

DEVELOPMENT OF A HUMAN RESOURCE INFORMATION AND SERVICES SYSTEM FOR TEACHERS AT NANNING UNIVERSITY*

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Abstract

The objectives of this research were: 1) to study the state of the human resource information and services system for teachers, and 2) to propose the development guidelines of the human resource information and services system for teachers at Nanning University. This study employed a mixed-method descriptive research design. The sample group was 278 full-time teachers from all departments who used the human resource information and services system at Nanning University. The research instruments included a questionnaire and semi-structured interviews. The data were analyzed using percentage, mean, standard deviation, and content analysis.

The results were found that: 1) The current situation of the human resource information and services system for teachers in five aspects was at a high level.; and 2) the proposed development guidelines adopt a multi-dimensional approach, as follows: 2.1) the University should promote technology-supported recruitment through standardized procedures and clearer departmental coordination, while improving onboarding integration; 2.2) the University should establish a unified and

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authoritative faculty data platform based on a one-entry, shared-access mechanism to strengthen decision support; 2.3) the University should develop a structured training system and strengthen the linkage among training, performance evaluation, and career development; 2.4) the University should enhance performance evaluation by adopting data-driven and development-oriented mechanisms and improving personal performance records; and 2.5) the University should strengthen compensation management by improving transparency, accuracy, and governance to ensure reliable data utilization. This study contributes a systematic and practice-oriented framework for optimizing university human resource information and services systems, providing both theoretical reference and practical guidance for institutional human resource digital transformation.

Keywords: Development guidelines, Human resource information, Services system.

Introduction

In recent years, digital technologies have reshaped human resource management in higher education, and the Human Resource Information and Services System (HRIS) has become an important tool for improving organizational efficiency and governance. In 2018, China's Ministry of Education issued the Education Informatization 2.0 Action Plan, highlighting information technology in modernizing education management and supporting human resource reform in universities. As universities expand and administrative demands increase, digital systems are widely used to support recruitment, personnel information management, training, performance evaluation, and compensation. In this context, HRIS provides a more integrated and data-driven management approach. Prior studies indicate that HRIS supports both transactional functions, such as payroll and employee data management, and core human resource activities, including recruitment, training, and performance management. HRIS-based performance management enhances employee satisfaction and organizational commitment (Shahreki, 2019), while

standardized HRIS processes improve organizational performance (Hewage et al., 2020). Digital integration also enables timely personnel updates and closer alignment between training and performance requirements (Li, 2021).

Despite wider adoption, empirical evidence on integrated HRIS functioning in application-oriented universities in China-particularly in Guangxi Province-remains limited. Existing research largely focuses on technical design or general HR practices, with insufficient attention to coordination among recruitment, personnel information, training, performance evaluation, and compensation within a unified HRIS framework. This gap highlights the need for context-specific investigation and development guidelines.

As an application-oriented undergraduate institution in Guangxi, Nanning University has actively promoted campus informatization. However, HRIS use remains largely confined to basic information recording and partial process digitalization. Studies suggest that more integrated implementation can enhance efficiency, transparency, and fairness through standardized recruitment, centralized personnel data management, and stronger links between training and performance evaluation (Ngulugulu et al., 2023; Sharma et al., 2023). Therefore, this study examines the current status of HRIS at Nanning University and proposes systematic guidelines to support more integrated human resource management.

Objectives

1. To study the state of the human resource information and services system for teachers at Nanning University.
2. To propose the development guidelines of the human resource information and services system for teachers at Nanning University.

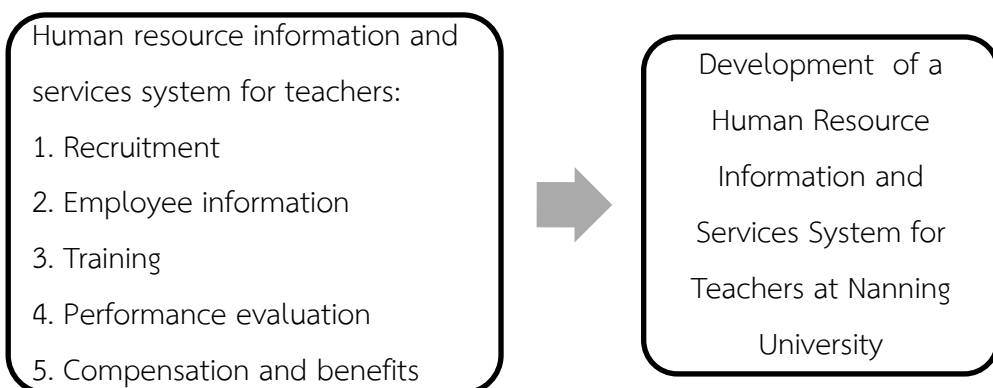
Literature Review

1. Theory of human resources information and services system: This study draws on three complementary perspectives: the Ability–Motivation–Opportunity (AMO) model, strategic human resource practices, and the Information Systems Success Model. The AMO model explains employee performance through the interaction of ability, motivation, and opportunity, indicating that effective human resource management requires coordinated recruitment, training, performance evaluation, and compensation (Kundu et al., 2018). It emphasizes internal alignment rather than isolated practices. From the strategic human resource perspective, employees are regarded as strategic assets whose value is strengthened through internally consistent and mutually reinforcing management practices (Mueller, 1996). This view is particularly relevant in higher education, where faculty development and institutional performance depend on system-level coordination. The Information Systems Success Model identifies information quality, system quality, and service quality as key determinants of system use, user satisfaction, and net organizational benefits (DeLone & McLean, 2003). Applied to HRIS, it links technical system features to managerial and organizational outcomes. Together, these perspectives provide an integrated lens for examining the managerial and technical dimensions of HRIS at Nanning University.

2. Concept of human resources information and services system :1)
Policy: National education informatization policies play a key role in shaping human resource management in higher education. In China, the Education Informatization 2.0 Action Plan issued by the Ministry of Education in 2018 provides a framework for digital transformation in education governance (Ministry of Education, 2018). The policy promotes the use of information technology to improve efficiency, standardize procedures, and support evidence-based HR decision-making in universities. It further encourages systematic teacher management through centralized data governance, information sharing, and process standardization.

Studies indicate that HRIS developed under such policy conditions can enhance transparency, fairness, and procedural consistency, thereby supporting organizational efficiency and sustainable faculty development. Within this context, optimizing HRIS at Nanning University is both timely and practically significant. 2) **Definition:** The Human Resource Information and Services System (HRIS) is commonly defined as an integrated IT platform that supports HR management through centralized data processing and automated modules. Research shows that HRIS consolidates core HR activities within a unified digital environment, enabling data-driven decisions while reducing administrative errors (Ngulugulu et al., 2023; Saputri et al., 2024). Beyond routine transactions, HRIS increasingly supports transformational functions, particularly performance management and strategic workforce planning (Shahreki, 2019). In higher education, HRIS facilitates structured personnel management and systematic support for recruitment, performance evaluation, and HR planning. Evidence also shows that integrated HRIS modules promote more standardized, transparent, and efficient management practices (Sikira et al., 2024; Khrais et al., 2021; Chen et al., 2022).

In this study, HRIS refers to a digital platform supporting recruitment, personnel information management, training, performance evaluation, and compensation. Through integrated data governance and automated workflows, it enhances transparency, coordination, and operational efficiency. Within universities, HRIS functions not only as an administrative tool but also as enabling infrastructure



for teachers' professional development and long-term institutional performance. The research framework is as follows:

Methodology

The Population and sample Group: 1) **The Population:** The population consisted of 986 full-time teachers from all departments who used the human resource information and services system at Nanning University. 2) **The Sample Group:** The sample consisted of 278 full-time teachers selected from various departments at Nanning University. A simple random sampling without replacement technique was employed to ensure that each eligible teacher had an equal chance of selection and that no individual was selected more than once.

Research Instruments: This study adopted a mixed-methods approach, employing questionnaires and interviews as the main research. The answers you fill in are only for the purpose of overall statistical analysis, and will never be processed individually or published publicly. The information is confidential, not disclosed to anyone, and you do not need to fill in your personal name. Please feel free to answer the questions.

Questionnaires: The questionnaire consisted of two sections. The first section collected the respondents' demographic information, including gender, age, educational background, work experience, and professional discipline. The second section employed a five-point Likert scale (Likert, 1932) to assess the current status of the Human Resource Information and Services System (HRIS) at Nanning University. Based on the conceptual framework of this study, the scale covered five dimensions: 1) recruitment, 2) employee information, 3) training, 4) performance evaluation, and 5) compensation and benefits. To ensure the reliability and validity of the questionnaire, the index of objective congruence (IOC) of the questionnaire was examined by three experts, the IOC of

questionnaire was 0.67-1.00, and the overall Cronbach's alpha coefficient of the questionnaire was 0.95.

Interviews: The first part is the Introduction of background information. The second part includes a series of open-ended interviews. The interview aimed to collect the respondents' opinions on the development guidelines for Human Resource Information and Services System for teachers at Nanning University. A total of 5 experts were selected as interviewees and selected based on strict screening criteria as follows: 1) at least 10 years of work experience in the human resource information and services system in university, 2) received the certificate in the field of human resources management, 3) graduated with master's degree or above.

Data Collection

Questionnaires: The data collection for objective 1: To study the current situation of using the human resources information and services system at Nanning University. The instrument was distributed to 278 full-time teachers who used the system. Participants were given a 15-day period to complete and return the questionnaire. Upon receipt, all responses were checked for completeness, and 278 valid questionnaires were obtained, yielding a response rate of 100%. A simple random sampling without replacement technique was employed to ensure equal selection probability and avoid duplication.

Interviews: The data collection for Objective 2: To propose the development guidelines of the human resource information and services system for teachers at Nanning University. The interviews were conducted either face-to-face or online, depending on the availability of the participants, with each interview lasting approximately 30–45 minutes.

Data Analysis: The personal information of the respondents was analyzed using frequency and percentage. The current status of the Human Resource Information and Services System in five aspects was analyzed using

mean and standard deviation. To provide additional descriptive insight, the mean scores were further examined across major demographic categories to observe possible variation patterns among different groups of teachers. The interpretation of the mean scores followed the criteria of Rensis Likert (1932), in which 4.50–5.00 indicates the highest level, 3.50–4.49 indicates a high level, 2.50–3.49 indicates a moderate level, 1.50–2.49 indicates a low level, and 1.00–1.49 indicates the lowest level. The semi-structured interview data regarding the development guidelines of the Human Resource Information and Services System for teachers at Nanning University were analyzed using content analysis.

Results

Objective 1: To study the state of the human resource information and services system for teachers at Nanning University.

In this study, 278 questionnaires were distributed and 278 valid questionnaires were retrieved, with an effective rate of 100 percent, which met the requirements for data collection.

Table 1 Mean and standard deviation of the human resource information and services system for teachers in five aspects (n = 278)

The human resource information and services system for teachers at Nanning University		\bar{X}	S.D.	Level	Ranking
1	Recruitment	3.79	0.85	high	5
2	Employee information	3.86	0.87	high	3
3	Training	3.83	0.86	high	4
4	Performance evaluation	3.91	0.85	high	1
5	Compensation and benefits	3.90	0.86	high	2
Total		3.86	0.86	high	

According to Table 1, the current situation of using the human resource information and services system for teachers in five aspects was at a high level ($\bar{X} = 3.86$, S.D. = 0.86). Considering the results from the highest to the lowest mean were as follows: the highest mean was performance evaluation ($\bar{X} = 3.91$, S.D. = 0.85), followed by compensation and benefits ($\bar{X} = 3.90$, S.D. = 0.86), and employee information ($\bar{X} = 3.86$, S.D. = 0.87), respectively; recruitment was the lowest mean ($\bar{X} = 3.79$, S.D. = 0.85). The relatively lower score for recruitment may indicate that, compared with other HRIS functions, the recruitment module still has room for improvement in terms of process integration, automation, and cross-departmental coordination. Interview findings also suggested that some departments experienced delays in information synchronization during recruitment procedures, which may have influenced user perceptions. One interviewee noted that “the recruitment process still involves manual coordination across departments, which sometimes affects efficiency.” This qualitative feedback is consistent with the quantitative findings.

Objective 2: To propose the development guidelines of the human resource information and services system for teachers at Nanning University.

Based on the questionnaire results and expert interviews, the development guidelines for improving the Human Resource Information and Services System at Nanning University are summarized as follows 1) The University should enhance recruitment through technology-driven automation, standardized workflows, and clearer departmental responsibilities, while strengthening onboarding coordination. 2) The University should establish a unified and authoritative faculty data platform based on a one-entry, universal access mechanism and strengthen its decision-support function. 3) The University should develop a structured and tiered training system and strengthen the linkage between training, performance evaluation, and career development. 4) The University should improve the performance evaluation system by adopting

data-driven and development-oriented mechanisms and enhancing personal performance tracking functions. 5)The University should strengthen compensation management by improving transparency, accuracy, and governance to ensure reliable and secure data use.

Discussion

The discussion is organized into two parts, as follows:

Objective 1: To study the state of the human resource information and services system for teachers at Nanning University.

The findings indicate that the overall status of the Human Resource Information and Services System (HRIS) across the five aspects was at a high level. Among the dimensions, performance evaluation obtained the highest mean score, followed by compensation and benefits and employee information, while recruitment showed the lowest mean. Although all aspects were rated highly, the relatively lower score for recruitment suggests that certain operational procedures may still require further refinement. The generally high level of HRIS application reflects the combined effects of policy-driven informatization, sustained technological investment, and the growing alignment between system functions and institutional management needs. From a theoretical perspective, the results provide contextual support for the AMO framework and the Information Systems Success Model, indicating that coordinated HRIS functions can contribute to more integrated and data-informed human resource management in higher education settings. These findings are consistent with Ngulugulu (2023), who reported effective HRIS utilization across major human resource functions. Similar conclusions were drawn by Saputri et al. (2024) and Sikira et al. (2024), who found that HRIS improves management efficiency through enhanced information integration. The results also align with Khrais et al. (2021) and Chen et al. (2022), both of whom emphasized the role of integrated HRIS

modules in supporting standardized and high-quality human resource management. However, the present study further highlights that even under generally favorable conditions, functional differences may still emerge across HRIS modules, particularly in recruitment processes.

Objective 2: To propose the development guidelines of the human resource information and services system for teachers at Nanning University.

The proposed development guidelines adopt a multi-dimensional improvement approach. Specifically, the University should enhance recruitment through technology-supported automation and clearer cross-departmental coordination; establish a unified and authoritative faculty data platform based on a one-entry, shared-access mechanism; develop a structured and tiered training system linked with performance evaluation and career development; strengthen the data-driven orientation of the performance evaluation system; and improve compensation management through greater transparency, accuracy, and governance. These recommendations are broadly consistent with prior studies emphasizing automation, data integration, and management efficiency in HRIS design (Saputri et al., 2024; Li, 2021; Ngulugulu et al., 2023). At the same time, the present study extends the literature by contextualizing these functional requirements within an application-oriented university setting in China, thereby providing more practice-oriented guidance for institutional HRIS optimization. Overall, the findings reinforce the view that an integrated HRIS can enhance coordination, transparency, and operational effectiveness across key human resource functions in higher education institutions.

Despite the contributions of this study, several limitations should be acknowledged. First, the research was conducted within a single institution, which may limit the generalizability of the findings to other universities or regional contexts. Second, the study relied primarily on self-reported questionnaire data, which may be subject to response bias or perceptual variation among

participants. Third, the cross-sectional design captured HRIS conditions at one point in time and did not examine longitudinal changes in system development or user perceptions. Future research may expand the sample scope, incorporate multi-source data, and adopt longitudinal designs to provide a more comprehensive understanding of HRIS effectiveness in higher education.

Recommendation

For other universities: Application-oriented and regional institutions can improve human resource management efficiency and fairness by adopting integrated Human Resource Information and Services Systems aligned with their institutional contexts. Emphasis should focus on functional integration, data standardization, and managerial coherence rather than technology alone. Universities are also encouraged to align HRIS development with national and regional digitalization initiatives and follow data governance and interoperability standards to support sustainable implementation.

For Nanning universities' leaders: The Human Resource Information and Services System should be positioned as a core governance tool at Nanning University. Strengthening integration across recruitment, personnel information, training, performance evaluation, and compensation—together with improved transparency and data reliability—is essential for evidence-based decision-making and faculty development. Leaders should advance digital governance by clarifying data responsibilities, strengthening cross-departmental coordination, and establishing continuous system evaluation so that HRIS evolves from an administrative platform into a strategic decision-support infrastructure.

For teachers: Effective implementation of the Human Resource Information and Services System requires teachers' active and regular use. Consistent engagement improves data accuracy, reduces administrative delays, and strengthens the link between individual career development and

institutional management. Targeted training and user guidance should be provided to support proper data entry, responsible system use, and participation in data-informed human resource management.t.

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