THE GUIDELINES FOR OPTIMIZATION OF INFORMATION MANAGEMENT SYSTEM IN GUANG'AN VOCATIONAL AND TECHNICAL COLLEGE

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

未找到图形项目表。

LIST OF FIGURES

Page

未找到图形项目表。

CHAPTER 1

INTRODUCTION

1.1 Background

With the rapid advancement of information technology, the application of Information Management Systems (IMS) has become increasingly prevalent in higher education institutions. As a vocational college dedicated to cultivating skilled professionals, Guang'an Vocational and Technical College has introduced an IMS to improve administrative efficiency, streamline data processing, and enhance service delivery. While the system has contributed positively in several areas, it also exhibits critical weaknesses that hinder its optimal performance. Thus, it is vital to evaluate its current functioning and propose strategies for improvement.

The IMS at Guang'an Vocational and Technical College was designed to manage academic and administrative operations such as student registration, course scheduling, attendance tracking, grade management, and resource allocation. It integrates multiple functional modules and supports interdepartmental communication through a centralized digital platform. Initially, the implementation of the IMS marked a

significant shift from manual, paper-based administration to a digitized environment. However, as the system scaled with growing user demand, several challenges have emerged.

One of the most significant issues is the system's low usability. Faculty and staff often report difficulties navigating the system due to its complex interface and non-intuitive design. For example, users frequently complain about having to navigate through multiple menus to locate basic functions such as attendance records and grade submission. One faculty member stated, "It takes too many unnecessary clicks just to submit students' grades, and sometimes the system crashes during submission." Such specific experiences clearly illustrate the urgency for an interface redesign to enhance overall user experience. Routine tasks like inputting grades or accessing academic reports require multiple steps, leading to inefficiencies and user frustration. As noted by Li (2019), many university IMS platforms in China suffer from poor interface design, which negatively affects user adoption and overall system effectiveness.

Moreover, there is a noticeable gap in user adaptability, particularly among administrative personnel who

lack sufficient training and technical familiarity. Despite the system’s capabilities, its benefits are underutilized. To address this gap, the institution should initiate regular training workshops and interactive tutorials to enhance users' familiarity and proficiency with the IMS. Additionally, establishing dedicated support channels and peer mentorship programs could significantly improve user adaptability and confidence in utilizing the system. because many users are unable or reluctant to fully engage with its functionalities. Zhang (2020) emphasizes that without proper training and continuous support, even the most advanced IMS platforms will fail to meet their intended potential.

Technical support inadequacies further exacerbate the situation. For instance, during the recent final examination period, a server crash prevented faculty from submitting critical grade reports, and it took nearly two days for the technical support team to fully resolve the issue, significantly disrupting academic operations and causing considerable frustration among faculty members. the situation. When system malfunctions occur, such as data errors, login failures, or system crashes during peak usage times, response times from IT support are

often delayed. Wang (2021) argues that a responsive and well-staffed support infrastructure is essential for maintaining user confidence and ensuring system reliability, especially during critical administrative periods.

Despite these challenges, the IMS also presents several strengths. Its centralized data management approach improves information accuracy and consistency across departments. Automated processes reduce human error and speed up administrative workflows. Additionally, the system generates analytical reports that assist management in decision-making. However, these advantages are often overshadowed by operational shortcomings that prevent the system from being fully effective.

In light of these observations, there is a clear need to optimize the IMS at Guang'an Vocational and Technical College. Suggested improvements include redesigning the user interface to enhance usability, expanding training programs to improve user competence, and upgrading technical infrastructure to ensure system stability. Furthermore, a structured feedback mechanism should be implemented to collect user insights and continuously refine system

functionalities.

In conclusion, while the IMS at Guang'an Vocational and Technical College plays a foundational role in administrative modernization, its current limitations must be addressed. A strategic and user-centered approach to optimization will enable the institution to better leverage digital technologies in fulfilling its educational mission. This study, therefore, aims to investigate user acceptance and identify key operational challenges of the IMS in order to develop targeted optimization strategies.

1.2 Research objectives

1. To evaluate how administrators, lecturers, and staff at Guang'an Vocational and Technical College perceive and accept the Information Management System (IMS), with particular focus on their individual perspectives concerning Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention (BI).

2. To identify and analyze the key factors that administrators, lecturers, and staff believe influence the effective operation of the IMS, including technical infrastructure,

training support, policy incentives, and cross-departmental collaboration.

3. To propose targeted optimization strategies that reflect the specific needs and feedback of administrators, lecturers, and staff, in order to enhance user acceptance of the IMS, increase system usage, and strengthen collaborative efficiency across institutional departments.

1.3 Research Questions

1. How do administrators, lecturers, and staff at Guang'an Vocational and Technical College perceive the usefulness, ease of use, and their behavioral intention regarding the IMS?

2. What institutional or technical factors do administrators, lecturers, and staff identify as barriers or facilitators to the effective use of the IMS?

3. What differences exist among administrators, lecturers, and staff in their expectations and suggestions for optimizing the information management system?

1.4 Research significance

This study holds both practical and theoretical significance, as it bridges the gap between institutional challenges in system implementation and the development of empirical, user-informed optimization strategies.

1. Practical Contribution: This research provides data-driven insights into how administrators, lecturers, and staff at Guang'an Vocational and Technical College perceive and interact with the current Information Management System. It identifies existing usability issues and operational challenges, thus enabling the institution to implement more user-centered improvements. The findings can help improve decision-making for system upgrades, training initiatives, and technical support services. Moreover, the optimization guidelines generated from this study can serve as a practical reference for other vocational institutions undergoing similar digital transformation.

2. Theoretical Contribution: This study contributes to the academic field by extending the Technology Acceptance Model (TAM) through the inclusion of contextual variables such as infrastructure readiness, interdepartmental collaboration, and policy incentives. By applying this model to a vocational college context in China, the study provides empirical evidence to

support the model's adaptability and relevance in less-explored educational settings.

3. Strategic Value: Beyond improving IMS performance, the ultimate aim of this research is to propose actionable and evidence-based optimization guidelines. These recommendations are designed not only for the internal improvement of Guang'an Vocational and Technical College, but also to offer transferable insights to other similar institutions aiming to modernize their information systems.

1.5 Definition of Terms

To facilitate clarity and consistency throughout the study, the following key terms are defined:

1. Information Management System (IMS): A centralized digital platform that supports administrative and academic processes in educational institutions, including student registration, academic records, course management, and internal communication.

2. Perceived Usefulness (PU): The degree to which administrators, lecturers, and staff believe that using the IMS will improve their job performance and increase overall task

efficiency.

3. Perceived Ease of Use (PEOU): The extent to which users consider the IMS easy to understand, learn, and operate, with minimal effort or technical challenge.

4. Behavioral Intention (BI): The likelihood that users will adopt and continuously use the IMS in their work, influenced by their perceptions of its usefulness and ease of use.Digital Literacy & Training Support: The ability of administrators, lecturers, and staff to effectively use information management systems. Proper training and technical support ensure users can maximize the system's potential, improving overall adoption and efficiency.

5. System Optimization Guidelines: Strategically developed, evidence-based recommendations aimed at enhancing the performance, user experience, and integration of the IMS within Guang'an Vocational and Technical College. These guidelines are grounded in user feedback and empirical analysis.System Adoption: The extent to which users integrate and regularly use an information management system in their daily administrative or academic activities. User Acceptance: The willingness and ability of users to adopt, use, and continue

engaging with an information system.

6. Technology Acceptance Model (TAM): A theoretical model used to explain and predict user acceptance of technology, particularly focusing on how PU and PEOU influence Behavioral Intention. In this study, TAM serves as the foundational model for structuring the research framework.

7. External Factors: Contextual influences such as technical infrastructure, training support, interdepartmental collaboration, and institutional policies, which are considered in this study as additional variables that may affect users' attitudes toward the IMS.

1.6 Scope of the study

1.6.1 Location of the Study

This study is conducted at Guang'an Vocational and Technical College, a public vocational institution located in Sichuan Province, China. The institution offers a range of technical and academic programs aimed at preparing students for practical careers in various industries. The IMS under investigation has been implemented across administrative and academic departments.

1.6.2 Research Population

The research population comprises three key stakeholder groups within the institution: administrators, lecturers, and staff. These groups were selected because they are the primary users of the IMS and play critical roles in its implementation, daily operation, and overall effectiveness. Students, external IT vendors, and other third-party actors are explicitly excluded from the scope of this research.

1.6.3 Sample

The study will use both probability and purposive sampling techniques to ensure representation and depth. A stratified sampling method will be applied for the quantitative survey to include diverse participants across departments. For the qualitative phase, purposive sampling will be used to select key informants from each group who can provide rich, experience-based insights into system usage and optimization needs. The sampling will be limited to the 2024–2025 academic year to maintain contextual consistency.

1.7 Research Variables

This study adopts both internal and external

variables to explore user acceptance and system performance, based on an extended Technology Acceptance Model (TAM).

The internal variables, derived from TAM, include:

1. Perceived Usefulness (PU): The extent to which users believe the IMS improves their job effectiveness.

2. Perceived Ease of Use (PEOU): The degree to which users find the IMS intuitive and easy to operate.

3. Behavioral Intention (BI): The likelihood that users will continue to use the system based on their attitudes.

The external variables incorporated to contextualize the model are:

1. Technical Infrastructure: The availability and reliability of hardware, software, and internet connectivity.

2. Training and Support Mechanisms: The presence of formal guidance, workshops, and ongoing assistance.

3. Policy Incentives: Institutional rules, benefits, or mandates that encourage system use.

4. Interdepartmental Coordination: The extent of collaboration and data-sharing among departments through the IMS.

These variables collectively form the basis for both

quantitative analysis (via survey data) and qualitative interpretation (via interviews). Understanding how these factors interact will guide the formulation of practical and user-centered optimization strategies for the IMS at Guang'an Vocational and Technical College.

1.8 Research Framework

The conceptual framework for this study is based on the Technology Acceptance Model (TAM), extended by incorporating external influencing factors specific to the vocational college context. According to TAM, users' Behavioral Intention to use a system is influenced by their Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In this study, the model is contextualized to include external factors such as technical infrastructure, training support, and organizational policy, which may moderate or mediate users' perceptions and intentions.

This extended TAM framework will guide the data collection and analysis process and will help identify barriers and enablers to IMS adoption. More importantly, the framework serves as a foundation for developing evidence-based

optimization guidelines tailored to the unique institutional needs of Guang'an Vocational and Technical College.

As illustrated in Figure 1.1, this framework outlines how PU and PEOU directly influence Behavioral Intention (BI), while external factors such as system integration, digital literacy, and policy incentives affect PU and PEOU, thereby indirectly shaping users' intention to adopt the IMS. The model also incorporates control variables, including user role (administrator, lecturer, or staff) and training experience, which may influence individual responses and system interaction.

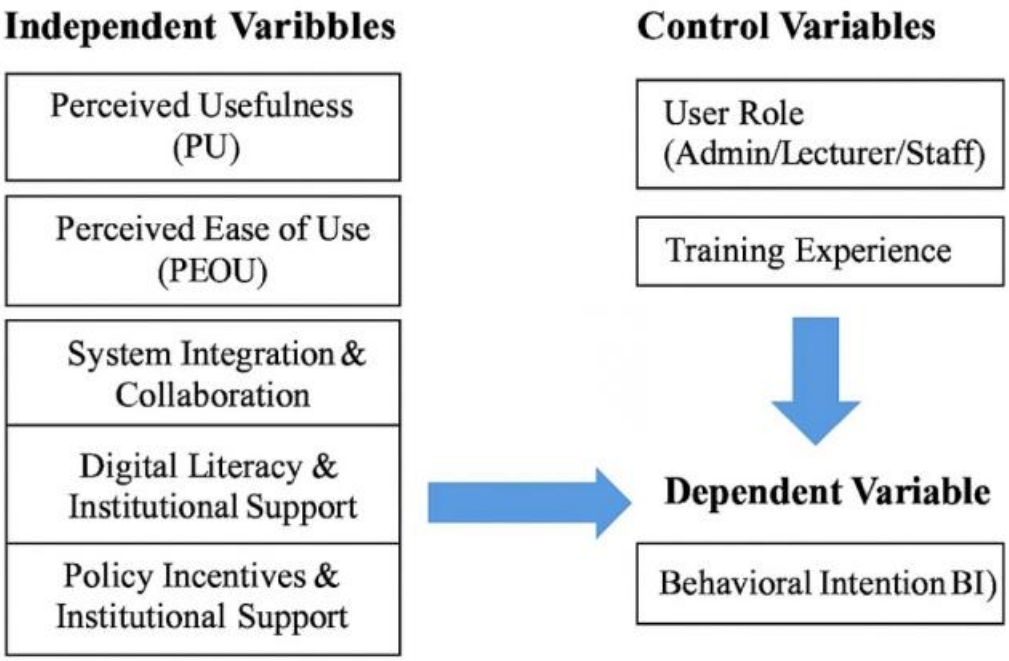

Figure 1.1 Research Framework Based on the Extended TAM

This framework illustrates the relationships among internal psychological constructs (PU, PEOU), external institutional variables (infrastructure, training, policy), and user intention to adopt the system. It also reflects the moderating role of user demographics and professional experience.

CHAPTER 2

LITERATURE REVIEW

This study examines the acceptance and adoption of the information management system among administrators, lecturers, and staff at Guang'an Vocational and Technical College. It explores the current state of educational management informatization, identifies key influencing factors, and proposes strategies for optimization. By integrating the Technology Acceptance Model (TAM) and external influencing factors, this study provides insights into user perceptions and institutional

support mechanisms for system adoption. This chapter reviews relevant literature and previous studies, covering the following aspects:

1. Background of Educational Management Informatization at Guang'an Vocational and Technical College

2. The Concept of Educational Management Informatization

3. Theoretical Foundations

4. Related Studies on Educational Management Informatization and System Adoption

2.1 Background of Educational Management Informatization at Guang'an Vocational and Technical College

For universities, campus informatization involves using information technology to comprehensively transform teaching, research, and management processes, reorganize educational resources, improve efficiency and effectiveness, and enhance competitiveness. It is a long-term, systematic project (Ren Youqun & Cheng Jing). Currently, information infrastructure in Chinese universities has developed rapidly,

with campus networks and various information management systems supporting educational and administrative reforms, bringing dynamism to university development. However, due to systemic and other factors, certain deficiencies in informatization still hinder progress.

Through literature review, the main issues identified are as follows:

2.1.1 Insufficient Understanding of Educational Informatization

There is a lack of understanding regarding the purpose and significance of educational informatization in many universities. In 2003, Gao stated, "Educational informatization involves the informatization of educational goals, teaching environments, decision-making, resources, evaluation, management, learning models, and teacher training and research." Currently, although universities in China invest significantly in informatization infrastructure, the utilization of these facilities is low due to various factors, limiting students and staff from experiencing its transformative potential. In 2008, Jia noted, "Some universities still focus on hardware over software, speed over planning, management over teaching, and

construction over maintenance in informatization efforts. To accelerate progress, understanding of educational informatization needs further improvement."

2.1.2 Management and Maintenance Issues in University Informatization

Most universities emphasize construction over management in educational informatization. Facilities are often put into use immediately after completion, while management work lags behind. Key issues include inappropriate management structures, undefined authority, insufficiently skilled management personnel, lack of robust management systems, and absence of scientific management standards. These management gaps weaken overall coordination, leading to fragmented resources and operational inefficiencies in informatization systems, severely impacting the development of educational informatization.

In terms of software resources, many universities experience delays in updates. These resources include essential software, as well as data like faculty information, student data, management information, research outcomes, and network resources. In 2017, Xu pointed out, "Failure to update data

resources promptly can lead to misinformation. Outdated software versions hinder smooth teaching processes and limit the effectiveness of informatization infrastructure."

2.1.3 Need to Improve Informatization Skills among University Staff

Educational informatization not only improves universities' capabilities but also enhances the digital skills of faculty and students. Faculty are key to the implementation of educational informatization, and their proficiency directly affects its execution and students' learning experience. Currently, many faculty members still adhere to traditional teaching methods, showing limited change in deep teaching practices, thus hindering the progress of informatization.

In 2009, Chen Weidong proposed, "Faculty need to adopt modern educational perspectives on information technology, enhancing their skills in accessing, processing, and applying information. Integrating new knowledge and information with textbook content allows faculty to stay updated on trends in their fields, expand students' perspectives, inspire critical thinking, and fully leverage the advantages of educational informatization."

2.1.3 Current Status of IMS Implementation at Guang'an Vocational and Technical College

Guang'an Vocational and Technical College has implemented an Information Management System (IMS) to enhance the efficiency of administrative and academic operations. The system is designed to support a wide range of functions such as student registration, academic scheduling, attendance tracking, and performance evaluation. However, several challenges remain. Many lecturers and staff report difficulties in navigating the system interface, which often requires multiple steps to complete simple tasks. Additionally, limited training and lack of user support have further reduced adoption rates among users. Management-level staff express concern about data accuracy and reporting consistency due to fragmented system integration across departments. The lack of a user-centered design and the absence of regular system maintenance have also led to low satisfaction levels among users.

In light of these issues, there is an urgent need to assess user perceptions of the IMS and propose targeted optimization strategies. Understanding how administrators,

lecturers, and staff interact with the system will provide valuable insights into its effectiveness and areas for improvement. This study therefore positions itself at the intersection of user experience and institutional management strategy, aiming to guide enhancements to the college's digital infrastructure.

2.2 The Concept of Educational Management Informatization

To address the challenges in university management informatization, it is essential to understand its connotations and characteristics and analyze the principles, planning, and mechanisms involved. Based on this understanding, targeted recommendations can be proposed. This section clarifies concepts such as informatization, educational management, and educational management informatization and introduces educational management theory and collaborative theory to lay the foundation for subsequent research.

2.2.1 Educational Informatization

The concept of "informatization" originated in Japan in the 1960s and has since evolved into a core element of national development strategies worldwide. In China, the

National Informatization Development Strategy (2006–2020) defined it as a process that leverages information technologies to promote knowledge exchange, resource sharing, and efficiency in economic and social development. Educational informatization refers specifically to the application of information technology in teaching, research, evaluation, and management processes. It supports the modernization of education by reshaping traditional models and improving educational quality.

Recent policies, such as the Ministry of Education's "Education Informatization 2.0 Action Plan," emphasize the role of information systems in transforming educational governance, promoting equity, and cultivating talent. As Zhang Li (2020) noted, educational informatization is not only a technical reform but also a fundamental rethinking of pedagogical approaches and management structures.

2.2.2 Educational Management Informatization

Educational management informatization refers to the integration of digital technologies into the administration and governance of educational institutions. It enables data-driven decision-making, improves coordination across

departments, enhances operational transparency, and strengthens educational governance capacity. In higher education institutions, this process involves both administrative and academic units and requires cross-functional collaboration among IT professionals, faculty, and administrators.

At Guang'an Vocational and Technical College, educational management informatization is largely implemented through the IMS, which handles functions such as enrollment, grading, timetabling, and performance monitoring. However, the effectiveness of such systems depends on institutional readiness, digital literacy of the staff, infrastructure reliability, and leadership support. As a multifaceted initiative, it requires clear objectives, consistent monitoring, and sustained investment in human and technical resources.

When effectively implemented, educational management informatization becomes a catalyst for institutional modernization. It aligns with broader national goals of educational quality improvement and supports strategic priorities such as governance reform, resource optimization, and talent development. Therefore, understanding the conceptual foundations of educational informatization is critical to

identifying improvement pathways for systems like the IMS at Guang'an Vocational and Technical College.

2.3 Theoretical Foundations

2.3.1 Information Management Theory

Information management theory provides the foundation for understanding how educational institutions collect, store, process, and utilize information for strategic decision-making. Modern educational management relies on data to guide policy, evaluate institutional performance, and allocate resources. This theory underscores the importance of systematized information flow within organizations and emphasizes the role of management information systems in achieving operational efficiency. By applying this theory, institutions can better align their technological systems with educational goals and user needs.

2.3.2 Synergetics and Digital Governance

Synergetics, introduced by Hermann Haken in 1969, offers a conceptual framework for understanding complex, interrelated systems such as digital governance in education. It suggests that systems evolve through coordination among

multiple components. In the context of educational informatization, synergetics highlights the importance of collaboration between departments, technology providers, and institutional leaders. The successful implementation of IMS depends not only on technical infrastructure but also on institutional synergy, shared goals, and coherent workflows. This theory supports the notion that the optimization of IMS requires coordinated efforts across administrative and academic units.

2.3.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), proposed by Davis (1989), is widely used to assess how users accept and adopt new technologies. The model posits that two primary constructs—Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)—determine a user's Behavioral Intention (BI) to use a system.

1. Perceived Usefulness (PU) – The extent to which a person believes that using a system enhances job performance.

2. Perceived Ease of Use (PEOU) – The degree to which a person believes that using the system is free of effort.

3. Behavioral Intention (BI) – The likelihood that a

person will continue to use the system.

TAM has been extensively applied in educational settings to evaluate information systems such as Learning Management Systems (LMS) and IMS platforms. Studies have demonstrated that PU and PEOU significantly affect BI, and that organizational support, user training, and system design influence these perceptions (Venkatesh & Davis, 2000; Teo, 2011).

In the case of Guang'an Vocational and Technical College, TAM helps examine how administrators, lecturers, and staff engage with the IMS. The model provides a structured approach for identifying barriers to acceptance and formulating interventions that enhance system adoption. By focusing on PU and PEOU, this research can uncover key leverage points for optimization.

2.3.4 External Influencing Factors (EIFs)

To extend TAM and adapt it to the specific institutional context, this study incorporates several external influencing factors:

1. System Integration and Interdepartmental Collaboration: Seamless integration of modules and effective

communication among departments enhances system utility and efficiency.

2. Digital Literacy and Training Support: Users' ability to operate the IMS and access to relevant training directly influence perceived ease of use.

3. Policy Incentives and Institutional Support: Institutional encouragement, mandates, and technical assistance foster positive attitudes and consistent system usage.

These EIFs moderate or mediate the effects of PU and PEOU on BI. Understanding these dynamics is essential for developing targeted optimization strategies. By combining TAM with contextual factors, the research framework gains explanatory power and practical relevance for guiding IMS enhancement at Guang'an Vocational and Technical College.

2.4 Related Studies

2.4.1 Abroad Research Status

Countries such as the United States, Canada, Japan, and South Korea have made significant progress in implementing educational management informatization. In the U.S., the introduction of the Chief Information Officer (CIO)

system in higher education, advocated by Charles M. Vest (2000), has centralized IT governance and aligned digital transformation with institutional goals. Kenneth C. Green initiated the U.S. Campus Computing Survey in the early 1990s, highlighting digital disparities and advancing ICT policy reform in academia (Sun, 2013). Dewey and DeBlois (2006) emphasized that CIOs should lead performance evaluation systems to improve service quality and governance effectiveness through MIS.

In Canada, national data systems such as Statistics Canada and the Canadian Education Statistics Council support educational planning and accountability by aggregating accurate, policy-relevant data (Zuo, 2014). The government's investment in data infrastructure and unified protocols has enabled regional education departments to better manage human, financial, and pedagogical resources (OECD, 2021).

Japan's informatization model combines national infrastructure planning with teacher training and digital content creation. Its "Future School" project launched in 2010 deployed personalized learning devices and restructured digital curriculum delivery in primary and secondary education (Wei,

2013). South Korea has implemented a phased approach since 1996, advancing from infrastructure building to smart learning environments by 2013, supported by strong public investment and multi-level policy coordination (Wu, 2015).

Common success factors across these countries include centralized governance mechanisms, institutional incentives, faculty training, and cross-departmental collaboration. These experiences offer valuable reference points for China, particularly in strengthening user-centered system design, enhancing interdepartmental integration, and building performance-driven evaluation models.

2.4.2 Domestic Research Status

In China, the Ministry of Education has emphasized digital transformation as a national priority for education reform. Vice Minister Du Zhanyuan pointed out that informatization efforts have reached a new strategic phase focused on application depth and service quality (Sun Qiang, 2009). Regional governments, such as those in Guangdong, Guizhou, Guangxi, and Sichuan, have promoted integrated management platforms and remote education systems. Luo Weiqi (2013) advocated for institution-wide informatization planning and

financial investment to support modernization, while Qin Bin (2014) focused on establishing resource-sharing mechanisms and data standardization.

Yuxiaoqi (2023) introduced the Sichuan Cloud Education platform, connecting rural and urban schools through a province-wide digital teaching network. Yang Zhijun and Li Qun (2014) proposed collaborative service mechanisms led by government and supported by enterprises and schools. Despite these efforts, many studies remain limited to infrastructure, data management, or administrative perspectives.

Academic research has explored digital governance, data center deployment, and system application in universities. However, few studies address how end-users perceive and engage with IMS. Moreover, vocational colleges—unlike research universities—face unique constraints in training, infrastructure, and administrative capacity, yet remain underrepresented in scholarly discourse.

2.4.3 Summary of Literature Gaps

A review of both international and domestic studies reveals several critical gaps. While countries such as the U.S. and Canada have developed systemic models that integrate

educational informatization into institutional governance, localized adaptation strategies in China remain scarce. Existing literature often prioritizes macro-level policy and infrastructure development over micro-level user experience and system usability.

Furthermore, few empirical studies examine IMS adoption in vocational colleges, particularly from the perspective of diverse stakeholders such as administrators, lecturers, and staff. Very limited research integrates TAM with contextual variables like training support and policy incentives in Chinese higher education settings.

This study seeks to address these gaps by applying an extended TAM framework to examine the acceptance and optimization of IMS at Guang'an Vocational and Technical College. By focusing on both individual perceptions and institutional dynamics, the research aims to produce actionable strategies aligned with national informatization goals and localized institutional needs.

CHAPTER 3
RESEARCH DESIGN

3.1 Research Design

This study adopts a mixed-methods approach, integrating both quantitative and qualitative methodologies. The research is designed as a case study focusing on educational management informatization at Guang'an Vocational and Technical College in Sichuan Province, China. The aim is to assess the perceptions, experiences, and influencing factors associated with the college's Information Management System (IMS) among three key user groups: administrators, lecturers, and staff.

The quantitative component addresses Research Objectives 1 and 2 and involves structured questionnaires based on the Technology Acceptance Model (TAM). It focuses on

core constructs such as Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention (BI), as well as external variables such as infrastructure, training, policy support, and collaboration.

The qualitative component addresses Research Objective 3, using semi-structured interviews to explore deeper user experiences, practical challenges, and suggestions for optimization.

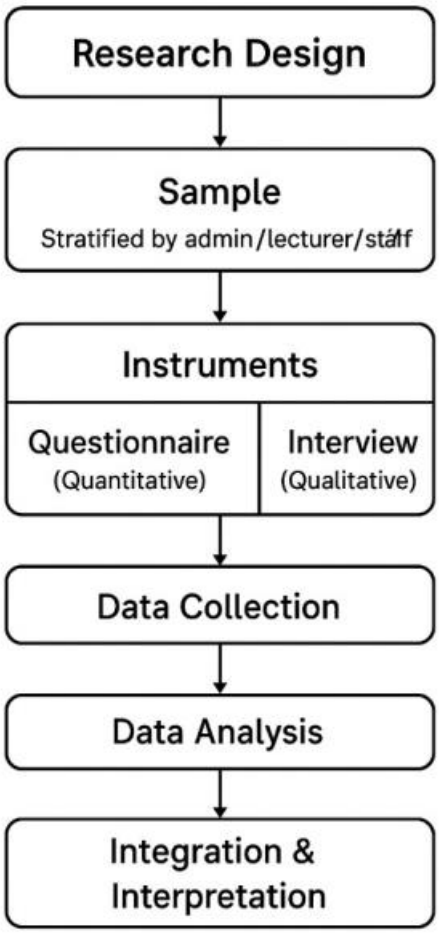

Figure 3.1 Research Design Framework of the Study

This diagram illustrates the overall research design, incorporating both quantitative and qualitative methods to examine the acceptance and optimization of the IMS at Guang'an Vocational and Technical College. It outlines the participant groups, research instruments, analytical strategies, and the integration of findings.

3.2 Population and Sample

The sample size was calculated based on the Krejcie and Morgan (1970) table for determining sample size from a known population, ensuring statistical validity with a 95% confidence level and a 5% margin of error.

The population includes full-time administrators, lecturers, and staff members at Guang'an Vocational and Technical College during the 2024–2025 academic year. A stratified random sampling method will ensure representative distribution across the three stakeholder groups.

According to Krejcie and Morgan's (1970) table for determining sample size, with an estimated population of 500 stakeholders, a minimum of 217 participants is recommended at

a 95% confidence level and 5% margin of error. The quantitative sample is distributed as follows:

Group	Approximate Proportion	Sample Size (n)
Administrators	20%	43
Lecturers	50%	108
Staff	30%	66
Total	100%	217

Table 3.2.1 Stratified Sample Distribution of Participants

For the qualitative component, 12 participants (4 from each group) will be selected via purposive sampling, based on their active use of the IMS and availability for interviews.

3.3 Research Instruments

A self-developed questionnaire and a semi-structured interview guide will be used.

3.3.1. Structure of the Questionnaire

The questionnaire includes both closed-ended and open-ended items, organized into the following sections:

1) Demographic Information
2) Infrastructure & System Integration
3) Digital Resources & Learning Tools
4) User Experience & Satisfaction
5) TAM Variables: PU, PEOU, BI

6) Policy Incentives & Institutional Support

3.3.2. Scoring and Measurement

A five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) will be used to assess agreement with statements.

Scale	Attitudes	Mean Range
5	Strongly Agree	（4.21–5.00）
4	Agree	（3.41–4.20）
3	Neutral	（2.61–3.40）
2	Disagree	（1.81–2.60）
1	Strongly Disagree	（1.00–1.80）

Table 3.3.2.1 Five-point Likert Scale

Variable	Dimension	Measurement Items (Likert Scale)
Perceived Usefulness (PU)	Work efficiency improvement	"Using the system improves my work efficiency."
	Productivity enhancement	"The system helps me complete my tasks more effectively."
	Decision-making support	"It provides useful information for decisions."
Perceived Ease of Use (PEOU)	System usability	"The system is easy to learn and operate."
	User-friendliness	"Interaction requires minimal effort."
	Accessibility	"I can easily access the system when I needed."
Behavioral Intention (BI)	Continued usage intention	"I intend to continue using this system."
	Recommendation intention	"I would recommend it to colleagues."

	Dependency	"This system is essential for my work."

Table 3.2.2.2. Measurement of TAM Variables

3.3.3 Open-Ended Questions

Participants will be invited to elaborate on their personal experiences, difficulties, and suggestions for improvement.

3.3.4 Development and Validation

The instrument is based on a literature review and adapted to the college's context. Experts in education management will review the instrument for content validity. Reliability will be tested using Cronbach's Alpha, and construct validity through KMO and Bartlett's tests using SPSS 20.0.

3.3.5 Purpose of the Questionnaire

The questionnaire was designed to:

1) Measure acceptance and intention to use IMS.
2) Identify influencing technical and organizational factors.
3) Understand challenges in system use.
4) Collect user-driven recommendations.

3.3.6 Implementation

The survey will be distributed via Wenjuanxing. Paper copies will be available if needed. Participation is voluntary and responses will be anonymized.

3.4 Data Collection

Data collection will begin after ethical clearance. Respondents will complete the questionnaire online or via hard copy. Interviews will follow a standard protocol and be conducted face-to-face or online, recorded with consent, and transcribed for analysis.

3.5 Data Analysis

The collected data will be analyzed using both quantitative and qualitative methods to address the research questions presented in Chapter 1.

3.5.1 Quantitative Analysis

1) Descriptive statistics: mean, standard deviation, frequency
2) Inferential statistics: ANOVA for group differences
3) Regression analysis: examine influence of

external factors on BI

3.5.2 Qualitative Analysis

Responses from interviews and open-ended questions will be analyzed using thematic analysis, allowing identification of patterns and contextual themes relevant to IMS optimization.

3.6 Ethical Consideration

All participants will receive written consent forms and be informed of confidentiality, voluntary participation, and data security. Data will be used only for academic purposes and securely stored.

3.7 Data Analysis

This chapter has outlined the methodological foundation of the study, detailing the integration of quantitative and qualitative approaches through a mixed-methods design. The sampling strategy, research instruments, data collection techniques, and ethical protocols have been tailored to explore user acceptance and inform strategies for optimizing the IMS at Guang'an Vocational and Technical College. The subsequent

chapter will present the results derived from both statistical and thematic analyses, offering insights into system performance, user experience, and improvement pathways.

Appendix

Questionnaire on Education Management Informatization

Dear Participant,

Thank you for taking the time to complete this survey. This study aims to assess the current state of education management informatization at Guang'an Vocational & Technical College. Your responses will help identify key challenges and provide recommendations for improvement. The survey is anonymous, and your responses will be used solely for academic research purposes.

The information you provide will be used exclusively for research purposes and will remain strictly confidential. This survey is conducted anonymously, and there are no right or wrong answers. Please select the option that best reflects your situation by marking a "√" next to it.

We sincerely appreciate your honest and objective responses. Kindly ensure that all questions are answered. Your participation and cooperation are invaluable to this study. Thank you!

Section 1: Demographic Information

1. Your Role at the Institution (Single Choice)

□ Lecturers

□ Staff

□ Administrators

2. Your Age Group (Single Choice)

□ Under 25

□ 25–35

□ 36–45

□ 46 or above

3. Your Digital Literacy Level (Self-assessed, Single Choice)

□ Low (Limited experience with digital tools)

□ Moderate (Can use basic digital tools with some guidance)

□ High (Comfortable using advanced digital management tools)

Section 2: Infrastructure & System Integration

4. What internet service providers are available on campus? (Multiple Choice)

□ China Mobile

□ China Telecom

□ China Unicom

□ Other: _____

5. What is the primary broadband capacity of the campus network? (Single Choice)

□ Less than 100 Mbps

□ 100–500 Mbps

□ Above 500 Mbps

6. How would you rate the wireless network coverage at your institution? (Single Choice)

□ No uniform deployment

□ Covers common areas (~20%)

□ Covers most public areas (~60%)

□ Near full coverage (~80–100%)

7. What percentage of classrooms have multimedia equipment? (Single Choice)

□ Less than 50%

□ 50–80%

□ 81–95%

□ 96–100%

8.How frequently do you use multimedia devices in your teaching or learning activities? (Single Choice)

□ Rarely (Few or no interactions)

□ Occasionally (Used in some courses)

□ Regularly (Frequently used in teaching/learning)

□ Always (Essential for daily use)

Section 3: Resource Development & Digital Learning

9. Does your institution provide a digital library? (Single Choice)

□ Yes

□ No

□ Not sure

10. Which digital learning resources do you use most frequently? (Multiple Choice)

□ PPT courseware

□ Online learning platforms (e.g., MOOCs)

□ Digital textbooks

□ Lecture videos

□ Interactive simulations

□ Other: _____

11. Does your institution offer online educational platforms for self-learning? (Single Choice)

□ Yes, widely available

□ Yes, but limited options

□ No

12. Which information systems do you most frequently use for academic or administrative tasks? (Multiple Choice)

□ Online teaching platforms

□ Online examination systems

□ Virtual labs or simulations

□ Digital attendance tracking

□ Student record systems

□ None

Section 4: User Experience & Satisfaction

13. How would you rate the informatization level of your institution's education management system? (Single Choice)

□ Very low (Minimal digital integration)

□ Low (Basic systems in place, but not widely used)

□ Moderate (Somewhat efficient, but with limitations)

□ High (Well-integrated digital systems)

□ Very high (Fully digitalized and optimized)

14. What are the main challenges in using education management systems at your institution? (Multiple Choice)

□ Lack of motivation to use the system

□ Limited IT support and technical assistance

□ Insufficient training for faculty/staff

□ Outdated hardware or software

□ Resistance to change among staff and faculty

□ Other: _____

15. Do you feel that the current education management system improves your efficiency in academic or administrative work? (Single Choice)

□ No improvement

□ Slight improvement

□ Moderate improvement

□ Significant improvement

Section 5: Technology Acceptance Model (TAM) Factors

16. Perceived Usefulness (PU) – "Using the education management system enhances my efficiency." (Single Choice)

□ Strongly Disagree

□ Disagree

□ Neutral

□ Agree

□ Strongly Agree

17. Perceived Ease of Use (PEOU) – "The education management system is easy to learn and operate." (Single Choice)

□ Strongly Disagree

□ Disagree

□ Neutral

□ Agree

□ Strongly Agree

18. Behavioral Intention (BI) – "I intend to continue using the education management system regularly." (Single Choice)

□ Strongly Disagree

□ Disagree

□ Neutral

□ Agree

□ Strongly Agree

Section 6: Policy Incentives & Institutional Support

19. Has the institution implemented policies to encourage the use of the education management system? (Single Choice)

□ Yes, with strong enforcement

□ Yes, but limited implementation

□ No clear policies

20. Have you received any formal training on how to use the education management system? (Single Choice)

□ Yes, extensive training

□ Yes, but minimal training

□ No training provided

21. What support mechanisms would encourage you to use the system more frequently? (Multiple Choice)

□ More user-friendly interface

□ More comprehensive training programs

□ Stronger technical support

□ Incentives for active system usage

□ Other: _____

Section 7: Open-Ended Questions

22. In your experience, what challenges or limitations have you encountered when using the current education management system?

_____

23. What recommendations would you propose to enhance the system's usability, adoption, and overall effectiveness at your institution?

_____

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