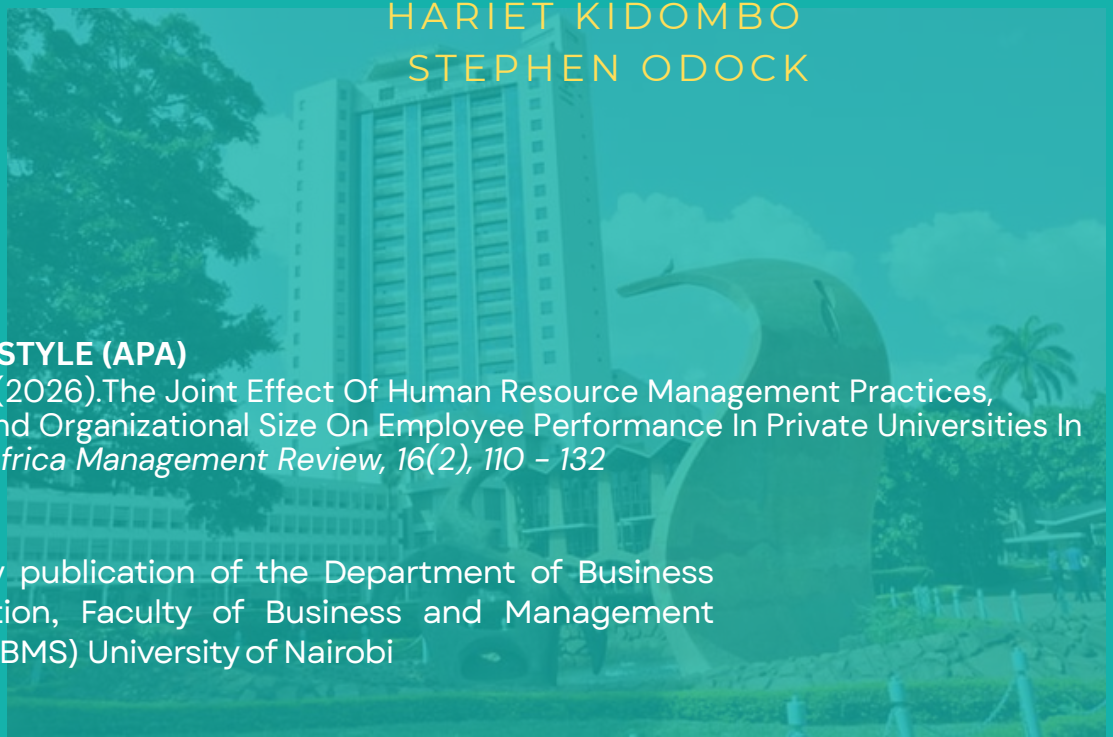
ISSN NO: 2224-2023

DBA AFRICA MANAGEMENT REVIEW

VOLUME 16 NO 2

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CHARLES OPEYIO NGEMA
PETER K'OBONYO
HARIET KIDOMBO
STEPHEN ODOCK



PREFERRED STYLE (APA)
Ngema et al. (2026).The Joint Effect Of Human Resource Management Practices, Innovation, And Organizational Size On Employee Performance In Private Universities In Kenya. *DBA Africa Management Review, 16(2), 110 – 132*

A Quarterly publication of the Department of Business Administration, Faculty of Business and Management Sciences (FBMS) University of Nairobi

2026

http://uonjournals.uonbi.ac.ke/ojs/index.php/DBAAMR
May 2026, Vol 16 No 2 Pgs 110 – 132

ISSN - 2224-2023

DBA Africa Management Review

Received Date
15/06/2026
Last Revision Date
14/07/2026
Accepted Date
15/07/2026

THE JOINT EFFECT OF HUMAN RESOURCE MANAGEMENT PRACTICES, INNOVATION, AND ORGANIZATIONAL SIZE ON EMPLOYEE PERFORMANCE IN PRIVATE UNIVERSITIES IN KENYA

Charles Opeyio Ngema[1], Peter K'Obonyo[2], Hariet Kidombo[3], Stephen Odock[4]

Abstract

Studies on private universities in Kenya show that they face challenges that negatively influence performance. These challenges may require redesigning human resource management practices and innovative strategies to improve performance. Despite several studies on practices of human resource management and performance, research on the joint effects of selected variables on employee performance is rare. The study objective was to examine the joint effect of human resource management practices, innovation, and organizational size on employee performance. This study was guided by human capital theory, goal-setting theory, and innovation theory as a foundation. The research had cognizance of the positivist philosophical paradigm. It applied a descriptive cross-sectional survey research design to collect data. The target population was 2826 regular academic staff from 36 private universities. The self-administered questionnaires were used to collect primary data. Multiple regression was used to test the null hypothesis. The results established that the joint effect of human resources management practices, innovation and organizational size on employee performance was positive and statistically significant. Individually, innovation and organizational size may increase or reduce the predictive power of independent variables on employee performance. The results reject the null hypothesis. This study contributes to theory development, policy, and management style for policymakers in Kenyan private universities. The outcome of the study will help educational managers in formulating human resource policies and strategies that enhance innovation. The study recommends an adequate budget for human resource information systems and emerging technologies as enablers of innovation. It also recommends an assessment of the institutional environment for innovation and regular faculty high performance. It is recommended that similar studies be conducted at universities in Kenya and that longitudinal studies be conducted for future direction.

Keywords: Human resources management practices, innovation, organizational size, employee performance.

[1] ORCID number: https://orcid.org/0009-0003-1738-0097, Department of Business Administration, University of Nairobi, Nairobi, Kenya - *charlesngema2012@gmail.com*
[2] ORCID No: https://orcid.org/0000-0001-9769-1474, Department of Business Administration, University of Nairobi, Nairobi, Kenya
[3] ORCID No: https://orcid.org/0009-0001-5560-5619, Department of Business Administration, University of Nairobi, Nairobi, Kenya
[4] ORCID number: https://orcid.org/0000-0002-6077-138X, Department of Management Science and Project Planning, University of Nairobi, Nairobi, Kenya

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Introduction

Background of the Study

The impact of human resource management practices (HRMP) on firm performance is a key area of study in the humanities and social sciences and, it is associated with positive results (Holman et al, 2005; Bulitia et al.,2024). HRMP focuses on employment and managing people to fulfill organizational goals (Armstrong, 2014) and enhance organizational effectiveness (Gunawardana, 2026). It is a continual source of innovation, as organizations and individual employees invest in human capital (Armstrong, 2014). The HRMP, such as talent management (Obeidat, 2012), employee involvement (Edinburg University, 2005) and human resource information systems (HRIS) (Tarique, 2021; Tursunbayeva, 2018) are critical drivers of employee performance (Armstrong, 2014; Dessler, 2013).

Prior studies emphasize that bundles of human resources management practices yield superior performance compared to single practices (Delery & Doty, 1996; Barney & Wright, 1998; Al-

Sinawi at al., 2016). Delery and Doty (1996) established that bundling at the minimum three human resources management practices yields superior organizational performance. Barney and Wright (1998) emphasize that when institutions selectively bundle HRM practices, they improve performance and achieve competitive advantage. Consequently, the study examined a bundle of "human resource management practices (Cooke, 2018), innovation,", and organizational size as predictor variables that influence employee performance Farouk et al 2023, p. 123). Contextually and conceptually, organizational size and innovation are critical moderators affecting the relationship and are joined with human resource management practices as a predictor variable. The study incorporated innovation and organizational size, given their critical role in shaping performance outcomes in higher education institutions (Kimberly, 1976; Springer, 2020; Commission for University Education [CUE], 2019, 2024).

In the higher education field, innovation is an activity planned with a view to introducing novelty into system (Areri et al., 2020; Sauphayana, 2021), while educational institutions are environments where learners experience innovation, guided by faculty members (Schwartz, et al, 2008). Theodore (2007) states that innovation in higher education may refer to novel strategies and, fundamentally, the provision of quality education. Innovation and organizational size influence employees and organizational performance (Judge, 1994; Laursen & Loss, 2003).

Judge (1994) defined organizational size in terms of personnel employed and the annual budget. The budget affects structural design, operations, and overall performance. Firm size is an important factor in determining profit, and its impact may be negative or positive (Babalola, 2013; (Decker, 2013).The Commission for University Education (2019, 2024) and Springer (2020) define university size in terms of full-time faculty, students enrolled, completion rate, and the total budget set aside for the university. Employee performance refers to achieving set goals and objectives within timelines and

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parameters (Yusuf, Mohammed & Kazeem, 2014). It is measured by an individual's contribution to organizational goals (Armstrong, 2014), and in a university by the quality of teaching, students' assessment, research and publication, students' supervision, and administrative duties (CUE, 2019). In this study, employees are defined as full-time faculty or regular academic staff.

Research Problem and Objective

Human resource management practices are widely accepted as strategic mechanisms for organizations to acquire, develop, and retain human capital to achieve competitive advantage and survival (Wongelu, 2025). Armstrong (2014), Dessler (2013), Mathis and Jackson (2008) define human resources management as encompassing interrelated practices such as talent management, managerial development, appraisal, employee involvement, human resource information systems, and occupational health and safety. Many studies on human resources management practices, innovation, organizational size, and their effect on employees and institutional performance (Contu, 2020) differ in context and operationalization from the current study (Delery & Doty, 1996; Casey, 2003; Daminabo-Weje & Dosunmu, 2013; Sagwa, 2014). For example, Delery and Doty (1996) studied manufacturing firms using a bundle of seven HRM practices. It also used a cross-sectional survey but failed to achieve clear results and recommended a bundle starting from three practices for desirable results. The current study bundled three HRM practices and moderated with innovation and organizational size. It adopted a cross-sectional survey and a multiple regression model to fill the theoretical knowledge gap.

Most studies on Human resources management practices and performance are concentrated in developed economies in Europe and Asia, leaving a contextual gap in developing countries' firms (Mathis & Jackson, 2008; Barney & Wright, 1998; Delery & Doty,1996). In Kenya, private universities face persistent challenges, including staff dissatisfaction, high staff turnover, inadequate finances, infrastructure, innovation, and retention of qualified lecturers, which adversely affect employee performance and educational quality (Ndirangu & Kiiru, 2024). Mungathia (2019), in a study on Kenyan private universities, found that various strategies employed by different universities have not been successful in generating income. The context was only four private universities in Kenya, not a representative sample. It used a qualitative grounded theory design and in-depth interviews, contrary to the current study.

Extant empirical studies have examined linkages of HRM functions, innovation, firm size, and performance (Matookchund, 2019) across various sectors and contexts (Casey, 2003; Daminabo-Weje & Dosunmu, 2013; Sagwa, 2014, 2015; Sauphavana, 2021). Tadic and Pivac (2014) explain that bundling human resource practices create synergistic conditions that support employees' productivity more than one practice. Similarly, Sauphavana (2021) emphasized that innovation performance in higher education institutions is driven by transformative leadership, innovative culture, teamwork, and the adoption of emerging technologies. Studies on organizational size have

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further shown its influence on organizational effectiveness and the adoption of human resources information systems (Daminabo-Weje & Dosunmu, 2013; Kundu, 2012). However, the findings of these studies could not be generalized in the context of this study.

A few existing studies on the joint effect relationship and performance did not address the current study context and concepts but shared the cross-sectional research survey. Sakwa et al., (.2016) investigated the effects of single and joint independent variables on the outcome of firms listed on the Nairobi Securities Exchange (Kyongo, 2016). Njonjo et al. (2022) focused on the fresh farm produce export industry and marketing strategies. They used hierarchical regression analysis to analyze data. Gathitu et al. (2024) established "the joint effect of competitive strategies, competitive advantage, ethical standards, and corporate reputation on performance of accredited universities in Kenya" and they analyzed data using regression models (p. 12). The current research examined joint effect that human resources management practices, innovation, and organizational size had on regular faculty performance in Kenyan private universities.

Literature Review

Human Capital Theory

The theory of Human capital originated from a seminal paper by Mincer (1958), enhanced by Schultz (1961) and Becker (1962). Mincer linked disparities in human capital to differences in individual income. Schultz (1961), influenced by Adam Smith (1953), argued that education and training explain wage and salary variations across people, and that human capital can be developed by investing in skills and knowledge. Fulmer and Ployhart (2014) define human capital as skills, knowledge, and capabilities convertible to productivity. Human capital development is a critical factor in empowering faculty with knowledge, skills, competencies, and attitudes to improve performance (Sari, 2015).

Empirical and theoretical contributions further reinforced this view. Blair (2012) asserts that individual investment in human capital through training enhances career advancement and income. Universities need to invest in the human capital development of regular academic staff to enhance their innovativeness. Ulrich (1998) argues that investment in learning and career development transforms an employee into an asset to the firm. Despite critics such as Fix (2018a) regarding the ambiguous links among human capital, generating income, and productivity, the theory remains central to innovative investments in competencies that enhance overall academic staff performance.

Goal-setting Theory

The theory of goal setting is attributed to Locke and Latham (1984), who posit that conscious human behavior is goal-directed towards achieving specific goals. The theory is anchored on the assumption that setting individual goals predicts and regulates human behavior. In organizations, goal setting influences productive cooperation, employee participation, and feedback, which are key elements of motivation and effective performance. The theory builds on the findings of Ryan (1970) that conscious goals influence action. It explains that individual task performance is motivation directed by the set

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goal. This assertion is useful in this study, which bundles predictor variables to manage full-time academic staff performance.

Empirical studies (Larson & Schaumann, 1990) confirm that goals perceived as difficult and yet achievable increase performance compared to easy ones; the cost involved is commitment. Within higher institutions of learning, the theory informs human resource management practices for instance talent management, competency development, and succession planning (Casey, 2003; Al-Sinawi, Chua, & Idris, 2016). Despite its robustness, goal-setting theory's limitation lies in its neglect of subconscious influences and the risk of unrealistic goals, which can lead to failure (Al-Hoorie & Al-Shlowiy, 2020). Overall, goal-setting theory influences higher education leaders' ability to manage academic staff to uphold academic excellence.

Innovation Theory

Innovation is subsumed to include creativity. Innovation theories are found across disciplines. In social sciences, the genesis of innovation theories is linked to the work of Schumpeter (1934) and Rogers (2003). Schumpeter, from an economic and entrepreneurial perspective, defined innovation as a new idea put into practice because of its usefulness. Rogers focused on the diffusion of innovation, categorizing adopters from innovators to laggards. Rogers' theory helps manage faculty adoption of new technology and pedagogical changes to e-learning and blended learning (Rogers, 2003). Amabile (1993, 1996) is a key personality in creativity and innovation studies who found creativity to be the foundation of innovation. According to Gibson (2022), the design-thinking approach is the best tool for innovation. Rerke et al. (2020) found that teachers' adoption of innovative initiatives depends on the promise of success. This explains different levels of innovation adoption by teachers (Rogers, 2003). Critics of the innovation theory delink it from creativity, which may not be true because creativity is the foundation of innovation (Amabile, 1993). However, innovation theory overemphasizes its economic impact and how technological advancement is achieved through the adoption of change. The theory has biases that innovation is always beneficial to everyone. It is still debatable whether innovation is inherently appropriate (Rogers,2003).

Empirical Studies on Human Resource Management Practices, Organizational Size, Innovation and Employee Performance.

Gooderham et al (2018) studied human resource management practices (Cooke, 2018) and organizational productivity. In that study, 3,281 firms in European Union countries were analyzed and found significant effects of 5 of 15 practices on the outcome of those firms. The study used factor analysis. Farouk et al (2023) state that a combination of specific HRM practices can influence innovations variedly: product, process or knowledge innovation at different levels. Conway et al. (2003) examined the effect of HRMP to organizational success in 366 commercial companies in the United Kingdom. Nine practices were bundled as higher-performing practices, utilizing cross-sectional and longitudinal data collected with moderate results. McDuffie (2008) bundled together 13 human resources management

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practices (Cooke, 2018) in manufacturing firms in the United Kingdom to measure performance, investigating if innovative HR practices affect performance as an integrated system. The current research aimed to examine the effect of combining three practices of HRM as a predictor of employee performance. The context, conceptualization, and methodologies differ from those of the current study.

Past studies have investigated the joint effects of predictor variables on independent variables with different outcomes. In 2018, Fei conducted a complex study on employee performance in Malaysian firms about the combined effect of the Ability-Motivation-Empowerment (AME) using Hayes' PROCESS macro to test hypotheses. The research found the relationship statistically significant. The context, concepts studied, and methodology differ from the current research, which examines the joint effect of predictor variables and uses multiple regression to test the null hypothesis. Omondi et al. (2026), interested in improving the performance of commercial firms not in financial services business, though listed at the NSE in Kenya, combined capital structure, interest rate sensitivity, and market values into a predictor variable in a study that confirmed a significant joint effect. Earlier, Sagwa, et al. (2014) combined four predictor variables to measure the effectiveness of organizations listed on the NSE (Kyongo, 2016) and found a significant joint effect. The study differs from the previous one because it joined a bundle of human resource management practices with two moderators as a single independent variable to predict workers' performance in Kenyan private universities.

Njonjo et al. (2022) investigated the joint effects of marketing strategies, firm characteristics, and industry competition on exports in Kenya's fresh farm produce industry. A descriptive cross-sectional survey and hierarchical regression analysis were adopted to collect and analyze data. The current study applied multiple regression. The conceptualization and context are different to warrant generalization of the results in private universities in Kenya. Gathitu et al. (2024) investigated "the joint effect of competitive strategies and competitive advantage, ethical values, and corporate reputation in chartered universities in Kenya" p. 12). The researcher analyzed data using regression models, but the context and concepts differ from those of the current study.

Conceptual Framework

The conceptual model in Figure 1 shows a diagrammatic expression of the relationships between the variables under study. In the research, human resource management practices, innovation, and organizational size jointly form a single independent variable that influences employee performance. This formation culminates in one hypothesis to be tested using multiple regression analysis.

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Conceptual Framework

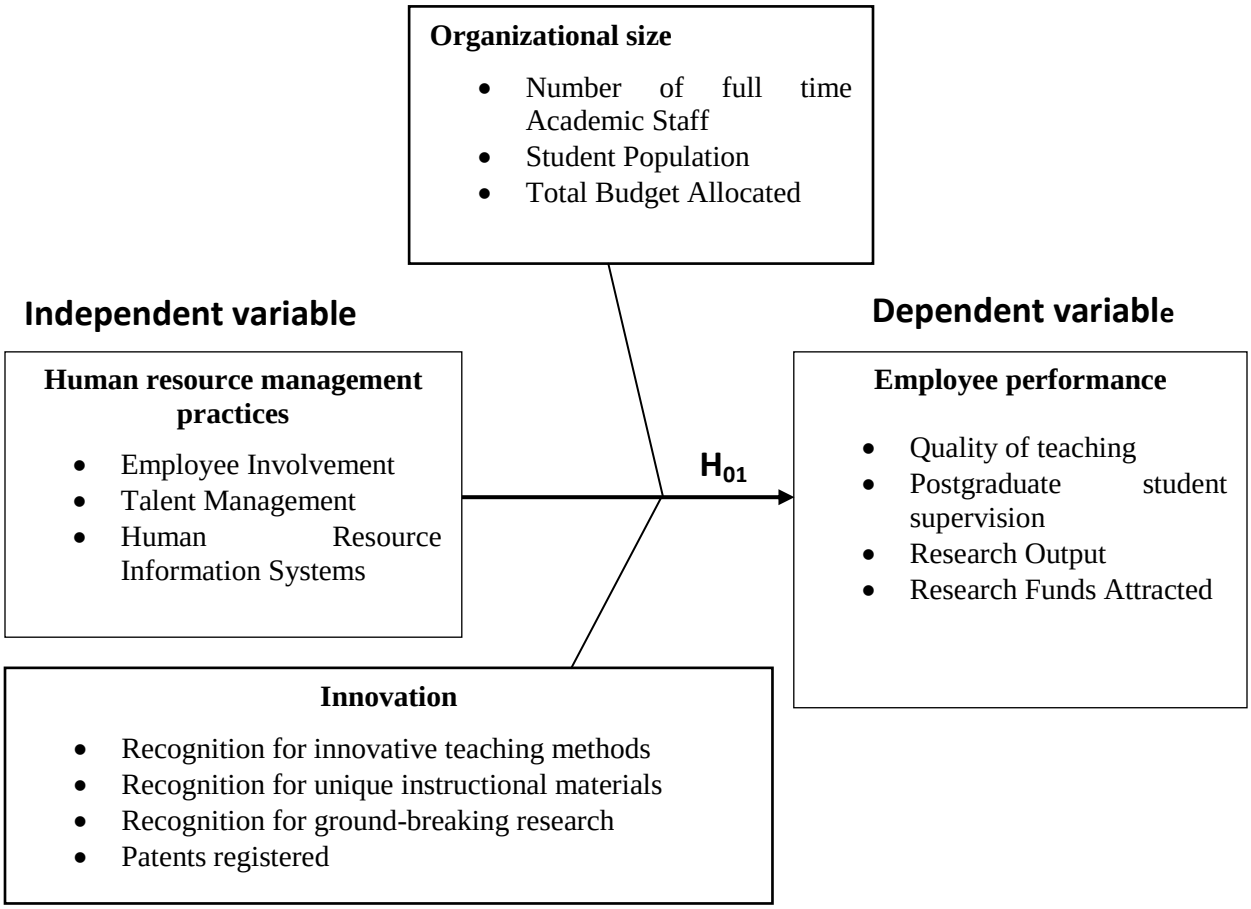


Figure 1: ***Conceptual Model***

Research Hypothesis

As a result, the research hypothesis is

H_{01}: Human resource management practices, innovation and organizational size have no significant joint effect on employee performance in Private Universities in Kenya.

Research Methodology

The research adopted a positivist philosophical paradigm, which highlights objectivity, acquisition of knowledge based on empirical study (Blaikie, 1993), and generalization of research results to the larger population (Trochim & Donnelly, 2008). Positivism is a treasured framework for

carrying out disciplined inquiry (Ali, 2024). It does not accommodate subjectivity, but facts

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established by empirical study (Blaikie, 1993). The research adopted a descriptive cross-sectional method (Misigo, 2015) for data collection and description of the variables' features (Kothari, 2004). The study population comprised 2826 full-time academic staff or regular faculty from thirty-six Kenyan private universities (CUE, 2019, 2024). The unit of analysis was regular faculty. Regular faculty in each university are divided into four ranks of academic seniority: professors, associate professors, senior lecturers, and lecturers (CUE, 2019, 2024). The sample was 399 full-time faculty from 15 (42%) private universities that were sampled using a stratified random sampling method (Kothari, 2004). The Yamane (1967) formula at a significance level of 5%, with a sample size of 399 (Evadzi, 2026). $n=N/1+N(e)^2$. The number of respondents from each sampled university was identified using the formula of Kothari (2004):

$i=n(N/P)$. Where:

i = desired sample in each stratum,

n = the population sample size,

N = the population of the specific stratum,

P = the target population.

A questionnaire was an appropriate tool to obtain data effectively and efficiently (Sekaran, 2003; Kothari, 2004). It was pre-tested to confirm validity and reliability before use in the field. Its relevance and to ascertain validity before data collection (Picardi & Masick, 2003). The researcher applied Cronbach's alpha (Cronbach, 1951) to ascertain internal consistency and dependability. Nunnally & Bernstein (1994) state that a reliability coefficient of 0.70 or above is required for the data collection instrument to be considered acceptable. The Cronbach Alpha coefficients for employee involvement practice were 0.891, talent management practice 0.911, HRIS practice 0.952, innovation 0.912 and employee performance 0.762. Consequently, the data collected was valid and reliable for analysis.

Operationalization of Study Variables

Human resource management practices were operationalized by three dimensions: employee involvement (Edinburg University, 2005), talent management (Obeidat, 2012), and human resource information systems (Tursunbayeva, 2018). Organizational size was measured using the total regular academic staff, student population, and total budget. Innovation was measured using innovative teaching methods (Furber et al.,2014), unique instructional materials (McGrath, 2016), groundbreaking research (Brown, Goering and Klein, 2026) and patents registered (Inkster, 2003) to measure innovation. The researcher used quality of teaching (Furber et al.,2014), postgraduate student supervision (Christie et al., 2004), research output (Peden, 2025) and research funds (Cooper et al., 2015) attracted to measure employee performance.

Data Analysis and Results

The descriptive statistics for this study were means, standard deviations, and coefficient of variation (Webster, 1992). Inferential statistics tested the hypothesis using multiple regression analysis and displayed findings in tables and figures.

The multiple regression model for the joint effect was expressed as shown below:

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$$\boldsymbol{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_1 X_2 X_3 + \varepsilon$$

Where:

β_0= Intercept

$\beta 1$ = Coefficient

X_1 = HRM practices

X_2= Organizational Size

X_3 = Innovation

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$= Coefficients

Y = Dependent variable

ε = Margin of error

Response Rate

This study has a response rate of 55.4%. The researcher distributed 399 questionnaires to full-time faculty in the 15 private universities (Tomeyan & Mose, 2025) that were sampled for the study, and 221 were returned, well completed. In comparison, Julian and Ahmed (2005) had 18% in a study of 122 Queensland Export Ventures. Youndt et al. (1996) had a 26% response rate, Kimberly (1976) had a 39%, and Andrew (2014) had a 71% response rate. Mugenda and Mugenda (2019) and Bailey (2000) recommend that a response rate of 50% or higher is sufficient.

Descriptive Statistics

Descriptive Statistics for Human Resource Management Practices, Innovation and Organizational Size

Table 1 shows a summary of descriptive statistics about the variables. The study analyzed respondents' perceptions about each variable with various statements measured and rated on a 5-point Likert-type scale of 1 to 5, where 1 "Not at all" represented the lowest agreement and 5 "Very large extent" the highest. The results are in Table 1.

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Table 1
Measures of Central Tendency and Dispersion for Human Resource Management Practices, Innovation and Organizational Size

Domain	Dimension	N	Mean	Standard Deviation (SD)	Coefficient of Variation (CV)
Human Resource Management Practices	Employee involvement	221	3.5231	.91127	0.2587
	Talent management	221	3.2361	.96063	0.2968
	Human resource Information systems (HRIS)	221	3.1216	.75535	0.2420
	Overall scores	221	3.2936	1.005	0.3051
Innovation	Composite scores: •Recognition for innovative teaching methods •Recognition for unique instructional materials •Recognition for ground-breaking research •Patents registered	211	2.168	1.371	0.638
Organizational Size	Number of full-time faculty		4.176	0.787	0.19
	Student population		3.896	0.976	0.25
	Total budget allocated		4.102	0.734	0.18
Employee performance	Composite scores: • Quality of teaching •Postgraduate student supervision • Research Output • Research Funds Attracted		3.204	1.142	0.385

In Table 1, the overall arithmetic Mean score (M =3.29) for Human Resource Management Practices (HRMP) and standard deviation (SD = 1.005) implied that participants moderately agreed that HRMPs were practiced in their institutions. This relatively high standard deviation reflected inconsistencies in the adoption and implementation of HRMP across institutions. Employee involvement had the highest Mean (M = 3.52) with a standard deviation (SD = 0.91), indicating strong consensus among respondents that employee involvement was prevalent in their private universities. The SD = 0.91 indicates low spread of variability, meaning that perceptions are consistent and reliable to a noticeable extent. The coefficient of variation (CV) for employee involvement was 25.9%, indicating moderate consistency across institutions. Talent management followed with a mean (M =3.24) and standard deviation (SD = 0.961), and a correlation coefficient (CV = 29.7%), indicating general agreement but moderate variability, suggesting uneven adoption of practices such as talent management. Further, respondents showed that human resource management information systems had the lowest Mean (M = 3.12) and standard deviation (SD = 0.76), equivalent to a

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CV = 24.2%, suggesting lower agreement on its adoption, but with responses more closely grouped around the mean, indicating consistency in perceptions of low adoption and practice across institutions. The implication was that the consistency of HRMP implementation varies with the institution's culture and resources.

Innovation had a composite score (M =2.168), a standard deviation (M = 1.371), and a CV = 63.8%. This suggests that overall, the perception of support and recognition for innovation among academic staff was low. There is an urgent need to integrate innovation into the mission statements of private institutions through a policy framework. The consistently low mean scores across, coupled with high standard deviations and CVs, reveal that innovation as a practice is underdeveloped in most private universities (CUE, 2019, 2024). The assessment of organizational size revealed disparities displayed in coefficient of variation (CV) results on populations of full-time faculty (19%), student enrollment (,25%), annual budget (18%) reports which aligns the observed challenges of managing financial resources to cater for students' needs, and infrastructural development.

Employee performance assessment using multiple indicators had a composite arithmetic Mean (M = 3.204), standard deviation (M = 1.142), and a coefficient of variation (CV =0.385). This shows moderate agreement level among respondents with notable variability in perceptions of performance. The highly rated dimension was the quality of teaching (Mean = 4.222) and a relatively low standard deviation (SD = 0.895) and a coefficient of variation (CV = 0.212). This suggests strong agreement and consistency among respondents that teaching quality is high. The lowest-rated dimension was the attraction of research grants or funds (mean = 1.941), with a standard deviation (SD = 1.137) and a high coefficient of variation (CV = 0.586). This points to inconsistencies and potential weaknesses in research funding across academic staff. These findings could guide targeted interventions for high performance.

Correlation Analysis

The study utilized Pearson's correlation to find the direction and strength of the relationships between variables (Mofokeng, 2022). The correlation coefficient (r) indicates how closely variables are associated. The results of correlation analysis are in Table 2.

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Table 2: *Correlation Analysis Results*

Correlations		
		Employee Performance
Human resource management practices	Pearson Correlation	.512**
	Sig. (2-tailed)	.000
	N	221
Innovation	Pearson Correlation	.305**
	Sig. (2-tailed)	.000
	N	221
Organizational size	Pearson Correlation	.007
	Sig. (2-tailed)	.914
	N	221
Employee Performance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	221

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed)

Results in Table 2established a moderately significant linkage between HRMP and employee outcome, r =0.512, p = .000. This implies an increase in employee performance. This assertion aligns with the findings of Njoroge and Wanjohi (2022), who concluded that well-structured human resource management systems are pivotal in enhancing organizational productivity within higher education settings in Kenya.

The study points out a significant association between innovation and employee performance, *r = 0.305, p=.000.* This demonstrated innovative climate can increase employee performance. This is consistent with Kendi and Ouma (2023), who found that organizational innovation promotes operational efficiency and effectiveness in academic institutions. In contrast, the association between organizational size and employee performance was insignificant, *r =0.007, p>0.05,* meaning that variations in organizational size do not necessarily affect employee performance.

Diagnostic Tests

The diagnostic tests (normality, multicollinearity, linearity tests and heteroscedasticity) were conducted to conform to the assumptions

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underlying linear regression before hypothesis testing. A few examples are provided.

Normality Test

Normality testing was essential to validate the regression analysis by determining whether the data met assumptions for regression analysis (Karia, 2017). The Shapiro-Wilk test was preferred, considering the sample size (n>200). Table 3 displays the test's results.

Table 3: ***Normality Test***

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
HRM Practices	.988	221	.073
Innovation	.882	221	.000
Organizational size	.873	221	.000
Employee Performance	.988	221	.073

In Table 3, the null hypothesis of normality was accepted for these two variables, suggesting that they met the normality assumptions to allow parametric tests such as regression. The larger sample (n>200) could mitigate non-normality. The histograms and P-P plots assured that data were suitable for regression analysis.

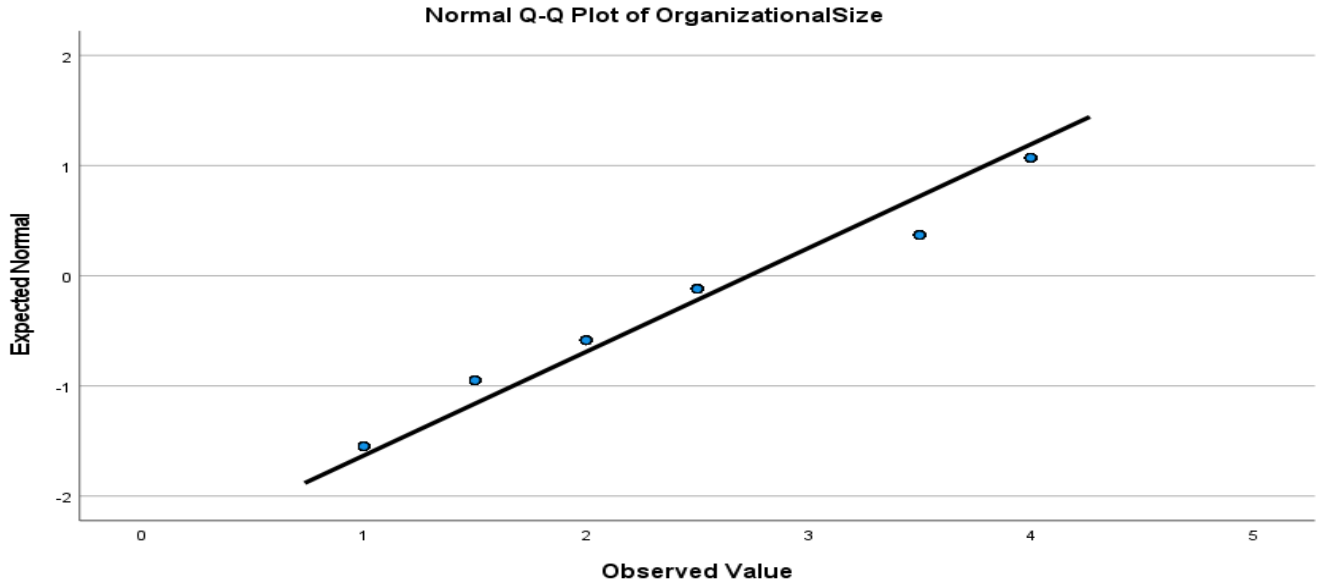


Figure 2 results on the Normal Q-Q Plot for Organizational Size reveal deviations from the diagonal reference line. The large sample size (n = 221) enhanced the robustness of parametric

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tests such as regression (Field, 2009). The variable was retained for regression analysis without transformation.

Figure 3: *Histogram for Innovation*

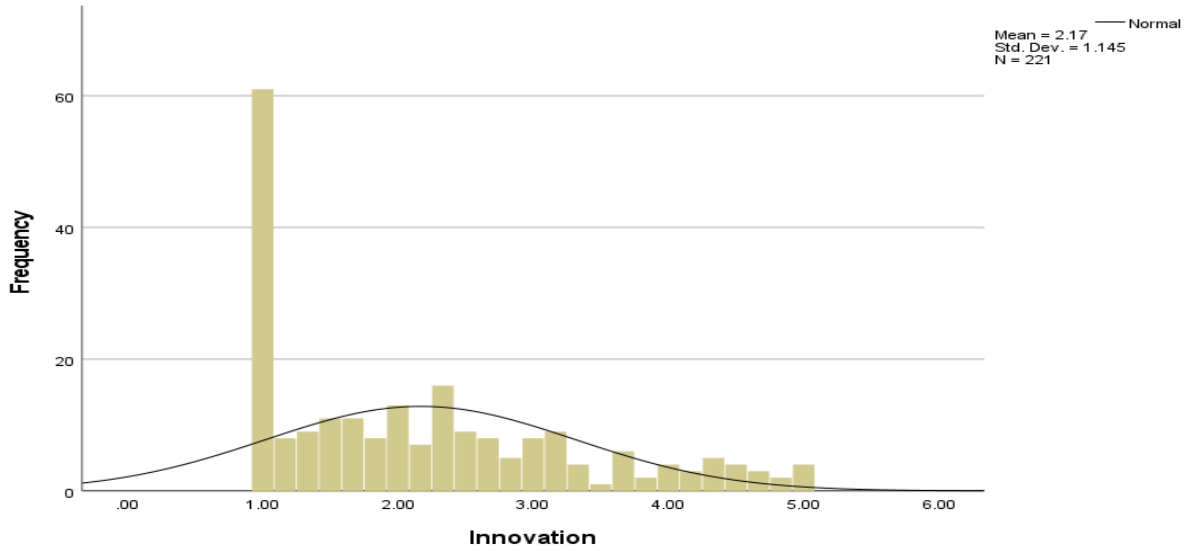


Figure 3 presents the histogram for innovation, with a significant concentration of responses at the lowest value ("1- Not at all"), where over 60 participants selected the same lowest rating. This suggests how innovation was perceived in the context of the study – dissatisfaction.

Multicollinearity Test

Table 4: ***Results for Multicollinearity***

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	HRM practices	.572	1.748
	Innovation	.589	1.698
	Organizational Size	.957	1.045

a. Dependent Variable: Employee Performance

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Table 4 indicates that multicollinearity did not exist in the regression model predicting employee performance. The tolerance values were above the critical threshold (0.2), and values of variance inflation factor (VIF) were below the accepted upper limit (10) (Bett, 2020; Abdelrahman, 2024). Organizational size shows the highest tolerance (0.957) and the lowest VIF (1.045). These results confirm the absence of multicollinearity. Each independent variable can be reliably interpreted in terms of its unique contribution to employee performance.

Heteroscedastic Test

Heteroscedasticity is the variance of the residual term in a regression model. It varies across observations. The presence of heteroscedasticity invalidates tests of hypothesis (t-test and F-test) (Webster, 1992).

The study adopted the Koenker test (Chi-square) to detect heteroscedasticity and determine errors associated with cross-sectional data collection. The result of the Koenker test (Breusch-Pagan test) revealed that t p =0.106 was above the significance level = 0.05, meaning that heteroscedasticity did not exist, and therefore, validates hypothesis testing

Test of the Hypothesis

The research examined the joint effects of HRM practices, innovation, and organizational size on full-time academic staff performance. Multiple regression analysis was performed to ascertain the collective effect of predictors on employees' performance. The findings are shown in Table 5.

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Table 5*: Multiple Regression Results for Joint Effect of HRM practices, Organizational Size and Innovation on Employee Performance of Private universities in Kenya*

Model Summary

Model	R	R Square	Adjusted R-Squared	Std. Error of the Estimate
1 Human resources management practices	.512[a]	.262	.259	.63579
2 HRMP*Innovation*Organizational size	.524[a]	.275	.262	.63451

ANOVA

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.437	1	31.437	77.770	.000[b]
	Residual	88.526	219	.404		
	Total	119.963	220			
2	Regression	33.000	4	8.250	20.491	.000[e]
	Residual	86.963	216	.403		
	Total	119.963	220			

Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.642	.182		9.011	.000
	HRM practices	.500	.057	.512	8.819	.000
2	(Constant)	1.093	.340		3.214	.002
	HRM practices	.577	.081	.590	7.162	.000
	Innovation	.128	.091	.198	1.397	.164
	Organizational Size	.109	.069	.156	1.578	.116
	HRMP*Innovation* Organization size	-.013	.007	-.336	-1.920	.056

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Table 5 shows R = 0.524, explaining a moderate positive linkage between the combined predictors and employee performance. R^2 =0.275 demonstrates that the joint effect of HRMP, innovation and organizational size accounts for 27.5% of the change in the dependent variable (R^2 = 0.275). The remaining 72.5% could be explained by other factors (Ratih et al., 2021). The ANOVA results indicate that the regression model is significant in its prediction of the combined effect of predictor variables F [4,216) =20.49, p < 0.05). The independent variables jointly and in a significant proportion explain changes in employee performance.

The regression coefficients indicate that a unit variation in HRM practices would increase regular academic staff performance in private universities by a factor of 59%; innovation by 19.8%; and organizational size by 15.6%. The combined HRMP, innovation, and organizational size variables showed a decrease in effect on the outcome, employee performance (β = -.336, t = -1.92, p = .056), but did not alter the joint explanatory power of the predictor variables to make a statistically significant influence on the criterion/outcome variable. Consequently, the study rejects the null hypothesis. Further study with additional variables or statistical power is recommended.

The multiple regression model that explains employee performance due to the joint effect of HRM practice, innovation, and organizational size is stated as:

Model: $\boldsymbol{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta 4 X_1 X_2 X_3 + X_4 + \varepsilon$

Where:

β_0= Intercept

$\beta 1$ = Coefficient

X_1 = HRM practices

X_2= Organizational Size

X_3 = Innovation

X_4 = Interaction term ($X_1 * X_2 * X_3$)

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$= Coefficients for X_1, X_2, X_3, X_4

Y = Dependent variable

$\boldsymbol{\varepsilon}$ = Margin of error

Substituted values for coefficients, that's β_0=1.093 (Intercept), β_1=0.577, β_2=0.109, β_3=0.128, β_4=−0.013. The resultant regression equation becomes:

$$\mathbf{Y=1.093+0.577X_1+0.109X_2+0.128X_3-0.013(X_1X_2X_3)+\epsilon}$$

The multiple regression model demonstrates the association between the predictors (Saaka, 2022) and the outcome. Individually, the predictor variables increase Y, but combined, a coefficient of -0.013 ($X_1X_2X_3$), reduces predictive power on Y.

Discussion of Findings

The study examined joint effect of HRM practices, organizational size and innovation on employee performance in private universities in Kenya (Tomeyan & Mose, 2025). The findings from the multiple regression analysis revealed that jointly HRM practices, innovation, and organizational size accounted for 27.5% change in employee performance. The overall joint effect was positive and statistically significant, F (4,216) = 20.49, p < 0.001. This implies that the combined effect of HRM practices, innovation, and the size of the organization significantly influences the effectiveness of full-time faculty.

The model demonstrated weak predictive power, where organizational size (β =.156, t = 1.58, p = .12) and innovation (β = 198, t = 1.39,

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p = .164) individually showed positive but insignificant contributions. The joint interaction of the HRM practices, innovation and organizational size indicated a decreasing predictive effect (β = -.336, t = -1.920, p = .056). This implied that the direct effects of innovation and organizational size on HRM practices in influencing regular faculty performance did not make a substantial impact. This reflects contextual limitations of a weak innovation culture and uneven institutional resource distribution across private universities. According to Hanck et al. (2024), the joint effect hypothesis is tested by F-statistics, not an interaction term or moderation. Consequently, the joint effect of HRM practices, innovation and organizational size on regular faculty performance in private was significant.

The findings align with Sagwa et al. (2014, 2015), who combined four predictor variables to measure the performance of firms in Kenya listed on the Nairobi Stock Exchange and found a significant joint effect. The effect of the combined predictors on firm performance was evident. Similarly, the joint effect results are consistent to Mati et al. (2020), who found significant joint effects of organizational strategy, culture, and external organizational factors on firm performance. Additionally, Kyongo (2016) demonstrated that combined managerial, institutional, and HR-related factors exert stronger performance effects than a single predictor. Njonjo at el (2022) investigated the export performance of the fresh farm produce export industry, combining three variables, namely marketing strategies, farm characteristics and industry competition to measure their effect. They found a significant joint effect. In a study by Gathitu et al. (2024), it was established that "the joint effect of competitive strategies, competitive advantage, ethical values and corporate reputation on performance was significantly different from the independent effects of predictor variables" P. 1). All these imply functional and strategic alignment for effectiveness and competitive advantage.

Theoretically, these findings agree with Human Capital Theory, which points out the centrality of human capital investments in enhancing performance. The outstanding contribution of human resource management practices supports the theory's assertion that improving employees' human capital leads to better outcomes. Contextually, other theories that supported this study are goal setting and innovation theory. To harness the full benefits of innovation, private universities in Kenya must invest in developing and implementing policies that enhance innovation initiatives to increase faculty performance.

Conclusion, Implications and Recommendations

This study hypothesized that human resource management practices, innovation, and organizational size jointly had no significant effect. The test used multiple regression. The findings established that HRM practices, innovation and organizational size collectively had a predictive influence on regular academic staff performance. Individually, innovation and organizational size had statistically insignificant influence on employee performance but are practically interactive and relevant for effective outcomes. In conclusion, the joint effect of human resource management practices, innovation and organizational size on employee or regular academic staff performance was statistically significant. This implies the need to enhance policies for

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managing human resources and strategies that nurture innovation cognizance of institutional size.

The study contributes to the HRM practices literature on joint effect studies of the predictor variables and policy development to implement the human resources management practices in its context to improve faculty performance. The study further recommends an adequate budget for human resources management information systems, the assessment of innovative climate using the Amabile et al. (1996) survey tool, and a longitudinal study in context for future direction.

Limitations of the Study and Suggestions for Further Research

The findings and limitations paved the way for future in-depth research that re-examines the variables in similar and varied contexts. It is recommended that similar studies be conducted at universities and that longitudinal studies be conducted.

Ethical Approval

Appropriate research approvals and license were obtained via NACOSTFP/24/32365

Funding

There was no external funding for this research.

Conflicts of Interest

There are/were no conflicts of interest in the research.

Acknowledgements

We, the authors of this article, would like to acknowledge and thank all who have been involved in shaping this article to the desired quality upon completion. You committed your time and expertise. Your effort will be remembered for ages.

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