2.45	0.043
Digital transformation performance	3.87 ± 0.54	4.01 ± 0.62	3.86 ± 0.63	3.74 ± 0.75	2.60	0.052

4.1.6 Differences in Digital Transformation Performance by Teaching Disciplines

The comparison of the differences in the digital transformation levels of university teachers by teaching discipline is shown in Table 10. The average score of liberal arts teachers in the dimension of digital conscious thinking is slightly higher than that of other disciplines, while the score of training guidance teachers in the dimension of digital teaching practice is relatively high. This shows that teachers of different disciplines have different emphases on the various dimensions of digital transformation performance. However, the F-test found that the differences in the dimensions teaching discipline did not reach a statistically significant level (P values were greater than 0.05), indicating that discipline is not the key factor determining the level of teachers' digital transformation.

Table 10. Comparison of Digital Transformation Performance of University Teachers by Teaching Disciplines

Competency dimension	Liberal arts (n=121)	Disciplinary core (n=149)	Practical skills training (n=123)	Integrated (n=98)	F-value	P-value
Digital conscious thinking	3.85 ± 0.66	3.82 ± 0.60	3.92 ± 0.65	3.79 ± 0.55	0.36	0.782
Digital technology capability	3.91 ± 0.61	3.82 ± 0.79	3.81 ± 0.80	3.83 ± 0.62	0.44	0.726
Digital teaching practice	3.92 ± 0.61	3.84 ± 0.68	3.77 ± 0.93	3.89 ± 0.58	0.76	0.517
Digital transformation performance	3.89 ± 0.63	3.83 ± 0.69	3.83 ± 0.79	3.84 ± 0.58	0.53	0.662

4.1.7 Differences in Digital Transformation Performance by Teaching Experiences

The differences in the digital transformation performance of university teachers with different teaching experience are shown in Table 11. Teachers with less teaching years (0-5 years) had higher scores in the dimensions of digital conscious thinking, digital technology capability, and digital teaching practice. This shows that teachers with fewer teaching years may be more active in exploring and applying digital technology, showing strong enthusiasm for innovation and adaptability. However, teachers with longer teaching years (more than 15 years) had relatively low scores in these dimensions, which may reflect that they have formed a relatively stable traditional teaching mode in the long-term teaching process, and their acceptance and application of new technologies are relatively lagging behind.

The differences in the performance of digital transformation of university teachers of different teaching experience are mainly due to the balance between the accumulation of teaching experience and innovation power. Teachers with less teaching years are usually in the early stage of career development. They are curious about new technology and are more willing to try to integrate digital technology into teaching to improve teaching effect and personal competitiveness. Although teachers

with more teaching years have rich teaching experience, they may be limited by the traditional teaching mode and have weak adaptability to digital transformation. In addition, with the growth of teaching age, teachers may face more teaching and research tasks, and time and energy constraints may also affect their in-depth study and application of digital technology.

Table 11. Comparison of Digital Transformation Performance of University Teachers by Teaching Experiences

Competency dimension	0-5 years (n=125)	5-10 years (n=140)	10-15 years (n=133)	>15 years (n=93)	F-value	LSD post-hoc test
Digital conscious thinking	3.97 ± 0.62	3.84 ± 0.58	3.80 ± 0.65	3.58 ± 0.66	4.35	Grp 1 > Grp 4; Grp 2 > Grp 4
Digital technology capability	3.98 ± 0.68	3.88 ± 0.54	3.84 ± 0.76	3.50 ± 0.84	5.25	Grp 1 > Grp 3,4; Grp 2 > Grp 3,4; Grp 3 > Grp 4
Digital teaching practice	4.04 ± 0.69	3.85 ± 0.48	3.82 ± 0.81	3.59 ± 0.80	4.88	Grp 1 > Grp 3,4; Grp 2 > Grp 3,4
Digital transformation performance	4.00 ± 0.66	3.86 ± 0.53	3.82 ± 0.74	3.56 ± 0.77	4.83	Grp 1 > Grp 3,4;

4.1.8 Correlation Analysis of Competency Dimensions

In the process of university teachers' digital transformation performance, the various competency dimensions are not isolated but are interrelated and influence each other. Exploring the internal relationship between these dimensions is helpful to understand the internal mechanism of teachers' digital transformation comprehensively and deeply. The correlation analysis between dimensions is shown in Table 12.

There is a significant positive correlation between the three aspects of university teachers' digital transformation performance. Among them, the correlation coefficient between digital conscious thinking and digital technology capability is 0.615, indicating that teachers' attention and application willingness to digital technology are closely related to their ability to master technology. The correlation between digital

teaching practice and other dimensions is significant, especially the correlation coefficient with digital technology capability, which is 0.672, which shows that the application of digital technology in teaching practice not only depends on their technical ability but also can promote their professional growth.

The results show that the development of teachers in one dimension often promotes the promotion of other dimensions. For example, the enhancement of teachers' digital conscious thinking usually stimulates their motivation to learn and master digital technology and then improve their application ability in teaching practice; the continuous exploration and application in the teaching practice promote the participation of teachers in the digital transformation. This mutually reinforcing relationship emphasizes that teachers' digital transformation is a comprehensive systematic project, and the development of all dimensions complements each other.

Table 12. Correlation Analysis of Competency Dimensions and Digital Transformation Performance (N=491)

Dimension	Digital conscious thinking	Digital technology capability	Digital teaching practice	Digital transformation performance
Digital conscious thinking	1			
Digital technology capability	0.615	1		
Digital teaching practice	0.635	0.672	1	
Digital transformation performance	0.76	0.78	0.80	1

4.2 Discussion

According to the analysis, the mean value of all dimensions is between 3.46 and 4.16, and the standard deviation is between 0.24 and 0.93. Only the "Bachelor degree" group had the extreme value of "high mean and low standard deviation" on "digital technology skills (4.15 ± 0.24)" and "digital teaching practice (4.35 ± 0.34)".

The data reveal the salient features of the digital revolution. In terms of age and teaching experiences, teachers ≤ 30 years old and 0-5 years of teaching experiences perform much better than teachers ≥ 51 years old and >15 years of teaching

experiences in the four dimensions, highlighting the "rejuvenation bonus", and young teachers become the vanguard force of change. In terms of professional titles, lecturers scored the highest in the practice dimension and professors the lowest, showing a "backbone driven" trend. As the backbone of teaching and research, lecturers actively engaged in digital practice and exploration. In terms of academic qualifications, there is no significant difference between doctors and masters in digital transformation performance, which show that educational background is not the decisive factor, and more emphasis is placed on "ability orientation", and the improvement of personal digital ability and literacy is the key. In the discipline dimension, there are small differences among disciplines, and the conditions for "integrated promotion" are available. This shows that there is a strong potential for interdisciplinary collaboration among different disciplines, which can break discipline boundaries, jointly explore new modes of digital education, and promote the all-round and in-depth development of digital reform in the field of higher education.

The positioning of the university accurately reflects the characteristics of "application-oriented universities in ethnic areas", which focuses on serving the regional economy and promoting the digital inheritance of national culture. From the characteristics of the data, the characteristics of "being young, practical and interdisciplinary" are highly consistent with the requirements of the national "digital transformation of Application-oriented Universities", showing the positive trend of the University in the digital transformation. At the same time, the phenomenon of "backbone driven" is significant, and the group of lecturers has become the main force of digital teaching innovation, which closely corresponds to the national "digital literacy improvement plan for key teachers", and provides strong support for the implementation of the plan. In addition, the concept of "ability oriented rather than academic degree oriented" actively responds to the national "five only" evaluation reform direction, pays more attention to the cultivation and investigation of practical application ability, points out the right direction for the application-oriented colleges and universities in ethnic areas on the road of digital transformation, and helps to promote the comprehensive improvement of school education quality and talent training level.

The digital transformation of Xiangsihu College of Guangxi Minzu University presents a typical path of "young backbone driven, ability oriented collaboration", which is highly in line with the implementation requirements of the national "education digital strategic action" at the level of application-oriented colleges and universities in ethnic areas, and has become a micro sample of the digital

transformation of regional colleges and universities. In a word, in the digital transformation of the university, the youth and backbone drive reflect the digital conscious and thinking guidance. Data extremum reflects the improvement of digital technology capability. Practice and interdisciplinary are the exploration of digital teaching practice. The overall path is the same frequency as the national requirements, highlighting awareness, ability and practice to promote digital transformation.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This study focused on the influencing factors of the digital transformation performance of Xiangsihu College of Guangxi Minzu University. The independent variables in the research model were determined as digital conscious thinking, digital technology capability, and digital teaching practice, and the dependent variable is digital transformation performance. The data were collected by conducting a questionnaire survey. This study used the "questionnaire star" online questionnaire platform to distribute 520 questionnaires to the full-time teachers of Xiangsihu College of Guangxi Minzu University. 502 questionnaires were recovered, and 491 valid questionnaires were obtained, with an effective rate of 97.8%. SPSS software was used to analyze the relationship and assumptions between variables.

Based on the data analysis, it is found that digital conscious thinking has a positive impact on digital transformation performance, digital technology capability has a positive impact on digital transformation performance, and digital teaching practice has a positive impact on digital transformation performance.

5.2 Recommendation

5.2.1 Optimizing the compatible mechanism of institutional guarantee and incentive

As a systematic and deep-seated reform project, the effectiveness of the digital transformation of colleges and universities not only depends on the technology supply and teachers' ability but also depends on the sound system guarantee and scientific incentive compatibility mechanism. At present, although many colleges and universities have made breakthroughs in technology investment and platform construction, there are still problems such as "disconnection between digital construction and teacher development" and "absence or imbalance of incentive mechanism" in system design. Therefore, the key to promoting the in-depth development of digital transformation of colleges and universities is to build a system and incentive system with clear objectives, coordinated elements, and smooth operation.

First, digital transformation should be incorporated into the teacher evaluation system and closely linked with professional title promotion, performance appraisal, and resource allocation. Through the system design, teachers' participation in digital curriculum construction, teaching platform application, digital scientific research

transformation, and other behaviors are included in the evaluation dimension, which not only defines the responsibility boundary of teachers in digital transformation but also effectively stimulates their enthusiasm and creativity. For example, Central China Normal University has added evaluation indicators such as "digital teaching achievements" and "educational technology innovation" in the evaluation of teachers' professional titles, achieving a leap from "teaching well" to "using technology to teach well".

Secondly, in terms of resource allocation, it is crucial to focus on focus on two types of investment: one is technology adaptation investment. According to the characteristics of different disciplines, we should formulate differentiated digital support schemes. For example, the humanities and social sciences field pays attention to cultural databases and text analysis tools, while engineering majors need simulation software and experimental platforms. Avoid the "one size fits all" technology orientation, and enhance the pertinence and operability of system design. The second is the investment in mental construction. By organizing special workshops, teacher development case performances, and other activities, we will strengthen teachers' recognition of the value of digital education, alleviate the cognitive bias of "emphasizing technology and neglecting education," and promote the comprehensive transformation of digital technology into educational philosophy and teaching behavior.

In addition, attention should be paid to the establishment of a multi-dimensional incentive mechanism to promote the synergy of "external incentive" and "internal drive." Externally, colleges and universities can set up digital curriculum development awards, teaching innovation funds, excellent case display platforms, etc. to improve teachers' participation through honor and material incentives; internally, we should create an organizational culture of "active exploration, sharing, and co-construction" and encourage teachers to realize their self-worth and sense of achievement in team cooperation and professional growth.

International experience also provides useful reference. Many colleges and universities in the United States regard teachers' participation in online teaching, educational technology research, and cross-sectoral digital cooperation projects as an important part of teachers' promotion evaluation and provide institutionalized support through the establishment of teaching innovation centers. Finland, on the other hand, quantifies every digital practice of teachers through the "digital education credit scoring system" and incorporates it into the professional development assessment, forming a long-term mechanism that can be tracked and encouraged.

5.2.2 Building a hierarchical empowerment system to bridge the gap in group capacity

With the continuous promotion of digital transformation in colleges and universities, the differences of teachers' groups in digital literacy, technology application ability, teaching philosophy, and other aspects are increasingly apparent, especially between different ages, teaching years, and professional backgrounds. This structural difference has become an important bottleneck restricting the full realization of digital transformation in colleges and universities. Therefore, building a scientific and systematic hierarchical enabling system has become a key path to improve the quality of digital transformation.

First, it is imperative to design a dynamic and step-by-step training mechanism according to the professional stage, ability foundation, and development needs of teachers. For senior teachers, the training should focus on the application of basic digital tools and the transformation of safety ethics and digital concepts. Many senior teachers hold a conservative or even exclusive attitude towards new technology due to habitual thinking or technical anxiety. Through thematic training, low-threshold operation demonstration, and successful case sharing, it can effectively get rid of the "fear of difficulties in technology" psychology and enhance their willingness to participate in digitalization. Correspondingly, young teachers should strengthen their ability of resource integration, teaching design innovation, and cross-platform collaboration on the basis of their existing technology. Young teachers usually have strong information technology adaptability, but they are still insufficient in the effective transformation of technology into teaching results and the construction of cross-sectoral cooperation. Therefore, the practical ability of technology integration teaching should be improved through project practice, interdisciplinary workshops, and educational technology tool training.

Secondly, it is suggested that colleges and universities implement the "cross-age tutorial system" and team co-construction mechanism to realize the ability complementarity and knowledge flow among teachers. By establishing a teaching community of "promoting the old with the new and bringing the new with the old," It is possible to not only accelerate the infiltration and diffusion of technical experience in the teacher group but also realize the organic integration of ideas and methods between generations. For example, let young teachers lead the technology application part, and senior teachers provide discipline teaching experience guidance, jointly develop digital courses, or organize mixed teaching projects so as to create a symbiotic pattern of collaborative growth.

From the perspective of the system, colleges and universities should incorporate the development of teachers' digital ability into the annual assessment, professional title evaluation, and teaching evaluation system and improve the initiative of teachers' participation in training and practice through the two-way drive of incentive and constraint mechanisms. At the same time, a normalized feedback and tracking mechanism should be established to dynamically adjust the empowerment strategy to ensure that the training content is upgraded synchronously with the needs of digital transformation.

5.2.3 Activating the kinetic energy of professional development with ecological cooperation

The digital transformation of colleges and universities is not only the innovation of technical means but also the reconstruction of teachers' professional development mechanism and the reconstruction of education ecology. In this process, building an open and collaborative, resource-sharing, and cross-border integration of digital education ecology has become the core path to activate the momentum of teachers' professional development and promote the continuous and in-depth transformation of colleges and universities. Ecological collaboration is no longer an "isolated island action" of a single school or teacher but a multi-agent, multi-level symbiotic, and win-win system project.

Digital ecological construction is highly related to professional development. On the one hand, colleges and universities should take the initiative to build a platform for the transformation of school enterprise resources, introduce the latest technological achievements of the industry, such as artificial intelligence, industrial robots, big data, etc., into the teaching scene, develop a real-situation case library, and build a teaching chain with the deep integration of "industry curriculum research." This "scene embedded" collaboration helps to promote the dynamic updating of the subject knowledge system so that teachers can expand the knowledge boundary and reshape the teaching content in line with the industry frontier. For example, the "AI + Medical Imaging" course jointly developed by Shanghai Jiao Tong University and Huawei is precisely the precise docking of professional content and industry needs through the school-enterprise co-construction mode.

On the other hand, it is imperative to speed up the construction of the Cross University Virtual Teaching and Research Community and the teaching and research network. Through joint teaching and research projects, university alliance cooperation, online curriculum development, and other forms, the co-construction and sharing of curriculum resources, teaching cases, and methods can be realized, and the uneven

distribution of resources can be broken. This model not only improves the teaching ability of teachers in small and medium-sized universities and remote areas but also creates a more balanced and interactive environment for professional development across the country.

In addition, ecological collaboration also needs to introduce more open organizational mechanisms and institutional safeguards. Colleges and universities should encourage teachers to actively participate in external collaborative organizations such as industry associations, education platforms, and online teaching communities and expand knowledge networks and academic influence. At the same time, through the establishment of incentive mechanisms such as the "teachers' collaborative development fund" and the "digital curriculum co-construction award plan," teachers are guided to participate in ecological construction from bottom to top, from passive recipients to active builders. The ecological professional development path, which emphasizes knowledge co-construction, responsibility sharing, and value creation, can continuously release the vitality of individual teachers and organizations in the digital transformation of colleges and universities.

5.3 Further Study

More studies can further deepen the digital transformation performance research in regional private universities. Specifically, future research may expand the research sample range to include more similar private universities in central and western China, in order to verify the universality and effectiveness of the evaluation system constructed in my study.The study may use advanced multilevel linear modeling (HLM) statistical analysis methods, focusing on key variables at the university level, including digital investment intensity, depth of school enterprise cooperation, and the proportion of courses with ethnic cultural characteristics. These variables have both main and interactive effects on teachers' digital transformation. Research in such variables will help provide a solid theoretical basis and scientific practical guidance for the precise formulation and effective implementation of digital education policies, and to promote higher education in western ethnic minority areas toward higher quality and more balanced development.

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Appendix

Survey Questionnaire

Dear Sir/Madam,

Thank you for your participation in this questionnaire survey. The survey will be conducted anonymously, and your relevant information will be kept confidential. Thank you again for your cooperation.

Part 1 Basic information

1. Gender

A. Male B. Female

2. Age

A. 18-30 B. 31-40 C. 41-50 D. Above 50

3. Education

A. Bachelor's degree B. Master degree

C. Higher than the Master's degree D. Other

4. Position

A. Operation B. Manager/senior

C. Lecturer/instructor D. Other

5. Disciplines

A. Liberal Arts B. Disciplinary Core

C. Practical Skills D. Integrated

6. Tenure in current position (year)

A. Less than/or equal to 5 B. Between 6-10

C. Between 11–15 D. 15 and over

Part II: Please judge to what extent you agree with the following statement, please choose the most appropriate option, and mark the corresponding number "√." The questionnaire used a Likert scale, ranging from 1 to 5, in which 1 indicates very inconformity, 2 indicates inconformity, 3 indicates general, 4 indicates conformity, and 5 indicates very conformity.

Item		**Alternative Answer**				
Digital Conscious Thinking		1	2	3	4	5
1	Value recognition: Understand the dual impact (opportunities and challenges) of digital technology on education and clarify its strategic value.					

2	Application willingness: Proactively explore the application of digital technology in teaching and sustain enthusiasm for innovation.					
3	Problem-solving resolve: Demonstrate firm commitment to resolving difficulties encountered during technology implementation.					
Digital Technical Capability						
1	Understanding principles: Grasp the application logic and boundaries of technologies (e.g., AI) in education.					
2	Tool operation: Proficiently use digital facilities such as intelligent teaching platforms and data analysis tools.					
3	Resource integration: Efficiently collect and reorganize multi-source digital resources to develop a teaching knowledge base.					
Digital Teaching Practice						
1	Instructional design: Customize teaching objectives based on student data and design digitally integrated classroom activities.					
2	Classroom implementation: Utilize intelligent tools to enhance classroom interactivity and stimulate student engagement.					
3	Academic assessment: Employ data analysis models to achieve precise learning diagnosis and support personalized teaching.					
4	Collaborative education: Connect family, school, and societal educational resources through digital platforms.					
	Digital Transformation					
1	I think I have made some achievements in digital transformation.					
2	My teaching and research methods have been significantly improved due to the application of digital means.					
3	Digital transformation has improved my					

	teaching efficiency and students' learning effect.					
4	I played an active role in the process of school digital transformation.					