Advanced International Journal for Research (AIJFR)
E-ISSN: 3048-7641 ● Website: www.aijfr.com ● Email: editor@aijfr.com

Innovative Human Resource Management Practices and Job Efficiency in Higher Education Institutions of Hainan Province, China: The Moderating Role of Employee Engagement

Liu Chao[1], Syriac Nellikunnel Devasia[2]

[1]Research Scholar, [2]Associate Professor [1,2] Perdana University, Wisma Chase Perdana, Changkat Semantan, Bukit Damansara, 50490 Kuala Lumpur, Federal Territory of Kuala Lumpur, 0129418758

DOI: https://doi.org/10.63363/aijfr.2026.v07i06.8789

Abstract

The rapid transformation of higher education in China, particularly within reform-oriented regions such as Hainan Province, has intensified the need for higher education institutions (HEIs) to improve the job efficiency of academic staff. Although innovative Human Resource Management (HRM) practices have been widely recognised as important drivers of employee performance, existing research has largely focused on traditional performance outcomes and institutions in developed or elite contexts. Limited attention has been given to job efficiency as a distinct organisational outcome, particularly within emerging higher education environments. In addition, the role of employee engagement as a mechanism that strengthens the effectiveness of HRM practices remains insufficiently explored. This study examined the effects of Talent Management Practices (TMP), Employee Development Programs (EDP), and Performance Appraisal Systems (PAS) on job efficiency among academic staff in HEIs in Hainan Province, China. It further investigated whether employee engagement strengthened the relationships between these HRM practices and job efficiency. Drawing upon the Job Demands–Resources (JD-R) Model, Human Capital Theory, and Organizational Support Theory, a quantitative research design was adopted. Data were collected from 484 academic staff members across selected public and private HEIs and analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings revealed that talent management practices, employee development programs, and performance appraisal systems positively influenced job efficiency, with talent management and employee development emerging as the strongest predictors. Employee engagement significantly strengthened the relationships between HRM practices and job efficiency, indicating that engaged employees are better able to leverage organisational resources to achieve higher levels of work effectiveness. This study advances HRM literature by demonstrating that innovative HRM practices not only enhance employee performance but also directly improve job efficiency, a critical yet underexplored dimension in reform-oriented HEIs. Furthermore, it establishes employee engagement as a key moderating mechanism that enhances the

effectiveness of HRM practices. The findings extend the applicability of established HRM theories to emerging higher education contexts and provide actionable guidance for HEI leaders and policymakers seeking to strengthen faculty productivity, workforce effectiveness, and institutional competitiveness through integrated HRM strategies. The study is limited by its cross-sectional design and focus on academic staff within a single province, which may restrict the generalisability of the findings to other educational and cultural contexts.

Keywords: Talent management practices, employee development programmes, performance appraisal systems, employee engagement, job efficiency, Innovative human resource management

1. Introduction

This thesis, entitled "Innovative Human Resource Management Practices and Job Efficiency in Higher Education Institutions of Hainan Province, China: The Moderating Role of Employee Engagement," examines how selected innovative human resource management (HRM) practices influence the job efficiency of academic staff in higher education institutions (HEIs) in Hainan Province. The study is situated in a period of rapid transformation in Chinese higher education, in which universities are under increasing pressure to improve teaching quality, research productivity, administrative effectiveness, internationalisation, and institutional competitiveness. These pressures are particularly visible in Hainan because the province has been positioned as a reform-oriented region and an emerging centre for international education cooperation. In this environment, the capacity of universities to use their human resources effectively becomes a central institutional concern.

The thesis defines innovative HRM not simply as the adoption of entirely new techniques, but as the strategic adaptation, integration, and application of HR practices to meet changing organisational needs. It concentrates on three practices: Talent Management Practices (TMP), Employee Development Programs (EDP), and Performance Appraisal Systems (PAS). Talent management concerns the attraction, identification, development, retention, and succession of capable employees. Employee development refers to organised opportunities for training, professional learning, mentoring, upskilling, and career development. Performance appraisal refers to systematic mechanisms for setting expectations, assessing performance, providing feedback, supporting development, and aligning individual contributions with institutional objectives. Job Efficiency (JE) is the principal dependent variable and refers to employees' ability to complete work effectively, accurately, productively, and with appropriate use of time and resources.

A distinctive feature of the thesis is the treatment of Employee Engagement (EE) as a moderating variable. Rather than considering engagement only as an outcome of good HRM, the study argues that the level of engagement can change the strength of the relationship between HRM practices and job efficiency. Engaged employees, characterised by energy, dedication, involvement, motivation, and attachment to their work and institution, may be better able and more willing to use the resources provided through talent management, development programmes, and performance appraisal. Consequently, the same HR practice may produce stronger efficiency gains when employees are highly engaged.

The study is theoretically anchored in the Job Demands–Resources (JD-R) Model, Human Capital Theory, and Organizational Support Theory. Together, these theories provide complementary explanations of why

HRM practices should influence efficiency and why employee engagement should strengthen these effects. The JD-R perspective interprets HRM practices as organisational resources that help academic staff cope with demanding workloads. Human Capital Theory explains training, talent development, and capability building as investments that improve productive capacity. Organizational Support Theory explains how supportive and fair organisational practices can strengthen employees' motivation, commitment, and willingness to reciprocate through stronger performance.

Empirically, the thesis uses a quantitative, cross-sectional survey design. Data were obtained from academic staff in selected public and private HEIs in Hainan Province. A total of 650 questionnaires were distributed, 500 were returned, and after data screening 484 usable responses were retained. The data were analysed through preliminary procedures and Partial Least Squares Structural Equation Modelling (PLS-SEM). Six hypotheses were tested: three direct relationships between TMP, EDP, PAS and job efficiency, and three moderation relationships involving employee engagement. All six hypotheses were reported as supported.

The study therefore addresses both an academic and a practical problem. Academically, it responds to limited research on job efficiency as a distinct outcome of HRM in reform-oriented, non-first-tier higher education contexts in China. Practically, it seeks to identify HRM mechanisms that can help Hainan's HEIs improve workforce effectiveness while managing rising teaching, research, administrative, and internationalisation demands. The thesis ultimately argues that innovative HRM practices are most effective when they are implemented as an integrated system and supported by a highly engaged academic workforce.

Background

The background of the study is shaped by major changes in the global and Chinese higher education environment. Internationally, universities increasingly compete for students, academic talent, research funding, reputation, and global ranking positions. Digital transformation, international collaboration, changing teaching models, and stronger expectations regarding measurable research and educational outcomes have altered the nature of academic work. Faculty members are no longer responsible only for classroom teaching. Their roles commonly include research, student supervision, programme administration, institutional service, quality assurance, community engagement, and international activities. As the range and intensity of these demands increase, universities require HRM systems capable of sustaining both employee capability and organisational performance.

Within China, successive reforms have increased expectations for higher education quality, research performance, human capital development, and international competitiveness. Universities are encouraged to strengthen faculty development, performance management, and institutional effectiveness. Hainan offers a particularly relevant setting because educational reform is connected to the wider development of the Hainan Free Trade Port and to policies encouraging internationalisation and educational openness. The thesis notes the 2019 Implementation Plan jointly associated with the Hainan Provincial Government and the Ministry of Education, which sought to advance education reform and openness and to support Hainan's development as a centre for international education innovation.

Hainan's higher education sector is therefore experiencing simultaneous expansion and transformation. The thesis reports that regular undergraduate and specialised programmes enrolled approximately 272,595

students in 2023. It also describes a diverse provincial system containing public and private universities, vocational institutions, normal universities, medical institutions, and other specialised colleges. This institutional diversity matters because HRM practices cannot be assumed to function identically across organisations with different missions, funding arrangements, staff profiles, academic disciplines, and levels of organisational maturity.

The study argues that these reforms create both opportunities and pressures. Hainan's HEIs are expected to improve research, teaching, international cooperation, and organisational responsiveness while operating with constraints in resources, talent supply, staff development opportunities, and institutional systems. Academic staff may consequently face heavy workloads and multiple performance requirements. Under such conditions, job efficiency becomes an important outcome because institutions must achieve more without unlimited additions to personnel, time, or financial resources.

The thesis places innovative HRM at the centre of this challenge. Traditional administrative HR functions are insufficient if they are disconnected from institutional strategy. Instead, universities need strategic practices that recruit and retain capable staff, continuously develop employee competencies, provide fair and useful performance feedback, and create conditions in which employees are motivated to use these resources. Talent management can help institutions build a sustainable academic workforce. Employee development can strengthen teaching, research, digital, managerial, and international competencies. Performance appraisal can clarify expectations, identify development needs, align individual and institutional goals, and provide feedback for improvement.

However, the study also recognises that HRM practices do not operate mechanically. The existence of a training programme or appraisal system does not guarantee higher efficiency. Employees must perceive, accept, and use the opportunities created by these systems. This is why employee engagement becomes important. Engaged academic staff are more likely to invest energy in their work, use development opportunities, respond constructively to feedback, and align personal effort with institutional goals. In contrast, low engagement can reduce the practical effect of even well-designed HR policies.

The Hainan context therefore creates a strong rationale for investigating both direct HRM effects and the conditional role of engagement. The province combines policy-driven transformation, internationalisation ambitions, institutional diversity, and human resource challenges. The thesis treats this setting not merely as a local case but as an example of an emerging and reform-oriented higher education environment. Findings from Hainan may therefore contribute to understanding how established HRM theories and practices operate outside the elite or highly resourced university settings that dominate much previous research.

Overall, the background establishes a chain of reasoning: higher education transformation increases job demands; increased demands make job efficiency strategically important; job efficiency depends partly on the quality of HRM resources; and the effectiveness of those resources may depend on employee engagement. This reasoning provides the foundation for the research problem, questions, objectives, hypotheses, and conceptual model developed in the thesis.

Problem Statement

The central problem addressed by the thesis is persistent job inefficiency among academic staff in higher education institutions operating under increasing performance demands. The study describes job efficiency as the capacity to complete work successfully, accurately, and within appropriate limits of time and resources. In HEIs, efficiency has direct implications for teaching quality, research output, administrative performance, institutional competitiveness, and the capacity to respond to reform. Yet academic staff are simultaneously expected to undertake teaching, research, student supervision, administration, and internationalisation. When organisational resources do not keep pace with these demands, inefficiencies can appear through delayed task completion, uneven research productivity, administrative bottlenecks, fatigue, burnout, and turnover.

This problem is particularly significant in Hainan. The province is undergoing rapid educational reform and internationalisation while its universities face constraints associated with resources, staff retention, professional development, and organisational capacity. The thesis argues that the reform agenda raises performance expectations faster than some institutional systems can adapt. As a result, HEIs need HRM strategies that can convert limited human resources into sustainable and efficient performance.

Although the wider HRM literature demonstrates that HR practices influence employee and organisational outcomes, the thesis identifies several gaps. First, much prior research has concentrated on developed economies, Western organisational contexts, or elite and first-tier Chinese universities. This leaves less evidence from second-tier, emerging, or reform-oriented regions such as Hainan. Universities in Beijing, Shanghai, Guangzhou, or highly resourced international settings may possess stronger financial resources, mature HR systems, stable labour markets, and established research infrastructure. Conclusions drawn from those contexts cannot automatically be assumed to describe Hainan's institutions.

Second, previous studies often focus on broad employee performance, job satisfaction, commitment, retention, or organisational outcomes rather than job efficiency as a distinct dependent variable. The thesis therefore treats job efficiency as an underexplored outcome that deserves specific attention. Efficiency is not identical to general performance: it emphasises the effective use of time, effort, and organisational resources in completing work. This distinction is particularly relevant when universities face growing responsibilities but limited resources.

Third, the specific contribution of three HRM practices—talent management, employee development, and performance appraisal—to job efficiency has not been sufficiently established in Hainan's higher education context. The thesis therefore examines these practices separately while locating them within a broader innovative HRM framework. This allows the study to identify whether each practice has a significant relationship with job efficiency and to compare their relative importance.

Fourth, the role of employee engagement remains insufficiently developed. Engagement is frequently studied as an outcome of HRM or, in some studies, as a mediator. The thesis instead proposes that engagement moderates the HRM–efficiency relationship. This means that HRM practices may have stronger effects when employees are highly engaged. The conceptual argument is that engaged staff are more likely to use organisational resources proactively, participate in development opportunities, accept constructive appraisal feedback, and translate institutional support into effective behaviour. Thus, HRM practices alone may be necessary but not sufficient; their impact depends partly on employees' psychological and behavioural involvement in work.

Fifth, the thesis raises a theoretical contextualisation problem. The JD-R Model, Human Capital Theory, and Organizational Support Theory have been extensively used, but much of their empirical development has occurred in Western or developed-economy settings. Their combined explanatory value in a reform-driven Chinese higher education environment has not been sufficiently tested. The study therefore applies these theories to Hainan and integrates them in explaining both direct HRM effects and the moderating role of engagement.

The problem statement can therefore be summarised as a mismatch between rising institutional demands and incomplete knowledge about the HR mechanisms that can improve academic job efficiency in Hainan. HEIs require evidence on which HR practices matter, how strongly they matter, and under what employee conditions they are most effective. Without such evidence, institutions risk implementing isolated HR initiatives that consume resources without producing the expected efficiency gains.

The thesis responds to this problem by testing a model in which TMP, EDP, and PAS directly predict job efficiency, while employee engagement strengthens each of these relationships. In doing so, it aims to produce context-sensitive evidence for university leaders, HR managers, and policymakers and to extend the academic understanding of innovative HRM in emerging higher education systems.

Research Questions and Objectives

The thesis contains six research objectives and six corresponding research questions. The first three objectives examine direct effects of innovative HRM practices on job efficiency. The final three examine whether employee engagement moderates those relationships.

Research Objective 1 is to assess the impact of Talent Management Practices on job efficiency in higher education institutions in Hainan Province. The corresponding Research Question asks: To what extent do talent management practices significantly affect job efficiency among academic staff in Hainan HEIs? This objective examines whether activities such as strategic recruitment, talent identification, retention, career development, and succession planning contribute to employees' ability to perform efficiently.

Research Objective 2 is to evaluate the influence of Employee Development Programs on job efficiency. The corresponding question asks the extent to which employee development programmes significantly influence job efficiency among academic staff. This objective focuses on the role of training, mentoring, continuous learning, professional development, and skill enhancement in strengthening employees' productive capacity.

Research Objective 3 is to examine the effect of Performance Appraisal Systems in enhancing job efficiency. The corresponding question asks the extent to which performance appraisal systems significantly affect job efficiency. This objective evaluates whether clear performance criteria, fair assessment, regular feedback, goal setting, and developmental use of appraisal results contribute to more effective work.

Research Objective 4 is to examine the moderating effect of Employee Engagement on the relationship between Talent Management Practices and job efficiency. The related question asks whether engagement significantly moderates this relationship. The proposition is that engaged employees gain more from talent management opportunities and therefore convert them more effectively into efficient work behaviour.

Research Objective 5 is to analyse the moderating effect of Employee Engagement on the relationship between Employee Development Programs and job efficiency. The associated question asks whether engagement significantly moderates this relationship. The reasoning is that engaged employees are more motivated to participate in learning, apply new skills, and use development opportunities.

Research Objective 6 is to determine the moderating effect of Employee Engagement on the relationship between Performance Appraisal Systems and job efficiency. The corresponding question asks whether engagement significantly moderates this relationship. Engaged employees are expected to interpret appraisal more constructively, respond more positively to feedback, and make stronger efforts to improve performance.

These objectives are translated into six hypotheses. H1 predicts a positive significant effect of TMP on JE. H2 predicts a positive significant effect of EDP on JE. H3 predicts a positive significant effect of PAS on JE. H4 predicts that EE positively and significantly moderates the TMP–JE relationship. H5 predicts that EE positively and significantly moderates the EDP–JE relationship. H6 predicts that EE positively and significantly moderates the PAS–JE relationship.

The alignment between the research problem, questions, objectives, hypotheses, and statistical model is an important feature of the thesis. The first three questions establish whether the selected HRM resources matter directly. The final three move beyond direct-effect thinking by asking when those resources are more effective. Together, the questions allow the thesis to examine not only the presence of HRM–efficiency relationships but also the role of employee engagement in amplifying them.

Literature Review

The literature review examines the theoretical foundations and empirical evidence relating to innovative HRM, Talent Management Practices, Employee Development Programs, Performance Appraisal Systems, Employee Engagement, and Job Efficiency. Its purpose is to establish what is already known, identify inconsistencies and contextual limitations in previous research, and justify the six hypotheses.

The review begins with innovative HRM as a strategic rather than purely administrative function. Modern HRM is presented as a system through which organisations align people, capabilities, motivation, and performance with strategic objectives. In higher education, this is particularly important because universities depend heavily on knowledge workers. Academic performance is shaped not only by physical or financial resources but also by expertise, commitment, creativity, teaching ability, research capacity, and willingness to adapt to institutional change.

Talent Management Practices are reviewed as mechanisms for attracting, identifying, developing, deploying, and retaining employees whose competencies are important to organisational success. In higher education, talent management includes recruitment of qualified faculty, retention of high performers, career pathways, succession planning, leadership development, and alignment of talent with strategic academic priorities. Previous literature generally suggests a positive relationship between talent management and employee or organisational performance. However, its effectiveness may depend on implementation quality, institutional resources, and fit with local conditions.

Employee Development Programs are discussed as investments in knowledge, skills, competencies, and future capability. Development can include formal training, mentoring, professional workshops, research

development, digital skills, pedagogical innovation, leadership training, and continuous learning. Human Capital Theory strongly supports this relationship because education and training increase productive capacity. The literature indicates that well-designed development programmes can improve performance, adaptability, confidence, retention, and organisational learning. In a rapidly changing higher education environment, continuous development is especially important because academic staff must respond to new technologies, research expectations, internationalisation, and changing student needs.

Performance Appraisal Systems are reviewed as mechanisms for clarifying expectations, measuring contribution, giving feedback, identifying development needs, supporting career decisions, and aligning employee goals with institutional objectives. Effective appraisal is expected to be transparent, relevant, fair, regular, and developmental rather than merely punitive. The literature also recognises problems associated with poorly designed appraisal systems, including perceptions of unfairness, excessive metric orientation, bias, and anxiety. The thesis therefore treats the quality of appraisal—not simply its existence—as important for job efficiency.

Employee Engagement is conceptualised as a positive work-related psychological state reflected in energy, dedication, enthusiasm, involvement, pride, motivation, and willingness to invest effort. The review draws on engagement literature to argue that engaged employees are more likely to show persistence, proactive behaviour, and stronger performance. Importantly, the thesis does not restrict engagement to being an outcome. It proposes that engagement changes how effectively employees use HRM resources. A development programme, for example, may produce greater performance benefits for an employee who is motivated to learn and apply new knowledge than for one who participates only minimally.

Job Efficiency is distinguished from broad job performance. It concerns the effective completion of work with appropriate use of time and resources while maintaining quality. The questionnaire operationalises efficiency through items relating to consistent task completion, high-quality work standards, workload management, performance improvement, efficiency under pressure, contribution to team goals, alignment with organisational objectives, constructive feedback, and task prioritisation. In the higher education context, efficiency is strategically important because faculty work is complex, time-intensive, and increasingly multidimensional.

Three theories organise the literature. The JD-R Model explains that employees face job demands that require sustained effort and can lead to strain, while job resources help them achieve goals, reduce demands, and stimulate motivation. The thesis interprets TMP, EDP, and PAS as organisational resources. In Hainan's HEIs, these resources can help staff manage demanding teaching, research, administrative, and internationalisation responsibilities. Employee engagement is central to the motivational pathway of JD-R and helps explain why resources may generate stronger performance outcomes when employees are psychologically invested in their work.

Human Capital Theory, associated with Becker, provides the economic and capability-based explanation for investment in people. Talent acquisition, training, professional development, and career development increase the stock of knowledge and skills available to the institution. This theory is especially relevant to TMP and EDP because universities depend on specialised knowledge and because academic capability is difficult to replace quickly.

Organizational Support Theory explains how employees respond when they believe that their organisation values their contribution and cares about their well-being. Fair appraisal, development opportunities, recognition, mentoring, and supportive talent practices can signal organisational support. Employees may reciprocate with stronger commitment, engagement, and performance. OST therefore supports both the direct effect of supportive HRM practices and the moderating role of engagement.

The literature review identifies three major research gaps. The first is contextual and institutional: evidence is concentrated in developed economies and elite universities, with less research on Hainan and comparable reform-oriented regions. The second is an outcome and conceptual gap: job efficiency has received less attention than broader performance, satisfaction, commitment, or retention. The third is the moderation gap: employee engagement is commonly treated as an outcome or mediator, while its role in strengthening the HRM–job efficiency relationship is less established. The review therefore concludes that an integrated model is needed. TMP, EDP, and PAS should be tested as direct predictors of JE, and EE should be tested as a moderator of all three relationships. This synthesis of strategic HRM, capability development, organisational support, and engagement provides the conceptual basis for the empirical analysis.

Conceptual Framework

The conceptual framework positions three innovative HRM practices as independent variables: Talent Management Practices, Employee Development Programs, and Performance Appraisal Systems. Job Efficiency is the dependent variable, and Employee Engagement is the moderating variable. Six paths are therefore central to the framework: three direct paths from TMP, EDP, and PAS to JE, and three interaction paths in which EE moderates each direct relationship.

The first direct path proposes that TMP improves JE. Effective talent management should place capable people in appropriate roles, retain valuable academic staff, support career growth, and prepare future leaders. When recruitment, retention, development, and succession are strategically aligned, employees are more likely to possess the competencies and role fit required for efficient performance.

The second direct path proposes that EDP improves JE. Continuous professional development increases knowledge and skills and helps employees respond to technological, pedagogical, research, and administrative change. Employees who receive relevant training and mentoring should be better able to complete tasks, solve problems, manage workloads, and maintain quality.

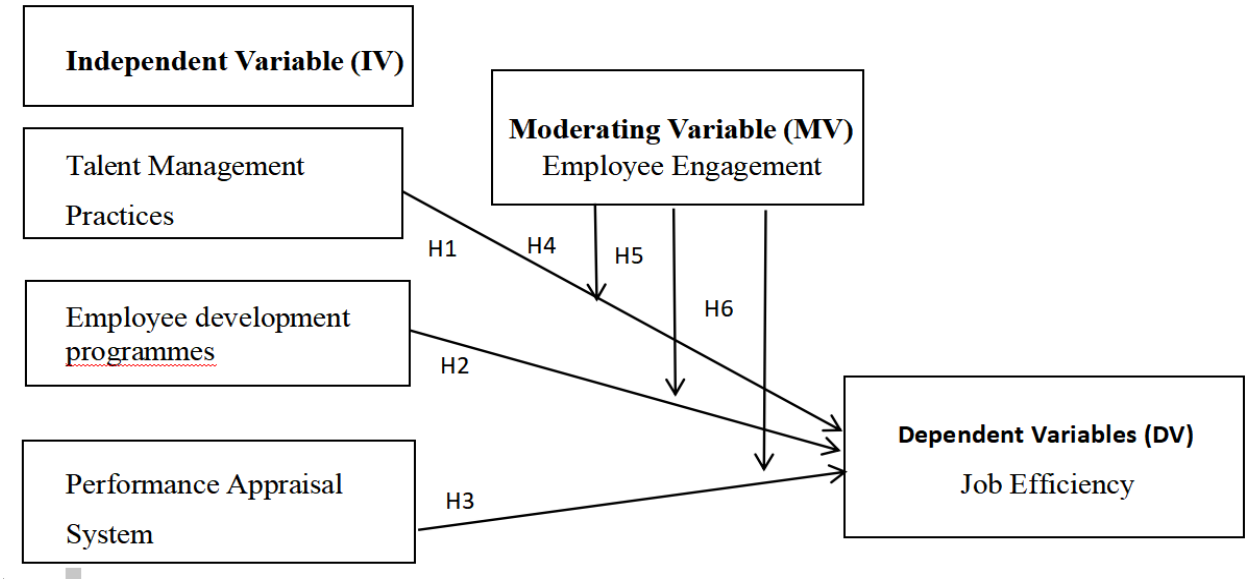
The third direct path proposes that PAS improves JE. Clear standards and regular developmental feedback can reduce ambiguity, reinforce accountability, identify areas for improvement, and align employee effort with institutional priorities. A fair appraisal system can therefore support more focused and efficient performance.

The moderating role of EE adds a conditional dimension. Under the JD-R logic, organisational resources do not automatically produce maximum performance; employees must be sufficiently engaged to mobilise those resources. Engagement is characterised by vigor, dedication, absorption, motivation, and active involvement. An engaged employee is more likely to use career opportunities offered by talent management, participate meaningfully in development programmes, and act on appraisal feedback.

Consequently, the positive effects of TMP, EDP, and PAS on JE are expected to become stronger as engagement increases.

The framework also integrates the three underpinning theories. Human Capital Theory explains how TMP and EDP build productive capacity. Organizational Support Theory explains how fair and supportive HR practices encourage positive employee responses. The JD-R Model links organisational resources to engagement and performance under demanding work conditions. The framework thus connects organisational strategy, employee capability, psychological involvement, and efficiency.

This framework is particularly suitable for Hainan's HEIs because academic employees operate under multiple demands and because institutional resources differ across universities. The model does not assume that one HR practice alone can solve efficiency problems. Instead, it suggests that universities should combine capability-building HR systems with an engaged workforce. The empirical model subsequently tests whether this conceptual proposition is supported by the survey data.



Methodology

The study adopts a quantitative, cross-sectional survey methodology designed to test theoretically derived relationships among measurable constructs. Although parts of the methodological discussion refer to pragmatism and to the value of contextual interpretation, the empirical design itself is primarily quantitative and is epistemologically aligned with positivist hypothesis testing. The thesis also describes a realist ontological position, treating innovative HRM practices and job efficiency as phenomena that can be measured through systematic empirical investigation.

The research setting is higher education institutions in Hainan Province, including public and private institutions and different types of colleges and universities. The target population is described as approximately 15,000 college teachers and scientific researchers. The sampling strategy sought representation across academic ranks and institutional types. Proportional stratification was used to represent professors, associate professors, assistant professors, and lecturers. The thesis reports approximate population proportions of 13.7% professors, 26.6% associate professors, 18.7% assistant professors, and 41.0% lecturers. The sampling frame covered 22 institutions.

Sample size was initially calculated using Yamane's formula with a 5% margin of error. For a population of 15,000, the calculation produced approximately 389.61, rounded to a required sample of 390. The actual usable sample was larger. A total of 650 structured questionnaires were distributed through institutional networks and physical distribution. Five hundred completed questionnaires were returned, representing a 76.9% gross response rate. After quality screening, 484 responses were retained, giving a usable response rate of approximately 74.2%. Responses were excluded where substantial items were missing, patterned or straight-line responding suggested inattentive participation, or logical inconsistencies were detected.

Data collection used a structured self-administered questionnaire in both online and printed formats. Online distribution included Google Forms, institutional email lists, university WeChat groups, and other institutional channels. Printed questionnaires were also distributed during faculty or institutional activities. The researcher worked with university departments and institutional contacts to facilitate access and reminders. The use of multiple channels was intended to improve participation while maintaining standardisation.

The questionnaire measured five principal constructs: TMP, EDP, PAS, JE, and EE. Items were adapted from established literature and were assessed through Likert-type response scales. Talent management items focused on recruitment, retention, career development, talent identification, and related practices. Employee development items addressed training and opportunities for professional growth. Performance appraisal items included communication of appraisal objectives, relevant criteria, fairness and impartiality, regular feedback, use of appraisal results for development, employee involvement, career goals, motivation for improvement, and transparency. Job efficiency items assessed consistent task completion, quality standards, workload management, proactive improvement, efficiency under pressure, contribution to team goals, alignment with organisational objectives, feedback, and task prioritisation. Employee engagement items measured energy, enthusiasm, pride, full involvement, inspiration, best effort, attachment to organisational values, willingness to go beyond requirements, optimism, and recommendation of the organisation.

Instrument development involved literature review, adaptation of validated measures, expert review, and pilot testing. Content validity was addressed by ensuring that questionnaire items adequately represented the relevant constructs and by obtaining expert scrutiny regarding clarity, relevance, and comprehensiveness. Construct validity was further evaluated through empirical analysis.

A pilot study was conducted before the full survey. Fifty questionnaires were distributed to academic and administrative staff using purposive sampling, and 30 valid responses remained after screening. The pilot test was used to examine clarity, reliability, and validity. Cronbach's alpha was used to assess internal consistency, and participant feedback helped identify ambiguous or problematic items.

Ethical procedures included informed consent, voluntary participation, anonymity, confidentiality, secure data storage, and the right to withdraw. Participants were informed of the study purpose and were not required to provide identifying information such as names or staff numbers. Data were stored in protected digital locations and were intended to be retained for a defined period in accordance with institutional requirements.

Data analysis proceeded in stages. SPSS was used for preliminary screening, missing-data treatment, outlier detection, normality assessment, descriptive statistics, and exploratory checks. SmartPLS and PLS-

SEM were then used to evaluate the measurement and structural models. The measurement-model assessment considered indicator reliability, Cronbach's alpha, convergent validity through Average Variance Extracted (AVE), discriminant validity, and cross-loadings. The structural-model assessment examined path coefficients, statistical significance through bootstrapping, coefficient of determination (R^2), model fit, and effect sizes (f^2).

The final model demonstrated very high explanatory power for Job Efficiency. The reported R^2 was 0.928 and adjusted R^2 was 0.927, meaning that the model accounted for 92.8% of the variance in job efficiency. Model-fit statistics reported in Table 32 included SRMR values of 0.026 for the saturated model and 0.030 for the estimated model, with NFI values of 0.918 and 0.915 respectively. These values were interpreted in the thesis as evidence of satisfactory model fit.

Effect sizes were also reported. The table gives f^2 values of 0.076 for EDP, 0.062 for EE, 0.052 for PAS, 0.045 for TMP, and small but meaningful values for the interaction effects. The thesis interprets all predictors as contributing meaningfully to job efficiency, while giving particular practical emphasis to employee development and talent management.

Overall, the methodology is designed to connect theory and empirical testing in a systematic manner. The relatively large usable sample, multi-institutional coverage, pilot testing, validity and reliability assessment, and PLS-SEM analysis provide the basis for testing the six hypotheses. At the same time, the cross-sectional and self-report nature of the design imposes limitations on causal inference, which the thesis acknowledges.

Findings

The empirical analysis supports all six hypotheses. The results show that each of the three innovative HRM practices has a positive and statistically significant direct relationship with Job Efficiency and that Employee Engagement significantly moderates each HRM–efficiency relationship.

For H1, Talent Management Practices positively affect Job Efficiency. The thesis reports a standardised path coefficient of $\beta = 0.281$, $t = 4.548$, and $p < .001$. This indicates that stronger talent management is associated with higher efficiency. Strategic recruitment, retention, employee development, role alignment, and succession planning appear to help institutions build a capable and motivated workforce. The result supports the proposition that talent management is not merely an administrative function but a strategic mechanism for improving how effectively academic employees perform their work.

For H2, Employee Development Programs positively affect Job Efficiency. The reported path coefficient is $\beta = 0.361$, $t = 5.464$, $p < .001$. Among the three direct HRM predictors, this is the largest reported path coefficient. The finding indicates that training, mentoring, continuous learning, and professional development are strongly associated with improved efficiency. In an environment where academic roles are changing because of technology, internationalisation, research expectations, and pedagogical innovation, continuous capability development appears especially important.

For H3, Performance Appraisal Systems positively affect Job Efficiency. The reported coefficient is $\beta = 0.319$, $t = 4.509$, $p < .001$. The result suggests that clear performance expectations, objective evaluation, constructive feedback, goal alignment, and developmental use of appraisal information can enhance

efficiency. Appraisal therefore functions most effectively when it supports improvement and accountability rather than operating only as a control mechanism.

Employee Engagement also has a strong direct association with Job Efficiency in the structural model, with a reported coefficient of 0.337 and t = 4.631. More importantly for the thesis contribution, engagement moderates the three HRM relationships.

H4 is supported: EE strengthens the relationship between TMP and JE. The Chapter 5 results section reports a moderation coefficient of 0.174 with p = .003. The substantive interpretation is that talent management produces greater efficiency benefits when employees are highly engaged. Engaged employees are more likely to take advantage of career opportunities, use their capabilities, and respond positively to retention and development initiatives.

H5 is supported: EE moderates the EDP–JE relationship. Chapter 5 reports a moderation coefficient of 0.192 with p = .002. This means development programmes are more effective when employees are sufficiently engaged to participate actively, learn, and transfer newly acquired knowledge and skills to their work.

H6 is supported: EE moderates the PAS–JE relationship. Chapter 5 reports a moderation coefficient of 0.157 with p = .005. Engaged employees are more receptive to performance feedback and more likely to translate appraisal information into improved work behaviour. The finding reinforces the idea that performance management effectiveness depends not only on system design but also on employees' willingness to engage with the process.

The thesis's summarises all six hypotheses as supported. The model also reports $R^2 = 0.928$ for Job Efficiency, indicating that the combination of HRM practices, engagement, and interaction effects explains a very large proportion of variance in the dependent variable. Effect-size analysis shows that all variables make meaningful contributions, although the individual f^2 effects are generally in the small range according to conventional thresholds.

Taken together, the findings indicate that job efficiency in Hainan HEIs is not associated with one isolated HR mechanism. Instead, efficiency is related to a bundle of strategic HR resources and to the psychological state through which employees use those resources. Employee development emerges as the strongest direct predictor by path coefficient, followed by performance appraisal and talent management, while engagement plays both a direct and a moderating role. The empirical findings therefore support the integrated conceptual framework proposed in Chapter 2.

Discussion

The discussion interprets the findings in relation to the research objectives, prior literature, and the three underpinning theories. The central conclusion is that innovative HRM practices can function as strategic organisational resources for improving job efficiency, but their effectiveness is amplified when academic staff are highly engaged.

The positive TMP–JE relationship supports Human Capital Theory and strategic talent management literature. Universities depend on specialised knowledge and expertise, and the loss or poor deployment of capable academic staff can be costly. Strategic recruitment, retention, succession planning, and career development improve the quality and continuity of human capital. In Hainan, where institutions face

reform pressures and competition for qualified staff, talent management may have a particularly important role. The finding suggests that universities should move beyond reactive recruitment toward long-term talent pipelines and structured career pathways.

The positive EDP–JE relationship is especially important because EDP has the strongest direct coefficient among the three HRM predictors. This finding is consistent with Human Capital Theory: investment in employee knowledge and skills increases productive capacity. It also reflects the practical realities of higher education. Academic staff must continually update pedagogical methods, digital competencies, research skills, administrative knowledge, and international capabilities. Development is therefore not a one-time intervention but a continuing institutional requirement. The result implies that universities can improve efficiency by making professional development relevant, accessible, and closely connected to actual job demands.

The positive PAS–JE relationship shows that performance appraisal can contribute to efficiency when it is transparent, fair, relevant, and developmental. Academic appraisal is sometimes criticised when it relies excessively on narrow metrics or is perceived as punitive. The thesis findings instead support appraisal systems that clarify expectations, provide constructive feedback, and connect evaluation with professional growth. Organizational Support Theory is relevant here because fair and useful appraisal can signal that the institution is interested in employee development rather than merely control.

The moderation findings provide the most distinctive part of the discussion. Employee engagement strengthens the effect of all three HRM practices. This supports the JD-R Model because job resources produce stronger motivational and performance outcomes when employees are engaged. Engagement enables employees to convert organisational opportunities into actual behaviour. A university can provide training, but the efficiency benefit depends on whether staff participate meaningfully and apply what they learn. It can create career pathways, but employees must be motivated to pursue and use those opportunities. It can provide feedback, but employees must be willing to accept and act on it.

This result also extends Organizational Support Theory. Supportive HR practices can create positive perceptions of the institution, but engagement represents the active psychological and behavioural condition through which those perceptions become performance. The thesis therefore reconceptualises engagement as more than an outcome. It is a conditional mechanism that strengthens or weakens the effectiveness of HRM.

The findings have theoretical implications in three areas. First, they extend the JD-R framework toward job efficiency as a task- and resource-oriented performance outcome, rather than focusing mainly on burnout, well-being, or broad performance. Second, they reinforce Human Capital Theory in a higher education context by showing that talent and development investments are associated with efficiency. Third, they integrate Organizational Support Theory with engagement to explain why employees respond differently to HR resources.

The study also contributes contextually. Much HRM research is based on developed economies or elite universities. By focusing on Hainan, the thesis demonstrates that these theoretical relationships are also relevant in a reform-oriented Chinese province characterised by rapid institutional change, internationalisation ambitions, resource constraints, and a diverse HEI system. This does not mean that

the findings can automatically be generalised to all Chinese provinces, but it provides evidence from a setting that is underrepresented in the literature.

Practically, the discussion suggests that HEIs should avoid implementing TMP, EDP, PAS, and engagement initiatives as separate programmes. An integrated HRM system is more appropriate. Talent strategies should identify and retain capable staff; development should continuously strengthen competencies; appraisal should provide fair and actionable feedback; and engagement policies should create a supportive environment in which employees are willing to use these resources. Leadership, communication, recognition, participation in decision-making, well-being, and opportunities for professional growth can all contribute to engagement.

At the policy level, the findings imply that human resource development should be treated as a core component of higher education reform. Investments in infrastructure or international programmes will have limited effect if institutions do not possess capable and engaged academic staff. Provincial and institutional policies should therefore support professional development funding, talent attraction and retention, transparent appraisal, digital HR systems, academic autonomy, well-being, and mechanisms for employee participation.

The thesis recommends strengthening structured talent management, investing in continuous development, improving performance appraisal, fostering engagement, aligning HRM with organisational goals, and continuously monitoring HR policies. It also recommends the use of HR analytics and systematic HR audits so that institutions can evaluate workforce trends and adapt practices over time.

A further point in the discussion is that the very high R^2 should be interpreted alongside the study design. The model explains a large proportion of reported variance in job efficiency, but all key variables were measured through the same cross-sectional survey. The thesis itself recognises the risks of common method variance and self-report bias. Therefore, the results provide strong evidence of association within the model but should not be treated as definitive proof of causal effects. Overall, the discussion supports a resource–capability–engagement explanation of job efficiency. HRM practices provide organisational resources and develop human capital; engagement determines how actively employees use those resources; and the interaction contributes to efficient performance. In Hainan's changing higher education environment, this integrated approach offers both theoretical value and practical relevance.

Limitations

The thesis acknowledges several limitations that define the boundaries of its conclusions. The first is geographical scope. The study is limited to Hainan Province, a region with a distinctive policy environment shaped by educational reform, internationalisation, and the Hainan Free Trade Port. Governance arrangements, funding, institutional culture, labour markets, and HRM maturity differ across Chinese provinces and countries. Consequently, the results should not be automatically generalised to more urbanised, resource-rich, or institutionally different higher education systems.

The second limitation is the cross-sectional design. Data were collected at one point in time. This design is appropriate for identifying statistically significant relationships but cannot establish temporal ordering or strong causality. For example, a positive relationship between appraisal and efficiency may indicate that good appraisal contributes to efficiency, but it is also possible that more efficient institutions are better

able to implement structured appraisal systems. Longitudinal research would provide stronger evidence regarding causal direction and change over time.

Third, the study relies heavily on self-reported questionnaire data. Respondents may give socially desirable answers, overestimate their own engagement or efficiency, or interpret HRM practices differently. Because predictors and outcomes are measured using the same general method, common method variance may inflate observed relationships. Although the thesis uses statistical and procedural controls, self-report bias remains an inherent limitation.

Fourth, the model examines only three innovative HRM practices. HRM also includes compensation, rewards, diversity and inclusion, career management, employee well-being, organisational culture, succession planning, flexible work, and other practices. Excluding these variables may leave part of the explanation of job efficiency outside the model. Interactions among different HR practices are also not fully examined.

Fifth, the study treats different types of HEIs within a common model. Public universities, private colleges, vocational institutions, research-intensive universities, and smaller teaching-focused institutions may differ substantially in governance, resources, strategy, and HR systems. Aggregating them may obscure important institutional differences.

Sixth, employee engagement is measured quantitatively through Likert-scale items. This produces standardised and generalisable data but may not capture the full psychological and emotional complexity of engagement. Interviews, focus groups, diaries, or case studies could reveal why employees respond to HR practices in different ways.

Seventh, potentially important contextual variables such as leadership style, organisational culture, governance, technological capability, and policy mandates were not directly incorporated into the final structural model. These factors may influence both HRM implementation and employee efficiency. The omission of additional moderators or mediators may therefore leave the model theoretically incomplete.

Finally, the study does not fully model macro-environmental changes associated with the COVID-19 period and subsequent transformation of work. Online teaching, remote work, digital HR platforms, and changing employee expectations may have affected both HRM practices and perceptions of efficiency.

Future research should therefore use multi-region comparisons, longitudinal designs, mixed methods, multi-source data, and broader HRM models. Comparative analysis across provinces or countries would test generalisability. Longitudinal data would clarify causality. Qualitative research would deepen understanding of engagement. Objective performance indicators or supervisor ratings could reduce reliance on self-report. Multi-group analysis could compare public and private institutions or different academic ranks. Future models could also include leadership, culture, well-being, digital HRM, and institutional governance.

Conclusion

The thesis concludes that innovative Human Resource Management practices are important predictors of job efficiency among academic staff in higher education institutions in Hainan Province and that Employee Engagement significantly strengthens their effectiveness. Talent Management Practices, Employee Development Programs, and Performance Appraisal Systems all show positive and statistically

significant relationships with Job Efficiency. Employee Development Programs produce the strongest direct path coefficient, followed by Performance Appraisal Systems and Talent Management Practices. Employee Engagement also strengthens each of these relationships, supporting its conceptualisation as a moderator.

These findings answer all six research questions and fulfil the six research objectives. They show that strategic talent management can improve efficiency by attracting, developing, retaining, and appropriately deploying capable employees. Employee development improves efficiency by strengthening knowledge, skills, adaptability, and professional capacity. Performance appraisal contributes through clearer expectations, fair evaluation, feedback, accountability, and alignment between individual and institutional goals. Engagement amplifies these effects because motivated and involved employees are more likely to use HR resources effectively.

The theoretical contribution lies in integrating the JD-R Model, Human Capital Theory, and Organizational Support Theory within a single framework focused on job efficiency. The study extends the JD-R perspective by treating innovative HRM practices as organisational resources and job efficiency as a specific performance outcome. It supports Human Capital Theory by demonstrating the value of investment in talent and development. It supports Organizational Support Theory by showing the importance of supportive HR systems and by linking them to engagement. Most importantly, it positions employee engagement as a conditional mechanism rather than merely an HRM outcome.

The contextual contribution is also important. Hainan represents a reform-oriented and rapidly internationalising higher education environment that differs from the elite university settings frequently examined in prior research. The study provides empirical evidence that strategic HRM and engagement matter in this setting, while also showing the need for HR practices that are adapted to local institutional and cultural conditions.

For university leaders and HR managers, the practical message is that HRM should be integrated with institutional strategy. HEIs should establish structured recruitment and succession systems, provide continuous and relevant professional development, use transparent and developmental performance appraisal, and create an organisational climate that supports engagement. Engagement should be treated as a strategic lever because it determines how effectively employees translate HR opportunities into performance.

For policymakers, the study suggests that human resource development should occupy a central place in higher education reform. Hainan's ambitions for educational openness, international cooperation, research development, and institutional competitiveness require not only policy and financial investment but also a capable, supported, and engaged academic workforce. Funding for professional development, talent attraction, digital HR capacity, well-being, and fair performance management can therefore contribute to broader reform goals.

The overall conclusion is that job efficiency is produced through the interaction of organisational resources, employee capability, and employee engagement. HRM practices alone are not sufficient if employees are disengaged, and engagement alone cannot compensate for weak HR systems. Sustainable improvement requires both: strategically designed HR practices and an institutional environment in which employees are motivated to use them. This integrated approach provides the central contribution of the

thesis and offers a foundation for future research on HRM effectiveness in Chinese and other reform-oriented higher education systems.

References

1. Abbas, Z., Sarwar, S., Rehman, M. A., Zámečník, R., & Shoaib, M. (2022). Green innovative HRM promotes higher education sustainability: A mediated-moderated analysis. International Journal of Manpower, 43(3), 827–843.
2. Aguinis, H. (2019). Performance Management (3rd ed.). Chicago Business Press.
3. Alrecht, S. L., Bakker, A. B., Gruman, J. A., Macey, W. H., & Saks, A. M. (2015). Employee engagement, human resource management practices and competitive advantage: An integrated approach. Journal of Organizational Effectiveness: People and Performance, 2(1), 7–35.
4. Armstrong, M., & Taylor, S. (2023). Armstrong's Handbook of Human Resource Management Practice (16th ed.).
5. Baker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job demands–resources theory: Ten years later. Annual Review of Organizational Psychology and Organizational Behavior, 10, 25–53.
6. Becker, G. S. (1964). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. University of Chicago Press.
7. Boon, C., Eckardt, R., Lepak, D. P., & Boselie, P. (2018). Integrating strategic human capital and human resource management. The International Journal of Human Resource Management, 29(1), 34–67.
8. Boxall, P., & Macky, K. (2023). High-involvement work processes and HRM systems: A review and future directions. Human Resource Management Journal, 33(1), 1–18.
9. Boxall, P., & Purcell, J. (2021). Strategy and Human Resource Management (5th ed.). Palgrave Macmillan.
10. Brown, M., Hyatt, D., & Benson, J. (2021). Consequences of performance appraisal for knowledge workers. The International Journal of Human Resource Management, 32(4), 717–741.
11. Bryman, A. (2016). Social Research Methods (5th ed.). Oxford University Press.
12. Chn, L., Ou, J., & Lin, D. (2022). Path analysis of higher education promoting the construction of the Hainan Free Trade Port. International Journal of Computer Science and Engineering Applications, 11(12), 53.
13. Collings, D. G., Mellahi, K., & Cascio, W. F. (2019). Global talent management and performance in multinational enterprises. Journal of Management, 45(2), 540–566.
14. Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage.
15. DeNisi, A. S., & Murphy, K. R. (2017). Performance appraisal and performance management: 100 years of progress? Journal of Applied Psychology, 102(3), 421–433.
16. Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. Journal of Applied Psychology, 71(3), 500–507.Fowler, F. J. (2013). Survey Research Methods. Sage.
17. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24.

18. Hamadamin, H. H., & Atan, T. (2019). The impact of strategic human resource management practices on competitive advantage sustainability: The mediation of human capital development and employee commitment. Sustainability, 11(20), 5782.
19. Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2021). Human Resource Management: Gaining a Competitive Advantage. McGraw-Hill.
20. Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review. Journal of Applied Psychology, 88(5), 879–903.
21. Saks, A. M. (2019). Antecedents and consequences of employee engagement revisited. Journal of Organizational Effectiveness: People and Performance.
22. Schaufeli, W. B. (2021). Engaging leadership: How to promote work engagement? Frontiers in Psychology.
23. Sparrow, P., Scullion, H., & Tarique, I. (2020). Strategic Talent Management: Contemporary Issues in International Context. Cambridge University Press.