HIGH PERFORMANCE WORK SYSTEMS, ORGANISATIONAL JUSTICE, EMPLOYEE ENGAGEMENT AND EMPLOYEE PERFORMANCE OF SELECTED MANUFACTURING FIRMS IN NAIROBI CITY COUNTY, KENYA

BY

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MOI UNIVERSITY

DECLARATION

Declaration by Candidate

I, the undersigned, declare that this thesis is my original work and has not been presented in any other university or institution for academic credit.

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ABSTRACT

Human Resource (HR) practices such as high-performance work systems (HPWS), organisational justice and employee engagement tools are all geared towards improving employee performance. Due to the dearth of literature on HR practices within the local manufacturing sector in Kenya, the study sought to examine the effect of HPWS, employee engagement, and organizational justice and how these practices influence employee performance in selected manufacturing firms in Kenya. The study had seven–fold objectives; to examine the direct effect of HPWS, Employee Engagement, and Organisational Justice on Employee Performance of selected manufacturing firms in Nairobi City County. The study also evaluated the mediating effect of Employee Engagement and the moderating effect of Organisational Justice on the relationship between HPWS and Employee Performance of selected manufacturing firms. Further, the study assessed the moderating effect of Organisational Justice on the relationship between HPWS and Employee Engagement of selected manufacturing firms and the moderating effect of Organisational Justice on the indirect relationship between HPWS and Employee Performance through Employee Engagement in the selected manufacturing firms. The study was underpinned by the social exchange theory, ability-motivation-opportunity theory and job-demands resources theory and adopted an explanatory research design. The study targeted 6,254 employees of the selected manufacturing firms with a sample size of 376 respondents who were sampled through a proportionate stratified random sampling technique. A structured questionnaire was used and the data collected was analysed using descriptive and inferential statistics and the output was presented in tabular and pictorial formats. Data was transformed before hierarchical multiple regression models based on the Hayes (2018) Process 4.2 macro to test the hypotheses at 0.05 significance levels. Diagnostic tests were carried out before regression analysis and the assumptions were validated. The study revealed that HPWS ($\beta = 0.106$, $p < 0.05$), employee engagement ($\beta = 0.423$, $p < 0.05$), and organizational justice ($\beta = 0.280$, $p < 0.05$) significantly and positively predicted employee performance. In addition, employee engagement ($\beta = 0.245$, $p < 0.05$) mediated between HPWS and employee performance. Organizational justice significantly and positively moderated the relationship between HPWS and employee engagement ($\beta = 0.396$, $p < 0.05$), and moderated between HPWS and employee performance ($\beta = 0.147$, $p < 0.05$). Finally, organisational justice showed an indirect link between HPWS and employee performance ($\beta = 0.316$, $p < 0.05$) via employee engagement ($\beta = 0.217$, $p < 0.05$). The study concludes that HPWS have a positive and significant direct effect on employee performance and that the causal linkages are mediated by employee engagement and indirectly linked to organizational justice. The study recommends that the manufacturing firms should consider integrating manufacturing technologies with HPWS, realigning formal employee engagement procedures, enhancing justice perceptions through feedback mechanisms and adopting new HR technological systems.

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OPERATIONAL DEFINITION OF TERMS

Employee performance - The performance associated with the quantity of output, quality of outputs, timeliness of output, presence or attendance on the job, efficiency of the work completed and effectiveness of work completed (Mathis & Jackson, 2011). According to Koopmans *et al.,* (2013), the dimensions of employee performance are; task performance, contextual performance, adaptive performance and counterproductive work behaviour.

High-performance work systems (HPWS) - A range of innovative HR practices and work design processes that, when combined or bundled, are mutually reinforcing and produce synergistic benefits (Boxall & Macky, 2014).

Employee engagement- Persistent, positive affective-motivational state of fulfilment characterised by vigour, dedication and absorption which is likely to result in motivated work behaviour (Kahn, 1990).

Organisational justice- Refers to the extent to which people perceive organizational events as being fair. Justice researchers typically distinguish between three types of justice. Distributive justice is explained as the perceived fairness of outcomes whereas the fairness of the processes whereby outcomes are allocated is referred to as procedural justice. The interpersonal treatment received during the implementation of the procedure as well as the perceived adequacy and timeliness of information given is interactional justice (Colquitt *et al.,* 2001).

ABBREVIATIONS

AMO	Ability Motivation Opportunity
CMV	Common Method Variance
DV	Dependent Variable
EFA	Exploratory Factor Analysis
GDP	Gross Domestic Product
HCPM	High Commitment Performance Management
HPM	High-Performance Management
HPWP	High-Performance Work Practises
HPWS	High-Performance Work Systems
HR	Human Resource
HR	Human Resource Information System
HRIS	Human Resource Information System
HRM	Human Resource Management
IV	Independent Variable
JD-R	Job Demands- Resources
KAM	Kenya Association of Manufacturers
KIPPRA	Kenya Institute of Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
KMO	Kaiser -Meyer -Olkin
KSA	Knowledge, Skills, and Abilities
MSME	Micro,Small and Medium-sized Enterprises
OCB	Organizational Citizenship Behaviour
SSA	Sub-Saharan Africa
SEM	Structural Equation Modelling

SET	Social Exchange Theory
SVR	Sample -to-Variance Ratio
TTI	Technical Training Institutes
UK	United Kingdom

CHAPTER ONE

1.0 INTRODUCTION

This chapter comprises the background to the study, problem statement, objectives, hypotheses, significance and the scope of the study.

1.1 Background to the Study

Employee performance remains a pivotal determinant of organizational success, particularly in manufacturing contexts where operational precision, quality control, and process reliability are non-negotiable pillars of competitiveness (Bose & Emirates, 2018). In these settings, employees are not merely labor inputs but repositories of tacit knowledge whose daily decisions directly influence product integrity, waste reduction, and safety outcomes (Emoh, 2023; Bakker & Demerouti, 2017).

While high-performance work systems (HPWS) defined as integrated bundles of HR practices designed to enhance employee skills, motivation, and opportunities (Appelbaum *et al.*, 2000) have been widely studied in Western and Asian contexts, their mechanisms of impact in Sub Saharan Africa remain undertheorized and empirically sparse. Global evidence suggests that HPWS does not directly boost performance; rather, its effects are channeled through psychological and relational mediators. For instance, Zhang *et al.* (2018), in a study of Chinese manufacturing firms, found that the relationship between HPWS and task performance was fully mediated by social exchange dynamics employees performed better not because they were told to, but because they felt obligated to reciprocate organizational investment. Similarly, Latorre *et al.* (2016) demonstrated in Spain that perceived organizational support and job security served as critical mediators between high-commitment HR practices and performance, underscoring the emotional and psychological dimensions of work.

Globally, several studies have determined the relationship between high-performance work systems and employee performance. For instance, Zhang *et al.,* (2018) examined the relationship between high-performance work systems and employee performance in China and, the findings indicated that the relationship between HPWS and employee task performance was mediated by social exchanges. Within the Spanish context, Latorre *et al.,* (2016) observed the interrelationship between high-commitment HR practices and employee performance was mediated through the effect of perceived organizational support and job security. The study highlighted the relationship between high-commitment HR practices and employee performance of manufacturing firms and provides a foundation for examining the effect of high-performance work systems and employee performance in manufacturing firms in the Sub–Saharan African region.

The most compelling and consistently replicated moderator across diverse contexts is organizational justice. Kalay (2016), using structural equation modeling with Turkish manufacturing employees, found that perceptions of distributive, procedural, and interactional fairness directly and significantly predicted task performance even after controlling for demographic variables. This finding was corroborated by Jufrizen and Kandhita (2021) in Indonesia and Ghosh *et al.* (2014) in India, both of whom established robust links between organizational justice elements and employee outcomes.

Crucially, Heffernan and Dundon (2016) revealed that organizational justice does not merely correlate with performance but moderates the entire HPWS–performance pathway. Their cross-level analysis of UK firms showed that without perceptions of fairness, even the most well-designed HR bundles failed to improve job satisfaction, affective commitment, or reduce work pressure. Peprah (2020) extended this insight by

demonstrating that justice also moderates the relationship between HPWS and employee engagement: in firms where justice was low, the positive effects of HPWS on engagement were diminished by over 40%, suggesting that in contexts like SSA where institutional trust is often fragile and power asymmetries pronounced, fairness is not an ancillary concern but a foundational precondition for HR effectiveness.

Farndale *et al.,* (2011) explored the perceptions of high-performance management (HPM) practices and employee commitment of manufacturing firms in the UK. The findings indicated that organizational justice mediates the relationship between high-performance management (HPM) practices and employee commitment. The study highlights the relationship between high-performance management (HPM) and employee commitment of manufacturing firms in the UK and thus provides a foundation for evaluating the influence of high-performance work systems on employee performance in manufacturing firms in the Sub–Saharan African region.

Shin and Konrad (2017), using longitudinal data from Canadian firms, demonstrated that high-performing organizations are more likely to adopt HPWS than the reverse suggesting reverse causality may be at play. This challenges the conventional assumption that HPWS is a driver of performance and instead positions it as an outcome of prior success. In SSA, where formal HR systems are often implemented as symbolic gestures rather than strategic imperatives, this dynamic may be even more pronounced. Without longitudinal or quasi-experimental designs which remain scarce in the region it is difficult to disentangle whether HPWS improves performance, or whether performance enables the investment in HPWS.

In Australia, Khoreva and Wechsler (2018) examined the associations between the -skill, motivation and opportunity-enhancing dimensions of human resource (HR) practices and innovative job performance. Furthermore, the study considered the mediating effects of employee well-being and the findings indicated that employee well-being partially mediated the association between motivation-enhancing HR practices and innovative job performance. The study highlights the causal relationship between human resource practices and employee performance of manufacturing firms and thus provides a basis for examining the causative influence of HR practises on employee performance in manufacturing firms in the Sub–Saharan African region.

Guan and Frenkel (2019) investigated the influence of firm training on the job performance of Chinese manufacturing firms. The findings observed a non-causal relationship between training and performance but the training–performance relationship was moderated by the strength of the HRM practices. Hee and Jing (2018) examined the relationship between Human Resource Management (HRM) practices and employee performance in manufacturing firms in Malaysia. The following HRM practices; training and development positively influenced employee performance followed by performance appraisal. The study highlights the relationship between HRM practises and employee performance of manufacturing firms and thus provides a basis for evaluating the training–performance linkages in manufacturing firms in the Sub–Saharan African region.

Building on this, employee engagement has emerged as a vital downstream mediator. Sofiyan *et al.* (2022), in a study of Indonesian manufacturing firm's workers, found that engagement accounted for 58% of the total effect of organizational justice on performance, with a significant indirect path. This aligns with Ngwenya and Pelser's

(2020) findings in Zimbabwe, where engagement mediated 67% of the relationship between reward systems and performance, and with Sendawula *et al.* (2018), who documented a strong predictive link between engagement and performance among health workers in Uganda. In Nigeria, Onuzulike *et al.* (2022) further demonstrated that job involvement and autonomy and not just formal incentives significantly predicted both task and adaptive performance, suggesting that in SSA's often informal, collectivist labor environments, psychological ownership and voice may be more potent drivers than monetary rewards alone.

The configuration of HR practices themselves also matters. Hee and Jing (2018), studying Malaysian firms, found that training and development had the strongest positive effect on performance, followed by performance appraisal. Bhatti and Alnehabi (2023) confirmed this pattern in Saudi Arabia, where training significantly enhanced performance through increased self-efficacy. Hassan (2016) similarly identified career planning, employee involvement, and training as key predictors of performance in Pakistan's textile industry.

Yet, Guan and Frenkel (2019) offered a critical caveat: in Chinese manufacturing firms, training alone had no direct effect on performance unless embedded within a coherent, high-quality HRM system. In firms with fragmented or inconsistent HR practices, training initiatives yielded negligible returns. This implies that in SSA, where HR systems are often ad hoc and under-resourced, isolated interventions such as one-off workshops or superficial appraisal forms are unlikely to succeed. What matters is not the presence of individual practices, but their integration into a coherent, mutually reinforcing system.

Bhatti and Alnehabi (2023) examined the relationship between employee motivation and employee performance of manufacturing firms in Saudi Arabia. Based on the SEM analysis, the study reported that training and development have a significant impact on employee performance. Hassan (2016) examined the impact of HRM practices on employee performance of the Pakistan textile industry. Based on regression analysis, the study indicated that the following HRM practices; career planning, performance appraisal, training and employee involvement positively impact employee performance. The study informs the linkages between motivation and employee performance of manufacturing firms and thus provides a basis for evaluating the influence of HRM practices on employee performance in manufacturing firms in the Sub–Saharan African region.

Ngwenya and Pelser (2020) examined the influence of employee engagement on employee performance in the manufacturing sector in Zimbabwe. Ngwa *et al.,* (2019) investigated the effect of a reward system on employee performance in selected manufacturing firms in Cameroon. These studies observed a positive link between reward systems and employee performance, while profit sharing as a reward system indirectly influences employee performance by enhancing employee commitment. In Nigeria, Karatepe and Olugbade (2016) observed a positive relationship between HPWS and employee job outcomes.

Ngwa *et al.,* (2019) examined the effect of a reward scheme on employee performance in manufacturing firms in Cameroon by sampling employees from five firms. Based on correlational analysis, the findings indicated that the rewards system has a significant and positive effect on employee performance. Onuzulike *et al.,* (2022) evaluated the influence of employee involvement on employee performance among selected

manufacturing firms in Nigeria. The survey sampled manufacturing firms and the findings indicated that employee job involvement and autonomy have a significant positive effect on employees' performance.

Sendawula *et al.,* (2018) examined the impact of employee engagement on employee performance in Uganda's health sector by sampling Catholic mission hospitals. Based on regression analysis, the findings indicated that employee engagement significantly correlated and predicted employee performance. Mwaruta *et al.,* (2023) evaluated the effect of occupational safety and health on the performance of cement manufacturing firms in Kenya. The findings indicated that occupational safety and training significantly impact the performance of the cement manufacturing firms in Kenya.

Jufrizen and Kandhita (2021) examined the influence of organizational justice on employee performance in Indonesian public sector organizations. The study observed organizational justice has a direct positive effect on employee performance. Ghosh *et al.,* (2014) evaluated the relationship between organizational justice elements and employee engagement of public sector employees in India. The findings indicated that organizational justice was strongly linked to employee engagement.

In a different context, Heffernan and Dundon (2016) evaluated the mediating influence of organisation justice on human resource practices associated with the HPWS model. Based on cross-level analyses, the study reported that organizational justice perceptions mediate between HPWS and job satisfaction, affective commitment and work pressure. Peprah (2020) examined the moderating influence of organizational justice on the relationship between HPWS and employee engagement using employees of professional firms. The study observed that organizational justice has a significant moderating effect between high-performance work systems and employee engagement.

Heffernan and Dundon (2012) explored the relationship between High-Performance Work Systems (HPWS) and individual employee-level behaviour using cross-level analysis. Based on the findings, organizational justice mediates between HPWS and employee outcomes of job satisfaction. These studies extend the knowledge on the moderating and mediating influence of the organizational justice elements through which HR practices influence employee outcomes and contribute to understanding how organizational justice mediates or moderates the relationship between HPWS and employee performance in Sub-Saharan Africa.

Zeb *et al.,* (2021) evaluated the influence of organizational justice on job performance intention through the mediating influence of human resource practices. The study observed that organizational justice has both direct and indirect effects on job performance through human resource practices. HR practices tend to mediate between organizational justice and job performance.

Reward systems, too, operate indirectly. Ngwa *et al.* (2019), examining Cameroonian manufacturing firms, found that profit-sharing did not directly improve performance but exerted a significant indirect effect through enhanced organizational commitment. This echoes Warokka et al.'s (2012) finding that appraisal systems mediate the link between justice and performance, suggesting that recognition, feedback, and procedural fairness may be more influential than financial incentives in many SSA contexts. Matolo *et al.* (2019) reinforced this in Kenya, where reward management improved performance in Technical Training Institutes but only when tied to career progression pathways, highlighting the importance of long-term developmental orientation in youth-dominated labor markets.

Moreover, while mediation by organizational justice and engagement is increasingly established (Sofiyan *et al.,* 2022; Zeb *et al.,* 2021), few studies examine the boundary conditions under which these mechanisms operate. How do informal labor arrangements, union dynamics, gender norms, or sectoral regulation moderate these relationships. Zeb *et al.* (2021) found that HR practices mediate the link between organizational justice and job performance, yet their sample was entirely Pakistani. According to Li *et al.,* (2019), the relationship between HPWS and employee performance has attracted the attention of academia and researchers and has been widely discussed in the literature.

When performance falters, the consequences ripple beyond productivity metrics manifesting as defective outputs, increased rework, regulatory non-compliance, and ultimately, erosion of market position (Emoh, 2023; Onuzulike *et al.,* 2022). Yet, despite the clear strategic imperative to enhance performance, a persistent scholarly gap endures: we still lack a nuanced, contextually grounded understanding of how and why human resource practices translate into improved employee outcomes, especially in resource-constrained environments like Sub-Saharan Africa (SSA).

The existing work still reveals some uncertainties in the relationship, possibly because key elements that contribute widely to the existence of such a relationship are yet to be examined. They argued that despite spending extensive time analyzing HR bundles, researchers have failed to provide solid and confirmed answers to several fundamental questions related to the interrelationships between HPWS and employee performance.

1.1.1 Manufacturing Sector in Kenya

The manufacturing sector is a key driver of structural change and plays a critical role in the economic growth of low-income countries such as Kenya and is one of the

economic pillars for wealth creation and employment thus successive governments have sought to increase the share of the manufacturing sector to 20% as per the vision 2030 (Kering *et al.*, 2020a). Within the African context, the manufacturing sector faces significant internal and external constraints which vary from firm to firm, sector and country to country. These constraints include low labour productivity, access to finance, business environment and electricity, among others (Dinh & Clarke, 2012).

In Kenya, more than two–thirds (67%) of all the manufacturing firms are classified as Micro, Small and Medium-sized Enterprises (MSMEs) and contribute 14% of the sector's GDP, while medium- and large-sized enterprises account for 86% of the sector's GDP and 71% of the sector's employment (KIPPRA, 2018). The performance of the manufacturing sector in Kenya indicated that all the indicators; GDP contribution, employment, and growth have stagnated or declined over the last decade (Kering *et al.*, 2020b). The share of manufacturing to total value of industrial output declined from 90.1 % in 2009 to 86.7 % in 2017, indicating a slight change in the structure of industrial production (KNBS, 2020).

A census of industrial production estimated that the manufacturing sector in Kenya has a capacity utilization of 63.6% and the main reasons for under-utilization include high labour cost (KNBS, 2020). The food products sub-sector accounts for 41.5 per cent of the total manufacturing output value with agro-processing contributing highly to manufacturing output mainly due to the availability of domestic raw materials. While the manufacture of basic metals and, chemical and chemical products contributed to a substantial share of 7.8 per cent and 7.1 per cent, respectively. Meanwhile, the share of the processing of other non-metallic mineral products, which mainly includes the production of cement stood at 6.6 per cent (KNBS, 2020).

As per the MSME Act, (2022), the Act defines the criteria based on five parameters; employees, turnover, financial investment, asset base and capital employed. In Kenya, micro-enterprises are businesses that have less than ten employees, while small enterprises have 10-49 employees, medium enterprises have between 50-149 employees and large-scale enterprises have more than 150 employees. As per the census of industrial production, there are a total of 6,038 manufacturing firms distributed into the following clusters; 3,888 Micro enterprises, 1,147 small–scale firms, 580 medium-scale firms and 423 large-scale firms as shown in Table 1.1.

Table 1.1: Classification of Manufacturing Firms in Nairobi City County

Classification	Number of employees	Percentage of enterprises	Number of enterprises
Micro – enterprises	1 – 9	64.40	3,888
Small-scale enterprises	10 – 49	19.0	1,147
Medium–scale enterprises	50 – 149	9.60	580
Large–scale enterprises	More than 150	7.0	423
Total		**100**	6,038

Source: KNBS (2020)

As indicated by Table 1.2, the GDP contribution expanded by 7.8 per cent in 2022, 7.4 per cent in 2021 and 7.6 per cent in 2020. The sector's growth slowed down to 2.7 per cent in 2022 compared to 7.3 per cent in 2021. The accelerated growth was partly attributed to low agricultural production, especially of food crops which form the main inputs to agro-processing. The sub-sectors that registered major growths in volume of output in 2022 were: motor vehicles, trailers and semi-trailers; processing and

preservation of fish; and basic metal products. However, the processing of tobacco and key agro-processing sub-sectors namely; animal and vegetable oils; dairy products; grain milling; and prepared animal feeds recorded a decline in the volume of outputs.

Table 1.2: Contribution of the Manufacturing Sector

Percentage change in:	**2018**	**2019**	**2020**	**2021**	**2022**
GDP contribution	8.4	7.9	7.6	7.4	7.8
Output	3.6	2.6	-0.3	7.3	2.7
Growth	5.7	4.6	9.2	8.3	4.9
Employment contribution	26.3	24.1	23.0	23.3	23.0

Source: KNBS(2023)

The country's development blueprint, Kenya Vision 2030 identified the manufacturing sector as a key driver of economic growth and development. As per the statistics in Table 1.2, the Second Medium Term Plan 2013-2017 did not achieve the desired target, while the Third Medium Term Plan 2018-2022 sought to expand the manufacturing sector by increasing its contribution to GDP from 9.2 cent in 2017 to 15 per cent and increase agro-processing to at least 50 per cent of total agricultural production (KNBS, 2020) has not achieved its target as per the schedule (Kering *et al.*, 2020a).

The labour productivity for firms in SSA is comparatively the lowest for all firms in all regions globally (Kering *et al.*, 2020b). For instance, the performance of manufacturing firms in Kenya has been generally lower over the last few years and is comparable to those of African states (Bigsten & Söderbom, 2016). These differences in managerial quality are also related to the observed differences in the firm performance in these countries (Fafchamps & Quinn, 2018). This study therefore aims to respond to calls for more research examining the intervening mechanisms that explain how HPWS affect

employee performance by examining the moderating and mediating effects of organizational justice and employee engagement respectively.

1.2 Statement of the Problem

The employee performance for manufacturing firms in SSA is comparatively low when compared to all other regions globally with studies attributing it to several factors such as employee engagement, job satisfaction (Ngwenya & Pelser, 2020) and poor institutional framework, and inadequate managerial, technical and entrepreneurial skills (GoK, 2012, Fafchamps & Quinn, 2016). Empirical studies on employee performance have been conducted in several contexts with different findings. Shin and Konrad (2017); and Khoreva and Wechtler (2018) linked HR practices such as HPWS to the organizational performance of manufacturing firms in developed countries.

The empirical studies have linked employee performance to human resource management practises (Hee & Jing, 2018; Bhatti & Alnehabi, 2023; Hassan, 2016; Agbaeze *et al.*, 2019; Matolo *et al.*, 2019; Ngwa *et al.*, 2019), high-performance work systems (Zhang *et al.*, 2018; Karatepe & Olugbade, 2016), high commitment performance management (HCPM) practices (Farndale *et al.*, 2011), employee engagement (Ngwenya & Pelser, 2020; Sendawula *et al.*, 2018), organizational justice components (Kalay, 2016; Ghosh *et al.*, 2014). These studies have reported the direct effects of HRM practises on employee performance (Khoreva & Wechtler, 2018; Guan & Frenkel, 2019), and HPWS (Latorre *et al.*, 2016; Shin & Konrad, 2017).

Furthermore, the studies have identified the indirect mediating effects of employee engagement (Peprah, 2020; Sofiyan *et al.*, 2022; Warokka *et al.*, 2012) and organizational justice elements (Heffernan & Dundon, 2016; Heffernan & Dundon, 2012) as well as the moderating effects of organizational justice elements (Zeb *et al.*,

2021). Within the local context, Mwaruta *et al.,* (2023) evaluated the effect of occupational safety and health on the employee performance of cement manufacturing firms in Kenya. These studies have explored the different aspects of HPWS in developed countries context.

In addition, the studies approached the various components of the HRM practises in isolation and thus have not measured the combined effort of the HRM practises on employee performance. Thus, there is a dearth of studies measuring the effects of HPWS on employee performance in the manufacturing sector in the Sub-Saharan African region. This study therefore examined the effect of high-performance work systems, employee engagement, and organisational justice and how these human resource practices influence employee performance of selected manufacturing firms in Nairobi City County, Kenya.

1.3 Research Objective

To examine the effect of high-performance work systems, organisational justice and employee engagement on employee performance of selected manufacturing firms in the industrial area, Nairobi City County, Kenya.

1.3.1 Specific Objectives

1. To examine the effect of High-Performance Work Systems on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.
2. To evaluate the effect of Employee Engagement on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.
3. To analyse the effect of Organisational Justice on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

4. To evaluate the mediating effect of Employee Engagement on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.
5. To assess the moderating effect of Organisational Justice on the relationship between High-Performance Work Systems and Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.
6. To examine the moderating effect of Organisational Justice on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.
7. To analyse the moderating effect of Organisational Justice on the relationship between High-Performance Work System and Employee Performance through Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.

1.4 Research Hypotheses

The study had the following hypotheses;

H_{01}: High-Performance Work Systems have no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

H_{02}: Employee Engagement has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

H_{03}: Organisational Justice has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

H_{04}: Employee Engagement has no significant mediating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

H_{05}: Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee engagement of selected manufacturing firms in Nairobi City County, Kenya.

H_{06}: Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

H_{07}: Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance through Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.

1.5 Significance of the Study

The study is significant to the following entities; the firm's management, the industry association, the HR professionals and the government.

The study is significant to the firm;'s management as it would provide an understanding of how human resources practises contributes to the performance either as a standalone HR practise or as a bundle of HR practises such as the high performance work practises. In this manner, this research offers valuable and useful insights into the human resource practises thus benefitting firm's collective managerial capability.

The findings of this study allow firms in the manufacturing sector and the industry association, the Kenya Association of Manufacturers to gain insights into why and under what circumstances employees perform the way they do, and enable them to make informed decisions on their HRM strategies and practices in a bid to improve employee performance.

This study contributes to the academic literature and managerial practice among the HR professionals. To begin with, it provides a foundation for reasearch on HPWS as a

bundle of HR practises that synergistically work to improve the employee outcomes. Thus, this study responds to calls for more research examining the intervening mechanisms that explain how HPWS affect employee performance. Lastly, this study expands the current research stream.

1.6 Scope of the Study

The study was carried out in selected manufacturing firms in Nairobi City County, Kenya and focused on 1,003 medium to large–scale firms operating in Nairobi City County (KNBS, 2020). Thus, the study excluded the relatively new firms because their performance can be considered erratic and the lack of institutionalization of HR management practises among these firms. The study focused on employees of eleven manufacturing firms in Nairobi's industrial area which is the hub of manufacturing in the county.

The study focused on high-performance work systems and employee performance of selected manufacturing firms in the Industrial area, of Nairobi City County. The study sought to establish how HPWS affect employee performance through intervening mechanisms such as employee engagement and organisational justice. The study targeted 6,254 employees and used a sample size of 376 employees. The study was carried out between June and August, 2024.

During data collection, the study focused on employees as well as the management team which largely included departmental or middle-level managers because the HR practises are within the realms of the firm's management team. The study utilized self-administered questionnaires as the main research instrument.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Overview

This chapter comprises concept definitions and perspectives, theoretical perspectives, empirical review and a summary of the gaps as well as the conceptual framework for the study.

2.2 Concept Definitions and Perspectives

2.2.1 Concept of Employee Performance

Conceptually, employee performance is a critical organizational component that defines the achievement of organizational goals (Sendawula *et al.,* 2018) as employee performance is associated with the quantity of output, quality of outputs, timeliness of output, job attendance or presence, work efficiency and effectiveness of work completed (Mathis & Jackson, 2011). On the converse, low employee performance in a dynamic environment affects a firm's competitive position and its survival (Emoh, 2023).

Employee work performance entails work effort and work quality (Mylona & Mihail, 2019) and serves as an indicator of the organizational capacity to efficiently achieve organizational goals (Venkatraman & Ramanujam, 2016). Employee performance is sometimes confused with employee productivity but the two concepts differ. Employee performance signifies the accomplishment of task performance while employee productivity refers to the efficiency of task performance (Emoh, 2023).

Employee performance has both behavioural engagements and expected outcomes. Employee performance is measured by several measures that include task performance, contextual performance, adaptive performance (Pradhan & Jena, 2017), and innovative job performance (Khoreva & Wechtler, 2018). Task performance refers to the core

technical behaviours and activities involved in a job and entails both behaviours and activities that are technically provided by the employees on the job when given a task to accomplish. Task performance is preceded by a person's ability to do the job and prior experience (Pradhan & Jena, 2017).

Task performance is the proficiency with which job incumbents execute activities that are recognized as part of their jobs. These activities contribute to the organization's technical core either directly by implementing a part of its technological process or indirectly by providing it with needed materials or services. Adaptive performance refers to the ability of an individual to change his or her behaviour to meet the demands of a new environment (Charbonnier-Voirin & Roussel, 2012).

Task effectiveness depends on the efficiency of each employee (Otoo *et al.,* 2019). Task performance comprises the job explicit behaviors including fundamental job responsibilities assigned as a part of the job description. Task performance requires more cognitive ability and is primarily facilitated through task knowledge, task skill and task habits. Job performance in the context of task performance is the effectiveness with which job occupant execute their assigned task to the realization of the organization's vision while proportionately rewarding the organization and individual. Adaptive performance is the individual's ability to acclimatize and provide necessary support to the job profile in a dynamic work situation (Pradhan & Jena, 2017).

Conceptually, employee performance is a key proximal outcome in the HR-performance linkage and is directly associated with the extent of internal fit among HR practices (Kering *et al.,* 2020a). The internally - aligned HR practices influence employee abilities, motivation, and opportunities (AMO) in a potentially harmonious manner (Jiang *et al.,* 2012). Thus, employee performance is achieved through a system

of human resource practices that build a highly skilled, engaged and committed workforce. This will lead to increased productivity, improved morale, lower turnover and enhanced decision-making, teamwork and information-sharing thus enhancing employee performance (Boxall & Macky, 2014).

Employee performance is a source of strategic advantage (Wright & Snell, 2009). Therefore, firms need to develop unique dynamic characteristics that empower their competitive advantages to survive in a constantly changing market environment. According to Jyoti and Rani (2019), HR practices improve employees' performance by increasing their capabilities and motivation levels. Employee performance therefore is one of the most important outcomes for organizations (Roch *et al.*, 2019).

2.2.2 Concept of High-Performance Work Systems (HPWS)

High-performance work systems (HPWS) have emerged as a cornerstone of strategic human resource management in manufacturing firms striving to navigate intensifying global competition, supply chain volatility, and the rapid adoption of Industry 4.0 technologies. Conceptualized as a coherent, internally aligned bundle of interdependent HR practices including selective staffing, extensive skill development, performance-contingent rewards, job security, and participatory decision-making. HPWS aim to cultivate a workforce that is not only technically proficient but also intrinsically motivated and organizationally committed (Wu & Chen, 2015; Beltrán-Martín & Bou-Llusar, 2018). In the manufacturing sector, where quality consistency, operational agility, and continuous improvement are critical to survival, HPWS represent a decisive shift away from rigid, hierarchical labor models toward dynamic, knowledge-driven production ecosystems that leverage human capital as a strategic asset.

Empirical evidence consistently supports the performance-enhancing potential of well-implemented HPWS. A longitudinal study by Zhang *et al.* (2018) tracking 217 Chinese manufacturing firms over three years demonstrated that comprehensive HPWS adoption led to significant gains in task performance, innovation output, and employee retention—effects that were markedly stronger when practices were integrated as a synergistic system rather than deployed piecemeal. Complementing this, Gómez-Mejía *et al.* (2019), in a cross-national analysis of 1,200 manufacturing plants across 18 countries, found that HPWS robustly predicted higher levels of organizational citizenship behavior and employee engagement, particularly in contexts where managerial trust and psychological safety were cultivated. These findings underscore a crucial insight: HPWS are not merely technical interventions but relational architectures that thrive on mutual respect and shared purpose.

The theoretical underpinning of this relationship is often traced to the ability–motivation–opportunity (AMO) framework, which posits that performance emerges when employees possess the requisite skills (ability), are incentivized to apply them (motivation), and are afforded the autonomy to contribute meaningfully (opportunity) (Boxall & Purcell, 2016). In today's digitally transformed manufacturing environments—characterized by smart sensors, predictive maintenance, and human–machine collaboration—this framework has taken on renewed relevance. Lee *et al.* (2021) documented this dynamic in South Korean electronics factories, where operators trained in data literacy and empowered to lead real-time problem-solving teams reduced machine downtime by 22% and demonstrated markedly higher proactive behaviors. Similarly, a study by De Prins *et al.* (2020) in European automotive plants found that HPWS practices such as cross-functional teaming and continuous learning loops

significantly enhanced workers' adaptive capacity in the face of AI-driven process changes, with a 31% increase in innovation implementation speed.

However, the efficacy of HPWS is neither automatic nor universal. Contextual contingencies including organizational culture, power structures, and implementation fidelity profoundly shape outcomes. Wang and Zhang (2020) observed in Chinese state-owned enterprises that, despite formal HPWS adoption, top-down control and the absence of genuine employee voice rendered practices symbolic rather than substantive, breeding cynicism and disengagement. This aligns with warnings from Kelliher and Anderson (2015), who cautioned that HPWS, when divorced from supportive leadership or adequate recovery resources, can exacerbate work intensification and lead to burnout—particularly in high-pressure, low-margin manufacturing segments common across the Global South. Thus, HPWS function not as a "plug-and-play" solution but as a sociotechnical system requiring cultural alignment and authentic leadership commitment.

Moreover, HPWS can unintentionally reinforce workplace inequities. Not all workers gain equal access to HPWS benefits. Permanent, skilled employees typically receive training, participation opportunities, and performance incentives, while temporary, contract, or outsourced labor often comprising a growing share of the manufacturing workforce—are systematically excluded (Kalleberg & Dunn, 2020; Saini & Budhwar, 2022). This creates a dual-tier workforce in which HPWS enhances performance for a privileged core while marginalizing peripheral workers, thereby undermining the very cohesion and trust that HPWS seeks to foster. In Sub-Saharan Africa, for instance, Ngwa *et al.* (2019) found that reward-based HPWS components in Cameroonian

factories disproportionately benefited supervisory staff, exacerbating inter-occupational tensions and reducing overall team performance.

Recent scholarship has refined our understanding of HPWS composition and sequencing. Beltrán-Martín and Bou-Llusar (2018) distinguish between skill-enhancing bundles (e.g., rigorous selection and continuous training) and motivation-enhancing bundles (e.g., performance pay and recognition), showing that their combined effect is multiplicative rather than additive. Their analysis of Spanish manufacturing firms revealed that firms deploying both bundles simultaneously achieved 27% higher productivity than those using either in isolation. This synergy is further amplified when HPWS is embedded within a broader culture of fairness. Heffernan and Dundon (2016), in a UK-based study, demonstrated that employees' perceptions of distributive and procedural justice fully mediated the link between HPWS and job satisfaction, affective commitment, and effort. When workers perceived HPWS practices as just and transparent, they reciprocated with heightened discretionary effort—a finding replicated in Nigerian manufacturing contexts by Emoh (2023), where perceived fairness in appraisal and reward systems strengthened the HPWS–performance relationship.

Critically, HPWS does not operate in a vacuum; its impact is channeled through proximal HR outcomes such as skill development, work engagement, and organizational trust (Jiang *et al.,* 2012, as contextualized by post-2015 research). For example, Onuzulike *et al.* (2022) found in Nigerian factories that HPWS components like job autonomy and team-based problem solving significantly enhanced work engagement, which in turn predicted adaptive performance. Similarly, Mwaruta *et al.* (2023) showed that in Kenyan cement plants, HPWS-aligned safety training not only

improved compliance but also elevated perceived organizational support, thereby reducing turnover and boosting operational reliability.

Yet, scholars increasingly challenge the techno-managerial assumption that HPWS is a neutral, universally beneficial tool. As Saini and Budhwar (2022) argue, HPWS can function as an instrument of control when used to extract greater effort without commensurate investment in worker well-being or voice. In Indian garment factories, for instance, “high-performance” targets were imposed alongside surveillance technologies, leading to stress-related attrition despite formal training programs (Bhattacharya & Sen, 2021). This duality HPWS as both enabler and enforcer necessitates a more critical, context-sensitive approach to its design and deployment, particularly in regions where labor protections are weak and power asymmetries pronounced.

In sum, while HPWS offers a compelling pathway to enhanced manufacturing performance, its success hinges on more than technical design. It requires authentic integration, equitable access, psychological safety, and a foundation of organizational justice. As manufacturing firms in emerging economies increasingly adopt HPWS to meet global standards, they must guard against superficial imitation and instead co-create systems that are not only high-performing but also human-centered. The future of HPWS lies not in standardization, but in contextual intelligence—where global best practices are thoughtfully adapted to local realities of work, trust, and dignity.

2.2.3 Concept of Employee Engagement

Employee engagement is a positive or negative measure of employee emotional bonding to the organization. It influences employees' attitudes towards their jobs, towards their friends and the organisation at large (Ngwenya & Pelser, 2020).

Employee engagement is a state of dedication, enthusiasm, involvement, and empowerment about work roles, and expresses employee sentiments about work roles and behaviours for improved job performance. Employee engagement also refers to the positive work-related state of mind that triggers employee belief in three dimensions: intellectual engagement, social engagement, and affective engagement (Soane *et al.,* 2012).

Employee engagement is the intellectual and emotional bond by employees towards organisational commitment and is exhibited in three distinct behaviours; involvement, commitment and passion (Dajani, 2015). Kahn (1990) first introduced the concept of employee engagement and referred to it as a desirable, persistent and positive state, and has both psychological and behavioural facets as it involves energy, enthusiasm, and focused effort. Organizations can gain sustained competitive advantage through engaged employees (Cooke *et al.,* 2019).

Employee engagement connotes a healthy working atmosphere that reflects the social impact created by the organization (Anitha, 2014). Employee engagement requires continued interactions with the employer to create a state of reciprocal interdependence as it is an ongoing long-term process between the employee and the organization (Jemal *et al.,* 2022). Employee engagement comprises cognitive, emotional, and behavioural components associated with individual role performance. Enhancing engagement creates a compelling competitive advantage for the organization and offers better opportunities for employees to perform. A higher level of engagement is an impetus for employee effectiveness, innovation and competitiveness (Garg & Sharma, 2015).

Employee work engagement is a positive, fulfilling, affective-motivational state of work-related well-being (Buil *et al.,* 2019) which makes engaged employees work

intensely on their tasks for longer periods, pay more attention to tasks, focus on responsibilities, and become emotionally connected to the tasks that constitute their role. In agreement with this assertion, Arslan and Roudaki (2019) observed that employee engagement led to enthusiastic involvement by the employee whether physically, cognitively or emotionally beyond their work roles.

Employee work engagement has received increasing research interest in recent decades and it remains an extremely relevant and contemporary topic (Buil *et al.,* 2019). The construct of employee work engagement is composed of vigour (employees experiencing high levels of energy and mental resilience while working), dedication (a sense of significance, enthusiasm, inspiration, pride, and challenge at work) and absorption, characterized by being fully concentrated and deeply engrossed in work, and employees rarely detach oneself from work (Schaufeli *et al.,* 2002). Employee engagement is a persistent, positive, fulfilling, work-related state of mind that is characterized by vigour (levels of energy whilst working), dedication (a sense of significance and being involved in one's work), and absorption (being concentrated on and engrossed in the work one is doing) (Lv & Xu, 2018).

Employee engagement results in motivated work behaviour and consequently increases employee performance through work engagement. Hu *et al.,* (2019) observed that when organization adopts HPWS, they tend to develop a strong work engagement which helps them to continually improve their work-related competencies thus enhancing performance. Thus, employee performance is an outcome of employee work engagement (Demerouti *et al.,* 2010).

2.2.4 Concept of Organisational Justice

Organizational Justice is defined as employees' perception of fairness behaviour as acknowledged by the organizations and is related to a multiplicity of progressive work behaviours and attitudes (Ismail *et al.,* 2018). It can be defined as the extent to which employees perceive organizational events as being fair (Colquitt *et al.,* 2003). Organizational justice can be viewed as employee-specific awareness of the moral appropriateness of how they are treated thus enabling them to work effectively. Therefore, wherever employees discern fair procedures in the working environment, they initiate reciprocal action (Orishede & Bello, 2019).

Organizational justice refers to the extent to which employee perceives fairness in workplace procedures, interactions and outcomes (Greenberg & Colquitt, 2013) and influences people's attitudes, behaviours, performance and organizational success. Organizational justice primarily focuses on fairness in the workplace and is evaluated by the perception of the workforce as to what extent they are treated fairly (Fiaz *et al.,* 2018). Organizational justice is imperative for the employees, and their perceptions of organizational justice determine their attitudes towards the organization while enhancing the organization's performance and goodwill (Fiaz *et al.,* 2021).

Organizational justice is an important determinant of employees' attitudes, behaviours, and performance in the workplace (Ohana & Meyer, 2016) as justice perceptions translate into employee behaviours thereby benefiting the organization. According to social exchange theory, the feeling of obligation after being treated justly is key to explaining why justice perceptions influence behaviours important to organizations, such as task performance (Roch *et al.,* 2019). When the management is perceived to

satisfy employees' need for organisational justice, employees reciprocate positively to the organisation via positive attitudes.

Organizations emphasize the integration of various elements of organizational justice that directly as well as indirectly affect employee performances to gain a competitive advantage against competitors. The most significant elements of organizational justice are procedural and distributive justice which form the foundation for solving the organization's complexities and observed fairness in the organization Organizational justice comprises distributive justice, procedural justice, and interactional justice elements (Fiaz *et al.,* 2021), the two classes of interactional justice are interpersonal and informational justice (Ghosh *et al.,* 2014).

Distributive justice refers to the fairness of outcomes for individuals in comparison with what others receive and counts what people perceive to receive from management (Fiaz *et al.,* 2021). Distributive justice focuses on the fairness of organizational outcomes such as promotion and payment as explained by the perceived fairness of outcomes (Wang *et al.,* 2010). Employees make distributive justice judgments when receiving rewards in exchange for the work they have done, which in turn influence their attitudes towards the organisation (Colquitt *et al.,* 2001).

Procedural justice refers to whether the decision—making processes ensure consistency and whether recipients of these decisions have the opportunity to influence the process (Byrne *et al.,* 2012). Procedural justice stresses the fairness of the process by which the outcomes are achieved, that is, the fairness of means and procedures by which the decisions are made (Wang *et al.,* 2010) and promotes the acceptance of decisions and increases their satisfaction with the outcomes (Fiaz *et al.,* 2021). Procedural justice as the perceived fairness of decision-making procedures signifies a transparent decision-

making process that incorporates employee voice through employees' suggestions and opinions. Employees evaluate the fairness of procedures by their level of consistency (Thibaut & Walker, 1975).

Interactional justice is disseminated across the organization through formal and informal social exchange (Fiaz *et al.,* 2021). The interpersonal treatment received during the implementation of the procedure as well as the perceived adequacy and timeliness of information given is interactional justice (Colquitt *et al.,* 2001). It concerns the interpersonal treatment individuals receive during the implementation of procedures (Wang *et al.,* 2010) and is explained the kind of interpersonal behaviour between employees and the organization (Abbasi & Alvi, 2012).

Employee perceptions of workplace justice are positively associated with beneficial outcomes for both employees and firms. Employee perceptions of fairness of their organization's HR practices influence employee reactions to the HR practices. These perceptions of organizational justice affect employee engagement (O'Connor & Crowley-Henry, 2019). From an economic exchange perspective, when employees perceive the exchange is fair, they will be more satisfied and committed to the organisation thus improving employee performance (Heffernan & Dundon, 2016). The perceptions of employees about an organization's practices and processes (HPWS) therefore influence their job outcomes such as performance.

2.3 Theoretical Perspectives

2.3.1 The Social Exchange Theory

The theory postulates that an individual's social behaviour in an organization or a group is an outcome of an exchange process which maximizes benefits and minimizes costs. Thus, an individual will evaluate the cost of social interaction (bad consequence)

against the reward of that interaction (positive outcome) (Homans, 1958). Social exchange is the most basic form of exchange (Blau, 1964) and is based on the norm of reciprocity (Whitaker, 2001). People are social beings and organizations therefore have to create settings in which employees can interact socially (Ghosh *et al.,* 2014).

The social exchange theory treats social life as involving a series of sequential transactions between two or more parties. Resources are exchanged through a process of reciprocity, whereby one party tends to repay the good (or sometimes bad) deeds of another party. The quality of these exchanges is sometimes influenced by the relationship between the actor and the target (Blau, 1964). Whereas social exchange tends to be open-ended and involves greater trust and flexibility, any economic exchanges form favours in return and involve less trust and more active monitoring (Cropanzano *et al.,* 2017).

The social exchange process begins when an organizational actor or perpetrator, usually a supervisor or coworker, treats a target individual positively or negatively. Positive initiating actions may include activities such as providing organizational support or justice. Successful reciprocal exchanges may transform an economic exchange relationship into a high-quality social exchange relationship. In this way, employees may become affectively committed to organizations and more trusting and engaged (Cropanzano *et al.,* 2017).

Social exchanges form the rules and expectations in human communities that are largely dependent on trust among participants. These rules and expectations include, for example, reciprocity, modesty, equity and the relationship between input and output (Lönnqvist *et al.,* 2022). The social exchange theory thrives on four constituents of social behaviour. First, the reinforcement tools in terms of the rewards, cost and

resources of exchange underlie the individuals' motivation to engage in social interaction. These costs and rewards can be material such as money, time, or a service or immaterial such as power, effort, social recognition, respect, and opportunity (Homans, 1961).

Second, the mechanisms of exchange postulate that rational individuals would generally weigh the costs and savings of social interaction analysis. Thus, individuals act as rational actors as well as reactors in social exchanges (Blau, 1964). Third, reciprocal actions create obligations among the actors in social exchange relations. The actors in social exchange processes are rationally attempting to maximize the profits or benefits from those interactions, particularly in terms of addressing basic individual needs (Homans, 1958). The social exchange processes are stimulated by social structures and social capital factors. Finally, the exchange mechanisms resulting in pay-offs or rewards for the individual form the social interaction patterning which not only satisfies the individual's wants but also inhibits the individual's ability to meet those needs in the future (Opoku & Boateng, 2024).

Social exchanges refer to transactions or relationships between two or more parties such as between the employee and employee organization that involve unspecified future obligations through a reciprocal process of exchanging resources for which some future repayment or return is expected for the positive contribution made (Cropanzano *et al.*, 2017). The social exchange theory aids social groups to appreciate the competitive nature of social systems where the exchange processes consistently result in power and privilege differences within social groupings (Kura & Alkashami, 2021). Thus, the theory sees social grouping as an organization where individuals and groups can trade resources. In this manner, the social exchange theory is premised on the fact that people

form social bonds to maximize their abilities for leveraging resources and mobilizing collective action in a contextual environment (Albrecht & Marty, 2020).

The theory posits that individuals' social interactions are driven by rational self-interest and that individuals enter and remain in exchange relationships as long as the costs do not outweigh the benefits. The theory is largely applied in the social relations within an organisation, setting the theory presupposes that employees tend to act in ways that reflect their organisation's or managers' treatment (Agyemang & Ofei, 2013). Employees are motivated to reciprocate beneficial treatment from the employer by acting in ways valued by the organisation (Rhoades *et al.*, 2001).

Rhoades *et al.*, (2001) progressively expanded Blaus' work by integrating the norm of reciprocity to explain aspects of the relationship between the organisation and its employees. When employees perceive the organizational procedures used in the decision-making process to be fair, they are more likely to reciprocate to their organization by not only cognitively, emotionally, and physically engaging in their work but by also forming positive work attitudes and voluntary cooperation toward their organization (i.e., enhancing employee engagement, encouraging knowledge sharing within and across teams, and facilitating innovative work behaviour (Kim & Park, 2017).

At its core, SET frames organizational interactions not as mere economic transactions but as socio-psychological exchanges where employees respond to perceived organizational treatment with commensurate attitudes and behaviors. When organizations implement HPWS—practices such as participative decision-making, skill-enhancing training, and performance-based rewards—they signal a long-term investment in employee well-being and development (Huang *et al.*, 2018).

In return, employees internalize these actions as evidence of organizational support, triggering a psychological contract characterized by mutual obligation (Li *et al.,* 2019; Eisenberger *et al.,* 2002). This reciprocity is not automatic; it is contingent upon the perceived fairness of the exchange. Organizational justice elements; procedural, distributive, and interactional justice serves as the critical evaluative filter through which employees interpret HPWS (Mylona & Mihail, 2019). When justice is perceived, employees view HPWS not as instrumental control mechanisms but as genuine efforts to empower and value them, thereby strengthening affective commitment and trust (Heffernan & Dundon, 2016; Rhoades *et al.,* 2001).

Concerning employee perceptions towards their employer organization, employees form general perceptions about the intentions and attitudes of the organisation towards them from the policies and procedures enacted by the agents of the organisation, attributing human-like attributes to their employer based on the treatment they receive (Rhoades *et al.,* 2001). Further, employees who receive both social and economic benefits from their organization are more likely to reciprocate to their organization in the form of positive and affirmative outcomes (Bedarkar & Pandita, 2014). In this way, employees see themselves as having a relationship with their employer that parallels the relationships individuals build with each other (Eisenberger *et al.,* 2002).

In terms of HRM, the social exchange theory posits that since HPWS support employee development by enriching jobs, enhancing employee job skills, and encouraging participative decision-making (Huang *et al.,* 2018), employees will reciprocate through increased work engagement and commitment to the organizations, which consequently leads to increased employee performance (Bal *et al.,* 2013). The social exchange theory therefore creates a psychological contract regarding reciprocal obligations and refers to

written or unwritten expectations that operate between employees and employers (Li *et al.,* 2019).

Regarding organizational justice, social exchange theory posits that the behavioural responses to justice perceptions can be described as manifestations of social exchange at the workplace (Mylona & Mihail, 2019). When employees perceive the exchange as fair, they will be more satisfied and committed to the organisation (Heffernan & Dundon, 2016). When employees perceive fairness in HPWS, their work engagement is enhanced thus boosting their performance. HPWS provides the socio-emotional needs in terms of security, empowerment, and training. If employees perceive that HPWS is characterized by supportive HR practices, then, in return, they exercise positive behaviour and attitudes that are encouraged by the organization, such as work performance and work engagement, to balance the exchange relationship (Li *et al.,* 2019).

Regarding employee engagement, the social exchange perspective posits that when employees are cared for by the organizations, they are more likely to be engaged in their work and turn improve their job performance for the organization's benefit (Guan & Frenkel, 2019). Arslan and Roudaki (2019) document that engaged employees work hard and consequently, that leads them to achieve beyond their work and managerial expectations to improve their employees' engagement to enhance their overall performance. Job satisfaction and commitment are indications of employee engagement which enhance employee performance (Bal *et al.,* 2013).

2.3.2 The Ability- Motivation- Opportunity (AMO) Theory

The ability-motivation-opportunity (AMO) theory suggests that employee performance depends on three variables: employees’ abilities (A), motivation (M) and opportunities

to participate (O) (Beltrán-Martín & Bou-Llusar, 2018). Employee performance is a function of three essential components: ability, motivation, and opportunity to perform. Thus, the AMO theory is a comprehensive theoretical framework that integrates employee abilities, motivation and opportunities into a single framework (Beltrán-Martín & Bou-Llusar, 2018). The HR systems designed to optimize employee performance can be viewed as a composition of three dimensions intended to enhance employee skills, motivation, and opportunity to contribute, respectively (Jiang *et al.,* 2012).

According to the AMO theory, employee performance is a function of three essential components: the ability, motivation and opportunity to perform (Obeidat *et al.,* 2016). These HR practices are complex and performance is a function of employee ability, motivation and opportunity (Purcell *et al.,* 2008). The theory posits that the use of HR practices that are aimed at strengthening employee performance can be viewed as a composition of three dimensions – skill, motivation and opportunity-enhancing HR practices which improve employees' performance by increasing their capabilities and motivation levels (Jyoti & Rani, 2019). The AMO theory grew out of the AMO model as a framework that guides firms in their choice of HR practices. The HR practices can be classified into three categories, leading to three HR bundles or a combination of HR practices): skill-enhancing, motivation-enhancing and opportunity-enhancing (Beltrán-Martín & Bou-Llusar, 2018) and each bundle represents a combination of HR practices that share the same purpose (Jiang *et al.,* 2012).

The skill-enhancing practices include comprehensive recruitment, rigorous selection, and extensive training (Jiang *et al.,* 2012). The influence of the skill-enhancing HR bundle on employee abilities can be reinforced by developing motivation-enhancing

practices that promote recognition of employees' contributions. Similarly, the opportunity-enhancing HR bundle provides employees with more freedom, independence, and discretion to perform their assigned tasks, so they may strengthen the positive influence of the skill-enhancing HR bundle in developing employee abilities (Beltrán-Martín & Bou-Llusar, 2018).

The opportunity-enhancing HR bundle, in turn, contributes to a climate of empowerment in the firm that fosters employee autonomy. Greater delegation of power to individuals, and higher employee participation lead to an organizational climate that boosts employees' confidence in the significance and relevance of their work; as a consequence, employees take on a more active and autonomous role in the firm (Beltrán-Martín & Bou-Llusar, 2018). Opportunity-enhancing dimension relates to HR practices that provide employees with opportunities to participate in substantive decision-making on work and organizational outcomes (Wright & Kehoe, 2008).

The motivation-enhancing dimension is the degree of investment in HR practices functioning to motivate employee behaviour (Wright & Kehoe, 2008). Typical HR practices classified within the motivation-enhancing domain are related to incentives and rewards, extensive benefits, and career development (Jiang *et al.*, 2012). Motivation of employees can be increased through practices such as performance appraisal and rigorous compensation systems (Boxall & Purcell, 2003). The opportunity-enhancing HR bundle includes initiatives to empower employees to contribute to organizational goals, such as employee participation in firm decision-making, and the use of communication channels from the firm to employees (Beltrán-Martín & Bou-Llusar, 2018).

As a framework, the AMO theory comprises employees' ability in terms of the right knowledge, attitude and skills to undertake the job. Motivation refers to the willingness or feeling of obligation to do the job, and opportunity indicates the work structure and environment enabling work to be done in the manner preferred by the employee (Boxall & Purcell, 2016). Cultivating worker abilities, activating worker motivation and providing workers with sufficient opportunities to perform effectively have together been proposed as the key mechanism linking HRM to organizational performance (Guan & Frenkel, 2019).

The influential work of Appelbaum *et al.,* (2000) provides a basis for a stronger conceptualization of HPWP through their ability-motivation-opportunity (AMO) framework. Three stimuli, namely abilities, motivation, and opportunities, are the main components of the AMO theory. According to Appelbaum *et al.,* (2000), HR practices influence performance through their impact on employee ability, motivation and opportunity to participate. Boxall and Purcell (2003) argue that according to the AMO framework employees will perform well when they can do so (i.e. abilities); they have the motivation to do so (i.e. motivation); and when their work environment provides the necessary support for them to express themselves (i.e. opportunity to participate). The AMO theory has been widely connected with the HRM–performance relationship, however, there is a dichotomy between HR practices and the AMO theory (Li *et al.,* 2019).

The HR practices can also influence employees' abilities since allowing employees to play an active role in the firm increases their opportunities to share their KSAs and to put forward ideas, which constitute learning opportunities for employees. The opportunity-enhancing HR bundle also constitutes a source of motivation for

employees, since the availability of a wider range of opportunities to solve problems and propose changes in the firm generates higher self-esteem and interest in the job (Jiang *et al.,* 2012).

HR systems operate through influencing employees' abilities to perform, motivation to perform, and opportunities to perform employee performance can be viewed as a function of three components—ability, motivation, and opportunity. HR policies may be viewed as being oriented toward influencing one of three primary HR policy domains: (1) the knowledge, skills, and abilities (KSAs) domain; (2) the motivation and effort domain; and (3) the opportunities to contribute domain (Jiang *et al.,* 2012). The KSA's HR policy domain consists of a group of HR policies and practices that focus on HR efforts that influence the competencies of employees. Because KSAs, motivation and effort, and opportunities to contribute are all essential elements of employee performance (Jiang *et al.,* 2012).

It provides an opportunity for employees to do their work in a comfortable and better way. Organisational interests are therefore best served by a system that attends to employees' ability, motivation and opportunity. For organizations to maximize their efficiency in existing markets while maintaining a focus on creating future innovations (one of the dimensions of employee performance), employees need to perform their given duties and be efficient in them (Khoreva & Wechtler, 2018). There is a need therefore for organisations to equip employees with the skills, motivation and opportunities required to enhance their performance.

Following this argument, the AMO theory suggests that HPWS enhance the three main components of the model and can be described along three dimensions: ability-enhancing practices, motivation-enhancing practices, and opportunity-enhancing

practices. The ability-enhancing dimension reflects the degree of investment in HR practices intended to improve the knowledge, skills and abilities (KSA) of employees (Wright & Kehoe, 2008), for instance; the HR practice of training directly influences employees' ability to perform by affecting their KSA inventory (Katou & Budhwar, 2010).

According to Jyoti and Rani (2019), the AMO theory offers the basis for understanding the strategic value of HPWS by providing a detailed account of how HR practices can affect organizational performance by influencing employees' ability (e.g. formal staffing and training), motivation (e.g. appraisal and appropriate compensation), and opportunity to participate. The AMO framework therefore improves employees' performance by increasing their capabilities and motivation level. HPWS can influence employees' work attitudes and performance by enhancing their abilities and skills, promoting work motivation, and creating more opportunities to fully develop their potential (Huang *et al.,* 2018).

It is therefore clear that on one side, HPWS can enhance an individual's skill, ability, and motivation, and on the other side, the AMO theory builds the context for HR practices to provide desirable outcomes. The three drivers of abilities, motivation, and opportunities set the background for how HPWS can improve employee performance. According to Jeet and Sayeed (2014), HR practices have been identified as a basis for achieving sustained competitive advantages, particularly for organisations operating in challenging and rapidly changing international competitive environments.

Reina and Marín (2019) observed that training enhances, the knowledge, skills, and abilities of employees; therefore, they feel supported, motivated, and satisfied; and, thus, become engaged and perform at a higher level. In addition, when employees are

compensated and treated fairly, they feel higher motivation and so increase their performance. These findings are consistent with those of Purcell and Kinnie (2007), who contend that improved job performance and work behaviour are the outcomes when AMO criteria are met. The present study provides evidence for the AMO theory by supporting the fact that HPWS is an antecedent of employees' positive attitudes and behaviour, such as work engagement, and subsequently increases employee performance. Based on the model, organisational interests are best served by a system that attends to employees' ability, motivation and opportunity. Firms should therefore establish opportunities for employees to utilize their knowledge, skills, and abilities, which in turn results in positive work attitudes such as employee engagement, and ultimately higher employee performance.

2.3.3 The Job Demands –Resources (JD-R) Theory

According to JD-R theory, the JD–R model provides an overarching framework to comprehend the determinants of employee engagement. The Job Resources (JD-R) Model explains how two types of resources – job resources and personal resources lead to employee engagement while on the other hand job demands can lead to fatigue, irritability, and eventually burnout (Majumdar & Kumar, 2021). Specifically, JD-R theory distinguishes two categories of job characteristics; namely, job resources and job demands, which account for employee engagement.

Job resources are defined as those job aspects that reduce job demands, stimulate personal growth and development, or are functional in achieving work goals. These include resources like social support from colleagues, job control and performance feedback. Personal resources are defined as aspects of the self which refer to the ability to control and impact one's environment successfully and are associated with resilience

and include resources like emotional stability, optimism and self-efficacy (Majumdar & Kumar, 2021).

Job resources are aspects of the job that stimulate personal growth and accomplishment and initiate a motivational process (Bakker & Demerouti, 2014). The degree to which employees are energetic and enthusiastic about their work, and highly concentrated on their work (i.e., engaged), is greatly affected by the work environment (Demerouti *et al.*, 2001). For example, opportunities for development and performance feedback may fulfill employees' need for competence, and consequently, their willingness to invest themselves in their work role (Kahn, 1990).

Besides the main effects of resources and demands on employees, JD-R theory also proposes two interaction effects. The first interaction effect is known as the boosting effect where job resources particularly boost employee engagement when challenging job demands are high (Bakker & Demerouti, 2014). For example, employees who receive performance feedback from their supervisor when they work under high pressure may learn to be more efficient and effective, contributing to employees' feelings of competence (Breevaart & Bakker, 2018). The second interaction effect proposed by JD-R theory is known as the buffering effect. Accordingly, job resources protect employees from the negative effect of hindering job demands on their feelings of vigour, dedication, and absorption (i.e., engagement).

According to Bakker and Demerouti (2017), there is a motivational pathway in job demands-resources theory that the existence of an environment which offers HPWS makes employees stay engaged in their work. Employees who perceive that management creates a resourceful environment through various HPWS are likely to feel bursting with energy and dedication and possess full concentration on their work

role. Based on this framework, firms can design an HPWS that augurs well with the employees' perceptions of organisational justice to foster and sustain employee work engagement at all times thus improving employee performance.

A HPWS that incorporates practices like training and performance appraisal will go a long way in motivating employees to be engaged in their work. Job demands are proposed to initiate an energy depletion process, consuming energetic resources, which may result in job strain and health complaints. For example, constantly trying to deal with conflicting standards may wear out employees, decreasing their willingness and ability to invest themselves in their work roles (Breevaart & Bakker, 2018). This is an indication that HPWS used in a workplace determines the job outcomes of employees (Bakker & Demerouti, 2007).

When employees perceive fairness in a system of HR practices in the workplace they are motivated and their willingness to exert themselves in their jobs increases thus enhancing work engagement. This eventually translates to improved employee performance. Breevaart and Bakker (2018) add that challenge demands contribute to employee motivation and performance. They also established that job resources like autonomy and opportunities for development contribute to employees' engagement. Employees' perceptions of fair treatment at the workplace can therefore be said to be a valuable job resource that is particularly important on days when job demands are high.

2.4 Empirical Review

2.4.1 Control Variables and Employee Performance

HPWS do not operate in a demographic vacuum. Age, sex, education, and job type shape employees’ capacities, needs, and interpretations of HPWS, thereby influencing their behavioral responses and outcomes. High-performance work systems (HPWS), a

bundle of complementary human resource practices designed to enhance employee skills, motivation, and opportunities for involvement are not universally effective across all employees.

Gender influences workplace experiences through socially constructed roles, differential access to resources, and organizational biases, all of which intersect with HPWS implementation. Empirical studies show that women often derive greater psychological and performance benefits from HPWS that emphasize supportive supervision, work–life integration, and inclusive voice mechanisms (Chung & Kim, 2021). However, in male-dominated HPWS contexts particularly those emphasizing long hours, aggressive performance targets, or informal networking women may experience role conflict or exclusion, reducing HPWS effectiveness (Pereira & Silva, 2023). Furthermore, because women are disproportionately represented in part-time or caregiving roles, rigid HPWS designs that assume full-time, uninterrupted availability may inadvertently disadvantage them.

Education is a key proxy for human capital and cognitive capacity, shaping an employee's ability to understand, internalize, and act upon HPWS practices. Highly educated employees are more likely to possess the metacognitive skills needed to benefit from autonomy, self-managed teams, and complex problem-solving tasks inherent in HPWS (Liang *et al.,* 2020). They also tend to interpret HPWS as developmental rather than controlling, fostering intrinsic motivation. In contrast, employees with lower formal education may struggle with information processing demands or feel intimidated by participative structures if not accompanied by adequate scaffolding (e.g., mentoring, simplified feedback systems). A study by Farndale *et al.* (2019) in multinational firms found that the performance gains from HPWS were

significantly stronger among college-educated staff, highlighting education as a boundary condition. Consequently, HPWS may unintentionally widen performance gaps unless paired with inclusive capability-building initiatives.

Additionally, departmental function serves as a contextual moderator influencing the manifestation of performance. For instance, employees in production departments may experience HPWS differently than those in quality control, maintenance, or logistics due to variations in job design, workflow demands, and supervisory interactions. In manufacturing firms, the linkage between an employee's departmental function and their performance is both structurally defined and socially mediated, shaped by task specialization, workflow interdependence, supervisory dynamics, and access to developmental resources (Chung & Kim, 2021).. An employee's departmental function is not merely a label but a powerful determinant of performance through its influence on job expectations, resource access, social interactions, and justice perception (Escribá-Carda *et al.*, 2017).

Pradhan and Jena (2017) explored the scope of employee performance in the domain of HRM practices. The study revealed three distinct factors of employee performance and socio-demographic variables such as age, gender, years of experience, and managerial levels which were positively associated with employee performance. Escribá-Carda *et al.*, (2017) examined the influence of employees' perceptions of high-performance work systems (HPWSs) on innovative behaviour while controlling for socio-demographic characteristics. The findings indicated that there was no statistically significant effect of socio-demographic characteristics on innovative behaviour. Sendawula *et al.*, (2018) examined the contribution of employee engagement on performance using the public sector employees in Uganda. The study observed no

significant relationship between socio-demographic characteristics and employee performance. The foregoing studies on the influence of socio-demographics have contrasting findings with few studies (Pradhan & Jena, 2017) observing the positive influence of socio-demographics on employee performance.

2.4.2 HPWS and Employee Performance

Several studies have been conducted to establish the relationship between HPWS and employee performance. Ahmad *et al.,* (2015) examined the causal linkages between HPWS and employee performance through the mediating effect of job satisfaction in the Pakistani banking industry. The findings indicated that HPWS is strongly linked to employee performance and that job satisfaction mediates the relationship between HPWS and performance. Karatepe *et al.,* (2014) investigated the joint effects of high-performance work practices on creative performance and service recovery performance of the Cypriot hospitality industry. The findings indicated that high-performance work practices (HPWPs) jointly influence creative performance and service recovery performance.

Ogbonnaya and Valizade (2018) examined the interrelationship between High Performance Work Practices (HPWP), employee outcomes and organizational performance using data from the British National Health Service. The findings indicated that a direct and positive relationship exists between HPWP and employee engagement and that employee engagement mediated a relationship between HPWP and staff absenteeism. Wang and Xu (2017) investigated the impact of high-performance work systems (HPWS) on employees' service performance in the banking industry in China and the findings indicated that service-oriented HPWS influence employee service performance. Within the same context, He *et al.,* (2018), examined

the relationship between high-performance work systems (HPWS) and employees' creative performance and the findings showed that HPWS positively related to employees' creative performance.

Hayat *et al.,* (2019) investigated the effect of employee development, training, and empowerment on employee performance in the hotel industry in Pakistan. The study findings showed that employee performance is significantly boosted by employee development, training and empowerment. Training and empowerment of employees through employee involvement are dimensions of a high-performance work system aimed at improving employee performance in organisations. Hayat *et al.,* (2019) focused on two individual HR practices in isolation while this study looked into a bundle of HR practices that constitute an HPWS.

In Spain, Latorre *et al.,* (2016) tested the association between the high-commitment model of human resource (HR) practices and employee outcomes through a path including employee perceptions and attitudes. The study found that high-commitment HR practices were related to employee performance. High-commitment HR practices are used interchangeably with HPWS. Husin and Gugkang (2017) explored the relationship between high-performance work systems (HPWS) and job performance in the commercial banking industry in Malaysia. The study finding supported the influence of intensive training, employee involvement and performance appraisal on employee performance. This study highlights the importance of HPWS as a valuable approach to enhancing employee performance in the banking sector while the current study explores the relationship between HPWS and employee performance in the manufacturing industry in Kenya.

In Australia, Khoreva and Wechtler (2018) examined the associations between the - skill, motivation and opportunity-enhancing dimensions of human resource (HR) practices and job performance and the findings indicated a positive relationship between skill, motivation and opportunity-enhancing HR practices are dimensions of an HPWS. Ngwa *et al.,* (2019) investigated the effect of a reward system on employee performance in selected manufacturing firms in Cameroon. The study findings showed a positive link between reward systems and employee performance. Profit sharing as a reward system is a component of HPWS (contingent pay) used to motivate employees. This indirectly influences employee performance by enhancing employee commitment.

The current study determined the relationship between these practices and employee performance.

In Nigeria, Karatepe and Olugbade (2016) examined the influence of HPWP and employee outcomes and the findings indicated a positive relationship between HPWP and employee job outcomes. In East Africa; Matolo *et al.* (2019) explored the relationship between the reward management system and employee performance in Technical Training Institutes in Kenya and the findings revealed that reward management had a positive effect and thus a relationship with the performance of the employee. Too and Kwasira (2018) evaluated the influence of training strategy on employee performance at energy distributors in Kenya. The findings indicated that training as an HR practice is a critical strategy that defines the performance of employees. These two studies considered individual HR practices in isolation but the current study considers a bundle of HR practices that constitute a HPWS.

2.4.3 Employee Engagement and Employee Performance

Studies have observed that employee engagement plays a significant influence on a range of positive outcomes, such as individual performance and enhanced productivity (Soane *et al.,* 2012). Huang *et al.,* (2018) examined the dual impact of high-performance work systems (HPWS) on employee attitudes and employee engagement in the Chinese manufacturing sector. The findings indicated that HPWS are positively related to employees' positive mood and job satisfaction, which further enhanced employee engagement. Ismail *et al.,* (2019) explored the relationship between employee engagement and job performance in Lebanon. The findings showed a significant positive effect of employee engagement on job performance. Engagement was found to be positively associated with individual morale, task performance, extra-role performance and organizational performance, and the evidence was most robust concerning task performance in a study on antecedents and outcomes of employee engagement (Bailey *et al.,* 2017).

Anitha (2014) examined the influence of employee engagement on employee performance in manufacturing firms by sampling middle and lower managerial levels. The study employed SEM and the findings indicated employee engagement had a significant influence on employee performance. In a study, Jemal *et al.,* (2022) examined the impact of employee engagement on job performance in the Ethiopian banking industry. The findings indicated that employee engagement positively affected job performance. Waseem and Mehmood (2019) examined the influence of work engagement on employee performance in institutions of higher learning using a non-experimental design. The findings indicated that employee engagement positively influenced employee performance. The studies were done in different sectors with

similar findings and thus provide a foundation for the examination of the influence of employee engagement on performance in the manufacturing firms in Kenya.

Cesário and Chambel (2017) examined the linkages between employee work engagement and employee performance. The findings indicated that work engagement was relevant in explaining employee performance. Othman and Mahmood (2019) investigated the relationship between employee engagement and individual work performance with the mediating role of human resource management (HRM) practices for selected manufacturing organizations in Malaysia. The results suggested that high employee engagement positively and significantly influences individuals' work performance. Besides these two HRM practices, the current study considers job security, contingent pay and employee involvement as a bundle of HR practices that constitute an HPWS.

In India, Rana *et al.*, (2019) focused on establishing the relationship between work engagement and individual work performance in Telecom companies. The findings showed that employee work engagement was an important predictor and had a positive impact on employee's work performance. The study's context was manufacturing firms. Kim (2017) investigated the effects of work engagement on job performance in Korean organizations. The findings showed that employees' work engagement had a direct positive effect on job performance. The current study investigates the moderating effect of employee work engagement on the relationship between HPWS and employee performance in manufacturing firms.

2.4.4 Organisational Justice and Employee Performance

Empirical evidence indicates that employees' perceptions of organizational justice influence their affective emotions, attitudes, and behaviours in the workplace (Wang *et*

al., 2015). Organizational justice plays a pivotal role in shaping individual behaviour particularly extra-role behaviour such as organizational citizenship behaviour (Ismail *et al.,* 2018). Hamidi *et al.,* (2020) examined the relationship between organizational justice and employee performance in health facilities in Iran. The findings observed a significant linkage between organizational justice and dimensions of organizational performance. In particular, procedural justice elements have more influence on employee performance.

Based on the cross-sectional survey, Ismail *et al.,* (2018) examine the impact of organizational justice, organizational citizenship behaviour and the performance of employees in institutions of higher learning in Pakistan. The findings indicated that organizational justice significantly predicts employees' performance. Imamoglu *et al.,* (2019) investigated the relationships between organizational justice, commitment and firm performance of Turkish firms. The results indicated that organizational justice significantly organizational commitment, and firm performance.

Iqbal (2017) examined the impact of organizational justice on employee performance in public sector organization of Pakistan. The results show that organizational justice influences on employee performance in public sector organizations. Krishnan *et al.,* (2018) examined the role of organizational justice on the job performance of employees in a selected private manufacturing company in Malaysia. The research findings showed a positive association between distributive, procedural and interactional justice on employees' job performance. The findings also showed that distributive justice tends to be the strongest predictor of employees' job performance. The current study examines the relationship between organisational justice and employee performance in manufacturing firms in the industrial area, of Nairobi County, Kenya.

In the Greek public sector, Mylona and Mihail (2019) examined the enhancing effect of organizational justice on employee performance. The findings indicated that work performance was significantly and positively related to employees' perceptions of distributive and procedural justice. Similar findings were also observed in Italy(Sarti, 2019). In Carribbean, Devonish and Greenidge (2010) evaluated the effect of organizational justice on contextual performance, counterproductive work behaviours, and task performance. The findings revealed that all three justice dimensions had significant effects on task performance, contextual performance, and counterproductive work behaviours. The current study examines the relationship between distributive, procedural and interactional justice (not considered in the two studies above) and employee work performance.

Akram *et al.,* (2016) explored the impact of organizational justice in the form of distributive, procedural, interactional, temporal and spatial justice on the innovative work behaviour of the employees working in the telecommunication sector of China. The results of these analyses suggested that all forms of organizational justice have a strong and positive impact on the innovative work behaviour of Chinese employees. The current study focuses on the dimensions of employee performance besides employee innovativeness.

Li *et al.,* (2018) analysed the relationship between organizational justice dimensions and employee performance dimensions in private universities in China. The findings showed that the three dimensions of organizational justice, namely; distributive, procedural and interactional justice were significant and had a positive correlation with task performance and contextual performance. In Saudi Arabia, nurses' perception of organizational justice was found to have a significant relationship with their

counterproductive work behaviour (Abou, 2019). Apart from examining the relationship between organisational justice and counterproductive work behaviour, this study focuses on task performance, contextual performance and adaptive performance.

2.4.5 Mediating role of Employee Engagement on the relationship between HPWS and Employee Performance

Employee work engagement remains an extremely relevant and contemporary topic (Buil *et al.,* 2019) and studies have observed its mediating role in HRM (Kura & Alkashami 2021). The studies detailing the influence of employee engagement on employee performance have taken three viewpoints. The first perspective takes the direct effects of employee engagement on employee performance (Wen *et al.,* 2022; Choi, 2013), the second viewpoint takes the indirect effects of employee engagement on employee performance (Karatepe, 2013; Yongxing *et al.,* 2017) and the third viewpoint takes the indirect influence of employee engagement on specific HRM variables (Majumdar & Kumar, 2021). These studies have divergent findings but the theme remains the influence of employee engagement.

Choi (2013) examined the influence of job resources on employee engagement and counterproductive work behaviour as measured by turnover intention. The findings indicated that job resources positively correlated with engagement and that engagement negatively influenced turnover intention. Yongxing *et al.,* (2017) examined the mediating effect of employee engagement on the counterproductive work behaviour of employees in the Chinese banking industry. Based on SEM, the study indicated that engagement partially mediated counterproductive work behaviour by reducing the turnover intention. The current study evaluates the indirect influence of employee

engagement on the relationship between HPWS and employee performance in selected manufacturing firms in Nairobi, Kenya.

Karatepe (2013) evaluated the mediating influence of work engagement functions on high-performance work practices (HPWPs) on job performance among employees of the hospitality industry in Romania. The statistical result based on SEM analysis indicated that work engagement mediated the effects of HPWPs on job performance (Karatepe, 2013). Wen *et al.,* (2022) examined the effects of employee engagement and counterproductive work behaviour as measured by turnover intentions using Chinese Companies. Based on SEM, the findings indicated that employee engagement negatively impacts turnover intention and partially mediates the relationships between work supervision and counterproductive work behaviour (turnover intention). Considering that the studies used employee counter-productive behaviour as a measure of employee performance, this study examines several measures of employee performance to evaluate the indirect influence of employee engagement on the relationship between HPWS and employee performance in selected manufacturing firms in Nairobi County, Kenya.

Rafiq *et al.,* (2019) examined the effect of employee engagement on counterproductive work behaviour such as the turnover intention of employees in the Pakistan media industry. The findings indicated that employee engagement through job embeddedness has a negative effect on counterproductive work behaviour and that trust mediates the relationship between employee work engagement and turnover intention. Garg and Sharma (2015) explored the mediating effect of employee engagement on job performance. The study findings indicated that HPWPs and job performance are highly correlated and that employee engagement mediated the relationship between HPWPs

and job performance. Therefore, the findings support the study in examining the mediating effects of employee engagement on employee performance.

Sharma and Kumra (2020) investigated the mediating effect of employee engagement on the relationship between workplace spirituality and mental health using Indian IT professionals. The results also revealed that employee engagement partially mediates the relationship between workplace spirituality and mental health as well as the relationship between organizational justice and mental health. Opoku *et al.,* (2023) examined the mediating effect of employee engagement on the human resource (HR) policies in institutions of higher learning in Ghana. The finding indicated that employee engagement mediates the relationship between HR policies and work-life balance. The findings therefore support the mediating effect of employee engagement on employee performance in manufacturing firms in Kenya.

Zhang *et al.,* (2019) evaluated the influence of HPWS and employee task performance in selected firms in China through the mediating roles of social exchange, and the moderating effect of proactive personality. Social exchange was found to mediate the effects of HPWS on employee task performance while proactive personality attenuated HPWS's direct effect on thriving and indirect effects on employee task performance. In Pakistan, Li *et al.,* (2019) investigate the relationship between high-performance work systems (HPWS) and employee performance through the mediating effect of employee engagement. The findings indicated that HPWS was positively related to employee performance and that job satisfaction and perceived organizational support positively and significantly mediated between HPWS and employee performance.

Buil *et al.,* (2019) explore the mediating role of work engagement in the relationship between transformational leadership and job performance. The findings showed that

employee engagement partially mediates the link between transformational leadership and job performance. Drawing from social exchange theory, Presbitero (2017) investigated how changes in human resource management practices influenced and affected employee engagement in a hotel chain in the Philippines. The findings showed that improvements in human resource management practices, particularly in the areas of reward management and training and development, yielded a positive and significant change in the level of employee engagement and performance.

Karadas and Karatepe (2019) investigate the potential mediators between high-performance work systems (HPWS) and employee outcomes in five-star hotels in Romania. The study observed that both psychological capital and work engagement mediated the impact of HPWS on quitting intentions and creative performance. Karatepe and Olugbade (2016) explored the mediating role of work engagement on the relationship between high-performance work practices and job outcomes of employees in chain hotels in Nigeria and concluded that selective staffing, job security, teamwork and career opportunities fostered work engagement. The current study investigated the mediating role of employee engagement in the relationship between HPWS and employee performance in manufacturing firms.

Khoreva and Wechtler (2018) examined the associations between the -skill, motivation and opportunity-enhancing dimensions of human resource (HR) practices and in-role and innovative job performance. Furthermore, it considered the mediating effects of social employee well-being on these associations. Results indicated that employee well-being partially mediated the association between –skill, ability and opportunity-enhancing HR practices and in-role and innovative job performance. Huang *et al.* (2018) examined the impact of high-performance work systems (HPWS) on employee

attitudes and employee engagement in China in response to the increasing interest in the universalistic effects of HPWS in the globalized world market. The study findings showed that HPWS is positively related to employees' job satisfaction, and that job satisfaction leads to high employee engagement. Cooke *et al.,* (2019) also examined the relationship between high-performance HR practices and employee engagement in the Chinese banking industry and found a positive relationship between HPWS and employee engagement. The current study considered the mediating effect of employee engagement on the relationship between HPWS and employee performance.

Bernt (2016) investigated the role of work engagement in the relationship between ability-enhancing Human Resource Management (HRM) practices particularly training and selection and employee performance. The findings showed that there was no direct relationship between ability-enhancing HRM practices and employee performance. Support was, however, found for work engagement as a mediator in the relationship between HRM practices and employee performance. This suggests that selection and training procedures impact performance indirectly through work engagement. The current study incorporated a range of HRM practices that constitute an HPWS to determine the role of employee engagement in the relationship between HPWS and employee performance.

Johansen and Sowa (2019) conducted a study to establish the link between HPWS in particular employee involvement and employee engagement in nonprofit hospitals. The findings showed a positive relationship between HPWS and employee engagement; and that the latter improved performance. On the influence of human resource management (HRM) on job engagement of hotel employees, Kim (2019) studied the influence of high-commitment HRM on the job engagement of employees in five-star hotels in

South Korea and the findings showed that high-commitment HRM positively affected hotel employees' job engagement. The current study evaluated the mediating effect of employee engagement on the relationship between HPWS and employee performance in the manufacturing industry in Kenya.

2.4.6 Moderating role of Organisational Justice on the relationship between HPWS and Employee Engagement

Empirical evidence shows that fair treatment of employees in workplaces leads to considerable improvement in performance among staff (Orishede & Bello, 2019) and other HRM factors interact with high-performance work systems (HPWS) to positively influence employee outcomes (Ogbonnaya & Valizade, 2018). The studies detailing the influence of organizational justice on employee engagement take three viewpoints. The first perspective takes the direct effects of organizational justice on employee engagement (Majumdar & Kumar, 2021; O'Connor & Crowley-Henry, 2019; Ghosh *et al.*, 2014), the second viewpoint takes the indirect effects of organizational justice on employee engagement (Kim & Park, 2017) and the third viewpoint takes the indirect influence of organizational justice on specific HRM variables (Karim, 2022).

Ghosh *et al.*, (2014) examined the inter-relationships between these three dimensions of organisational justice and employee engagement using employees of India's public sector banking sector. The findings indicated that distributive and interactional justice take precedence over procedural justice in determining job engagement, while distributive justice plays the most important role in determining OE, followed by procedural and interactional justice. Köse and Uzun (2018) explore the relationship between organizational justice and work engagement level among teachers. Though organizational justice and work engagement significantly differed across the

organization; the findings indicate that organizational justice significantly predicts employee engagement.

Majumdar and Kumar (2021) examined the role of organizational justice and the psychological capital of employees in explaining the work engagement of employees in an Indian organization. The results indicated that organizational justice and psychological capital explained work engagement significantly with psychological capital being the strongest predictor of work engagement, followed by organizational justice. O'Connor and Crowley-Henry (2019) examined the employee perceptions of organizational justice affect employee engagement, which also influences employee outcomes.

Abbasi and Alvi (2012) explored the dynamics of employee engagement in the banking sector of Pakistan. The findings indicated that organizational justice elements significantly predict employee engagement with distributive justice elements having a higher impact than either procedural or interactional justice elements. Rahman and Karim (2022) evaluated the mediating role of employee engagement between the four dimensions of organizational and OCB dimensions. The findings indicated that organizational justice positively correlated with employee engagement with employee engagement mediating the relationship between organizational justice dimensions and OCB dimensions.

Kim and Park (2017) examined the interrelationship between organizational procedural justice, employee work engagement, and innovative work behaviour of employees in Korean organizations. The findings indicated that organizational procedural justice is positively correlated with employee work engagement, knowledge sharing, and innovative work behaviour. Further, the study observed that organizational justice has

a significant mediating effect on the relationship between employee engagement and innovative work behaviour.

Sharma and Yadav (2018) examined the interrelationship between organizational justice, trust, and work engagement of employees in the Indian financial industry. The study observed a significant linkages between organizational justice and work engagement, and that trust partially mediated the relationship between organizational justice and work engagement. Park *et al.,* (2016) examined the effect of organizational justice on work engagement in the Korean organizational context. The findings indicated that organizational justice has a direct effect on work engagement and that the relationship is partially mediated by self-leadership.

Özer *et al.,* (2017) analyze the influence of organizational justice on the work engagement of employees in the Turkish healthcare industry. The study findings indicated that organizational justice positively correlates with work engagement while the regression analysis indicated that dimensions of organizational justice perception explained variances in work engagement level at a personal level. As regards organizational justice, procedural justice had the most significant effect on work engagement followed by distributive and interactional justice dimensions.

Getahun *et al.,* (2019) examined the association between employees' perceived job insecurity and employee engagement and found that perceived job insecurity was associated with reduced engagement and that this may be moderated by procedural justice. Getahun *et al.,* (2019) examined the association between one HR practice in isolation and employee engagement moderated by one dimension of organisational justice. The current study considers a bundle of HR practices and their effect on

employee engagement moderated by the three dimensions of organisational justice (distributive, procedural and interactional justice).

Farndale *et al.,* (2011) explored the relationship between employees' perceptions of a particular subsystem of HRM practices and their work engagement and commitment to the organisation in four organisations in the UK. The findings showed that the link between employee experiences of high-performance work practices and their level of engagement, as well as commitment, is strongly moderated by related perceptions of organisational justice. The current study examines the moderating effect of organisational justice on the relationship between HPWS and employee engagement in manufacturing firms in the industrial area, of Nairobi County, Kenya.

In a bid to explore the relationship between perceptions of performance appraisal fairness and employee engagement in the Indian business context, Gupta and Kumar (2013) showed a significant positive association between distributive and informational justice dimensions and employee engagement. Moreover, distributive justice and informational justice dimensions were found to have a stronger impact on employee engagement. This study examined HRM practice in isolation whereas, the current study looked into a bundle of HR practices which constitute an HPWS.

2.4.7 Moderating role of Organisational Justice on the relationship between HPWS and Employee Performance

Organizational justice is an important determinant of employees' attitudes, behaviours, and performance in the workplace (Ohana & Meyer, 2016). Organisational justice is a basic requirement for the effective functioning of organizations and the personal satisfaction of the individual employees that, in turn, shape employee attitudes and thus employee performance. Fiaz *et al.,* (2021) examined the mediating effect of trust

between organizational justice and employee performance in the banking industry in Pakistan. The study findings indicated that organizational justice significantly influences employee performance trust mediates the influence of organizational justice on employees' performance.

Opoku and Boateng (2024) quantitively examined the moderating effect of perceived organizational support on the job performance of a South African teaching hospital. Based on SEM analysis, the study observed that employee engagement significantly influences employee job performance in the healthcare industry. The perceived organizational support moderates the relationship between employee engagement and job performance. In Greece, Mylona and Mihail (2019) explored how employees' performance in the public sector was affected by perceptions of organizational justice and found that work performance was significantly and positively related to employees' perceptions of organizational justice.

In Ireland, Heffernan and Dundon (2016) examined the mediating influence of employee perceptions of the fairness of human resource practices associated with the high-performance work systems model. Employee perceptions of distributive, procedural and interactional justice were found to mediate the relationship between high-performance work systems and job satisfaction. Hur *et al.,* (2019) examined the moderating effects of perceived organizational justice on the relationship between employee corporate social responsibility perceptions and job performance in hotels in South Korea. The findings indicated that organizational justice has a moderate effect on employees' perceptions and job performance. The current study examines the moderating effect of organisational justice on the relationship between HPWS and employee performance.

Yongxing *et al.,* (2017) examine whether the relationship between work engagement and objective task performance is moderated by perceived organizational support. The findings indicate that work engagement is positively related to objective task performance, and the relationship between work engagement and objective task performance is moderated by perceived organisational justice. The current study evaluates the moderating effect of organisational justice on the relationship between HPWS and employee performance.

2.4.8 Moderating effect of Organisational Justice on the relationship between HPWS and Employee Performance through Employee Engagement

Employee work engagement has received increasing research interest in recent decades and it remains a contemporary topic (Buil *et al.,* 2019). In China, Cooke *et al.,* (2019) examined the relationship between HPWS and employee engagement, in the Chinese banking industry. Drawing on the job demands-resources model, the findings of the study showed that HPWS can be used as a job resource to positively affect employee engagement.

Drawing from the social exchange theory, Arefin *et al.,* (2019) investigated the role of psychological empowerment in the relationship between high-performance work systems and job engagement. The results showed that perceived high-performance work systems and psychological empowerment positively influenced job engagement. The results also revealed that psychological empowerment mediated the influence of high-performance work systems on job engagement.

Miao *et al.,* (2020) showed that HPWS were positively related to employee engagement and also revealed that an interactional justice climate strengthened the effect of organizational justice on employee engagement. Kura and Alkashami (2021) observed

that employee engagement has a mediating effect on organizational justice as measured by employee voice and business performance. The results indicated that engagement contributes to business performance. Sharma and Kumra (2020) investigated the role of employee engagement as the mediator between organizational justice, workplace spirituality and mental health and observed that employee engagement has a mediating effect. Orishede and Bello (2019) examined the effect of organizational justice on employees' performance in the Banking industry In Nigeria. The findings indicated that organizational justice elements are positively linked to employee performance.

Imran and Al-Ansi (2019) examined the effect of the High-Performance Work System (HPWS) and job engagement on innovative work behaviour through the mediating effect of job engagement in service sector organizations in Oman. The results found a positive and significant effect of HPWS and job engagement on innovative work behaviour and the study observed a mediating role of of job engagement on the relationship between HPWS and innovative work behaviour relationships. The current study explores the moderating effect of organisational justice on the indirect relationship between high-performance work systems and employee performance through employee engagement.

The significance of High Performance Work Systems (HPWSs) and its relevance to employee engagement and performance, in the Nigerian Hotel industry, was analysed by Odiaka and Chang (2019). Findings showed that when employees feel more engaged with their jobs, they are more likely to support HPWSs, recognizing their importance and demonstrating creative performance. The relationship between HPWSs and performance outcomes was strengthened by managerial trust in employees' capability

and appreciation for work done. In the current study, the moderating effect of organisational justice in the relationship above was examined.

2.5 Summary of Research Gaps

Several studies have examined the relationship between HPWS and employee performance. These studies have differed context. for instance, Husin and Gugkang (2017) highlighted the importance of HPWS in enhancing employee performance in the banking sector while Ahmad *et al.,* (2015) examined the causal linkages between HPWS and employee performance in the Pakistani banking industry. Husin and Gugkang (2017) explored the relationship between high-performance work systems (HPWS) and job performance in the commercial banking industry in Malaysia. Karatepe *et al.,* (2014) focused on high-performance work practices on the performance of the Cypriot hospitality industry, while Ogbonnaya and Valizade (2018) focused on the impact of High-Performance Work Practices (HPWP), on the organizational performance of the British National Health Service. These studies observed the direct and causal effects of HPWS on organizational performance metrics and inform current studies in exploring the relationship between HPWS and employee performance in the manufacturing industry in Kenya.

Several studies focused on individual HR practices like training in isolation. For example, Hayat *et al.,* (2019) examined two individual HR practices as a bundle of HR practices that constitute an HPWS considering training and performance appraisal, Othman and Mahmood (2019) investigated the relationship between employee engagement and individual work performance. Khoreva and Wechtler (2018) focused on several dimensions of human resource (HR) practices such as skill, motivation and opportunity-enhancing HR practices, Ngwa *et al.,* (2019) investigated the effect of a

reward system on employee performance in selected manufacturing firms in Cameroon. Matolo *et al.* (2019) explored the relationship between the reward management system, while Too and Kwasira (2018) evaluated the influence of training on employee performance. These studies observed direct and causal linkages between these HR practices and employee performance thus validating the use of these HR practices as bundles of HPWS in examining the relationship between HPWS and employee performance in the manufacturing industry in Kenya.

Studies have examined the influence of employee engagement on employee performance including Ismail *et al.,* (2019) explored the relationship between employee engagement and job performance in Lebanon while Waseem and Mehmood (2019) focused on work engagement and employee performance in institutions of higher learning. Anitha (2014) examined employee engagement in the manufacturing sector, Cesário and Chambel (2017) focused on the linkages between employee work engagement and employee performance, while Rana *et al.,* (2019) focused on work engagement and individual work performance. Kim (2017) investigated the effects of work engagement on job performance in Korean organizations. These studies showed that employee work engagement was an important predictor of employee work performance and therefore provides a foundation for examining the relationship between employee engagement and employee performance in the manufacturing industry in Kenya.

The empirical studies informing the effects of organizational justice on employee performance include Hamidi *et al.,* (2020) who linked organizational justice to employee performance in the Iranian healthcare industry, Ismail *et al.,* (2018) who explored the impact of organizational justice on employee performance in institutions

of higher learning in Pakistan, Imamoglu *et al.,* (2019) who focused on the linkages between organizational justice, commitment and firm performance of Turkish firms. Iqbal (2017) examined the impact of organizational justice on employee performance in Pakistan, Krishnan *et al.,* (2018) focused on the role of organizational justice on job performance in the Malaysian manufacturing sector, Mylona and Mihail (2019) focused on the influence of organizational justice on employee performance, while, Devonish and Greenidge (2010) focused on the impact of organizational justice on contextual performance, counterproductive work behaviours, and task performance. These studies linked organisational justice elements to employee work performance and therefore provide a foundation for examining the relationship between elements of organizational justice and employee performance in the manufacturing industry in Kenya.

Li *et al.,* (2019) posit that although the relationship between HPWS and performance has attracted the attention of academia and researchers and has been widely discussed in the literature, the existing work still reveals some uncertainties in the relationship. This study therefore aimed to respond to calls for more research examining the intervening mechanisms that explain how HPWS affect employee performance by examining the moderating and mediating effects of organizational justice and employee engagement respectively, on the relationship between HPWS and employee performance. The study also examined the moderating effect of organisational justice on the indirect relationship between HPWS and employee performance through employee engagement.

2.6 Conceptual Framework

Figure 2.1 shows a conceptual framework as a guide to explain how the independent variable; HPWS (sophisticated selection and training, behaviour-based appraisal,

contingent pay, job security and employee involvement) affect employee performance (task performance, contextual performance, adaptive performance and counterproductive work behaviour) which is the dependent variable. It also shows how employee engagement (favour, dedication and absorption) mediates the relationship between HPWS and employee performance. Finally, it explains how organizational justice (distributive, procedural and interactional justice) moderates the relationship between HPWS and employee performance.

Employee performance refers to the performance associated with the quantity of output, quality of outputs, timeliness of output, presence or attendance on the job, efficiency of the work completed and effectiveness of work completed. High-performance work systems (HPWS) are a range of innovative HR practices and work design processes that, when combined or bundled, are mutually reinforcing and produce synergistic benefits. Employee engagement is a persistent, positive affective-motivational state of fulfilment characterised by vigour, dedication and absorption which is likely to result in motivated work behaviour.

Organisational justice refers to the extent to which people perceive organizational events as being fair. Justice researchers typically distinguish between three types of justice. Distributive justice is explained as the perceived fairness of outcomes whereas the fairness of the processes whereby outcomes are allocated is referred to as procedural justice. The interpersonal treatment received during the implementation of the procedure as well as the perceived adequacy and timeliness of information given is interactional justice.

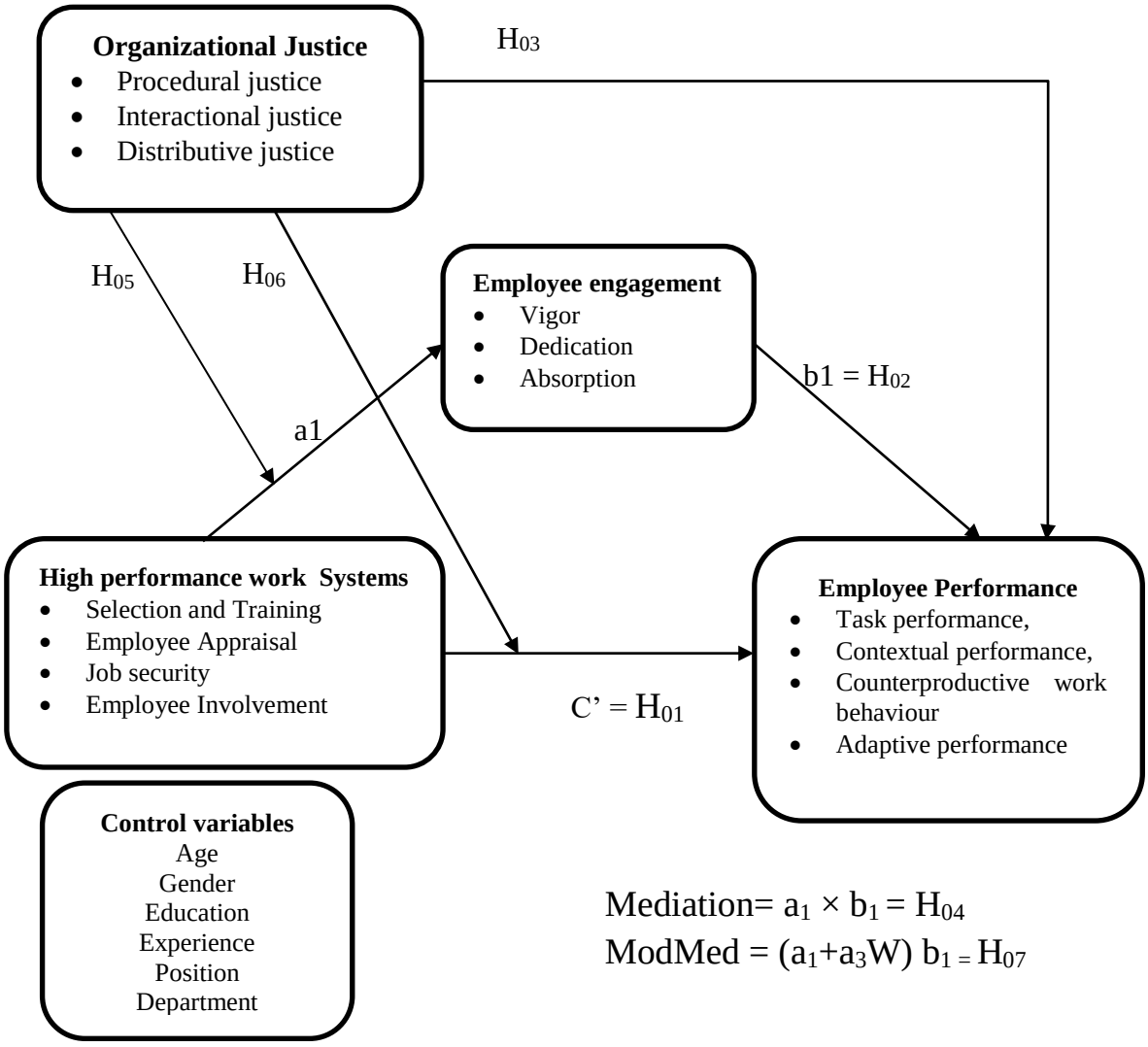

Figure 2.1: Conceptual Framework

Source: Hayes Model 8 (2018) modified by the researcher (2025)

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Overview

This chapter describes the study's research philosophy and design, study area, target population, sampling design and sample size, data collection methods and procedures, measurements, data analysis techniques, reliability and validity of research instruments and ethical considerations that guided the study.

3.2 Research Philosophy

Research philosophy contains important assumptions about how the world is viewed (Saunders *et al.,* 2016) and provides the backdrop from which specific methodological decisions in research are made. The philosophical foundation shapes the researcher's knowledge by directing the research process and by selecting the specific methods to be used, and the strategies to be used to obtain, analyse and interpret information (Depoy & Gitlin, 2011). Eriksson and Kovalainen (2015) add that philosophical concepts in research assist in specifying the research design and strategy that give direction from the research questions to its conclusions.

The study was grounded on a post-positivism foundation. According to Eriksson and Kovalainen (2015), positivist studies generally use quantitative methods for empirical testing of formulated hypotheses and produce facts and accounts that correspond to independent reality; is value-free and prioritizes observation. Post-positivism research is characterized by the following characteristics: broad-based research, integration of theory and practices, the centrality of the researcher's motivations and commitment to research and the application of the appropriate techniques for collecting and categorizing information. A post-positivist approach is ideal as the study relies on

quantitative data, using relatively large samples and is concerned with hypothesis testing; usually, data is gathered to test a hypothesis generated from existing theory (Saunders *et al.*, 2016).

3.3 Research Design

Research design constitutes the blueprint for the collection, measurement, and analysis of data (Cooper & Schindler, 2006). According to Zikmund *et al.,* (2016), a research design is the arrangement of conditions for the collection and analysis of data in a manner aimed at combining the appropriateness of the procedure with the research objective. This study employed an explanatory research design. According to Depoy and Gitlin (2019), studies that establish causal relationships between variables use an explanatory research design. It is also concerned with hypothesis formulation and testing of the analysis of the relationship between non-manipulated variables (Creswell & Creswell, 2017)

According to Creswell and Creswell (2017), explanatory design is a quantitative approach used for testing objective theories by examining the relationship among variables. This design was therefore necessary as it is concerned with describing, recording, analyzing and interpreting relationships between HPWS and employee performance (Hair *et al.*, 2019).

3.4 Study Area

The study was carried out in eleven (11) manufacturing firms drawn from the industrial area in Nairobi City County, Kenya because it is a hub of manufacturing firms holds 45.1 per cent of all industrial production and hosts the largest number of renowned firms in Kenya. The choice of manufacturing firms for the study was informed by the

understanding that the clustered competition among these firms provides an environment that supports the use of high-performance work systems to enhance the performance of employees. KAM (2022) identifies industries some of which include; Silpack majoring in packaging products; Kartasi majoring in stationery products and merchandise; Osho Chemicals mainly dealing in agro-chemicals; Manji Foods which specialises in confectioneries; Crown Paints which deals in paint; King Plastics which specializes in plastic products; and Twiga chemicals that produces a variety of consumer products such as crop protection products, and animal health products among others.

3.5 Target Population

The target population refers to the group of individuals or elements from which the researcher can select a sample. Each element of the target population may possess characteristics desired to which a researcher wishes to generalize the findings of a research study (Depoy & Gitlin, 2011). Creswell and Creswell (2017) further assert that the accessible population are those elements in the target population within the reach of the researcher. The target population was drawn from selected manufacturing firms in the industrial area in Nairobi City County based on the KAM (Kenya Association of Manufacturers) directory.

Considering that more than half of the manufacturing sector is located in Nairobi City County, the study focused on accessible population drawn from selected manufacturing firms in the industrial area. The manufacturing firms were chosen because of the likelihood of the adoption of high-performance work systems because of the likelihood of the modern manufacturing systems with the concurrent use of HRM IT systems to support a large pool of employees averaging more than 400 employees per firm with a

total of 6,254 employees as shown in Table 3.1. The study targeted a minimum of operational staff as opposed to total staffing population and excluded the senior managerial staff as well as other non-operational staff who provide non-core support activities such as housekeeping, security, cleaners among others.

Table 3.1: Target Population

Manufacturing Sector	**Name of Manufacturing firm**	**Target Population**
Chemical & Allied sector	Osho Chemicals ltd	537
	Desbro Kenya Ltd	932
	Crown Paints Kenya Ltd	586
	Twiga Chemicals	409
Food & Beverage	Manji Food Industries	441
Motor Vehicle & Accessories	Pipe Manufacturers ltd	595
Paper & Board Sector	Kartasi Industries Ltd	487
	East African Packaging Industries	645
Pharmaceutical & Medical Equipment	Beta Healthcare Ltd	413
Plastic & Rubber	Silpack Industries Ltd	456
	King Plastics Industries Ltd	753
Total		**6,254**

Source: Company's Human Resource (2024)

3.6 Sample Size and Sampling Techniques

3.6.1 Sample size

Zikmund *et al.,* (2013) point out that it may not be practical for a researcher to collect data from the whole population due to limitations of time and cost. Saunders *et al.,* (2016) state that when selecting a sample size, a researcher has to ensure that the right procedures are followed to obtain a suitable number of respondents. The sample size was derived from a formular by Yamane, (1967).

The sample size was computed using the following formular by Yamane;

$$n = \frac{N}{1 + N(e^2)}$$

Where:

n is the desired sample size,

N is the entire population and

e is the margin of error (which is 0.05)

According to Vukojević, (2016), the margin of error (*e*) can be set at 0.1, 0.05, or 0.03 which are 10%, 5% or 3% of the true population value respectively. In the current study, the acceptable amount of sampling error is set at 0.05 or 5% with a confidence level set at the 95% level. The margin of error in survey studies may be adjusted to ±5% when determining the sample size.

$$n = \frac{6254}{1 + 6254(0.05^2)} = 376$$

The study used a sample of 376 employees which was distributed using the sampling frame in Table 3.2.

3.6.2 Sampling Frame

The sampling frame provides a listing of each element in the population (Sekaran & Bougie, 2010) and determines the number of units to be sampled from the population (Depoy & Gitlin, 2012). The sampling frame is essential if probability sampling techniques are to be employed and thus has implications regarding the extent to which the study draws generalizations from the sample (Saunders *et al.,* 2016). Other practical considerations for conducting the research, such as time and financial support may also provide guidelines on the number of units to be included in the sample.

The study used proportionate stratified random sampling technique where the overall sample size include the number of elements chosen from each stratum that was proportionate to the size of a particular stratum relative to the overall sample size (Hair *et al.,* 2019) as indicated in the sampling frame in Table 3.2 below.

The proportionate sampling was calculated using the following formula

$$\text{na} = \frac{(\text{strata population size })}{(\text{target population})} * \text{sample size(n)}$$

Where;

n_a = strata sample size

Table 3.2: Sampling Frame

Manufacturing Sector	**Name of firm**	**Sample size**
Chemical & Allied sector	Osho Chemicals ltd	32
	Desbro Kenya Ltd	56
	Crown Paints Kenya Ltd	35
	Twiga Chemicals	25
Food & Beverage sector	Manji Food Industries	27
Motor Vehicle & Accessories	Pipe Manufacturers ltd	36
Paper & Board Sector	Kartasi Industries Ltd	29
	East African Packaging Industries	39
Pharmaceutical & Medical Equipment	Beta Healthcare Ltd	25
Plastic & Rubber	Silpack Industries Ltd	27
	King Plastics Industries Ltd	45
Total		**376**

Source: Company's Human Resources (2024)

3.6.3 Sampling Technique

Since most populations can be segregated into several mutually exclusive subpopulations, or strata, the study employed the use of a stratified random sampling method based on the firm's strata. Stratified random sampling involves the division of the population into a series of relevant strata thus giving a sample the likelihood of representation (Saunders *et al.,* 2016). Besides, the diverse range of manufacturing firms provides a heterogeneous population from which generalizations can be made.

The stratified sampling technique identifies sub-groups in a population with separate heterogeneous subsets that share similar characteristics to ensure the representation of the population sample and may either be disproportionate or proportionate stratified sampling (Zikmund *et al.*, 2013). The advantage of the stratified sampling technique is

that each element of the target population has a non-zero chance of being selected for the sample.

3.6.4 Unit of Analysis

The unit of analysis is the basic element of the study and it is who or what is analyzed as the basis of analysis in the study. The unit of analysis is not the same as the unit of observation as the unit of observation is the individual survey respondent (Hair *et al.,* 2019). In the study, the unit of analysis was the selected manufacturing firms in Nairobi City County's industrial area, while the unit of observation were the employees in the selected firms since they are affected and/or benefit from the HR structures and practises within these firms and in the context of the study, the HPWS, and HR processes such as the employee engagement and organization justice put in place by their employer organizations (Cooper & Schindler, 2014).

3.7 Data Collection Instruments and Procedures

3.7.1 Types of Data

The study utilized primary data sources to examine the nature of the relationship between the study variables. According to Saunders *et al.,* (2016), primary data can be collected through person-to-person, internet-mediated or questionnaire-based methods. Questionnaires are often used for descriptive or explanatory research based on attitude and opinion. The primary sources of data were derived from a questionnaire on the employees to generate quantitative information on the relationship between HPWS and their performance. Using quantitative procedures, the data is collected from participants either by sending or administering testing instruments to participants at several study sites (Cooper & Schindler, 2014).

3.7.2 Data Collection Instruments

Data was collected by the use of structured questionnaires. The use of a questionnaire is deemed appropriate because is relatively easy to administer to a large population within the shortest time possible (Saunder *et al.,* 2012). The questionnaire comprised sections A to E. Section A has demographic information such as gender, age, educational level, departmental affiliation and work experience whereas the rest of the sections in the questionnaire sought responses from the employees concerning their perceptions of HPWS used by the firms, perceptions of organisational justice and their degrees of engagement to their work as well as statements seeking responses on employee individual work performance.

Section B, C, D, and E section were anchored on a likert-type scale which rated the level of agreement/disagreement with the items on a scale: 1 - Strongly Disagree (SD); 2- Disagree (D); 3 - Neutral (N); 4 - Agree (A); and 5 - Strongly Agree (SA) as proposed by Vagias (2006). Section B was concerned with high–performance work systems, section C was concerned with employee engagement, section D was concerned with organizational justice, and Section E was concerned with employee performance. The study used a likert scale which is the most appropriate metric measurement scale for measuring attitudes or opinions. Likert scales often use a five-point scale to assess the strength of agreement or disagreement about a statement and for each point on the scale, a label is used to express the intensity of the respondent's feelings. Empirical evidence that people treat the intervals between points on such scales as being equal in magnitude justifies treating them as measures on an interval scale (Hair *et al.,* 2019). Respondents were then required to indicate the level of agreement/disagreement with each statement by selecting one of several response alternatives (Depoy & Gitlin, 2011).

The study employed the use of closed-ended questions because close-ended questions enabled the study to precode the questions, making data collection, input, and computerized analysis relatively easy and less expensive. Closed-ended questions are generally used in quantitative studies employing large-scale surveys. With closed-ended questions, the respondent is given the option of choosing from several predetermined answers. The types of questions and their order in the questionnaire depend on the nature of the topic, how the questionnaire is administered, the target population's ability and willingness to respond, the type of statistical analysis, and similar factors (Hair *et al.,* 2019).

3.7.3 Data Collection Procedures

The data collection process involved the researcher and a team of three research assistants to speed up the data collection. After securing the services of three research assistants, the researcher trained the researcher assistants on the formalities, ethical considerations and procedures of the data collection procedures before the commencement of the data collection.

Once, the proposal had been approved, the researcher obtained an introductory letter from the School of Business and Economics at Moi University. This approval supported the application for the research permit from the National Commission for Science, Technology, and Innovation (NACOSTI). The researcher then liaised with the HRM department of the selected manufacturing firms for permission to collect data from the employees and the research assistants visited the firms to collect data.

On the day of data collection, the researcher sought consent from the respondents before the questionnaire administration, participants were informed of the ethical research rights and voluntary participation before being handed the questionnaire and given five

days to fill the instrument. This was done if they were unable to do so immediately and the respondents were reminded through phone calls to encourage them to return completed questionnaires. The respondents filled out the questionnaire by marking the most appropriate response which reflects the respondents' opinions regarding the numerous statements contained in the questionnaire. Once, completed the researcher collated all the questionnaires for processing and analysis.

3.8 Measurement of Variables

The study first identified and defined the measures and then adopted indicators from earlier studies as a way to operationally define the concept as highlighted by the questionnaire. Measurement in research denotes the translation of observations into numerical values or numbers and involves two steps: first, the identification and the definition of what is to be measured; and second, the development of an operational definition of the concept in question (Depoy & Gitlin, 2011). The study first identified and defined the measures to be used as shown in Table 3.3, and then adopted indicators from earlier studies as a way to operationally define the concept as highlighted by the questionnaire (Saunders *et al.*, 2019).

Table 3.3: Measurement of the Study Variables

Variable	Total items	Source
HPWS	Eighteen items on HPWS indicators	Guthrie (2001)
Employee Engagement	Nine items on Utrecht Work Engagement Scale (UWES)	Schaufeli *et al.,* (2006)
Organisational Justice	Three dimensions: Procedural justice items (Sweeney and McFarlin, 1993) Interactional justice items (Bies, 1986) Distributive justice items (Colquitt *et al.,* 2001).	Colquitt *et al.,* (2001).
Employee Performance	Four dimensions: task performance, contextual performance, counterproductive work behaviour and adaptive performance (Koopmans *et al.,* 2013).	Koopmans *et al.,* (2013).

Source: Researcher (2024)

3.8.1 Independent Variable -High-Performance Work Systems

The HPWS measure was derived from employees' responses regarding the firm's use of HR practices. The HR practices were validated using measures drawn from previous research by Guthrie (2001). Eighteen items on HR practices such as employee resourcing, training and development, performance management and remuneration, employee involvement were included. For example," Extensive training programs are provided for employees." Procedures similar to those outlined by Guthrie (2001) were followed to calculate the HPWS index.

3.8.2 Mediating Variable -Employee Engagement

The nine-item Utrecht Work Engagement Scale (UWES) which included three constituent subscales: vigour, dedication, and absorption proposed by Schaufeli *et al.,* (2006) were used to measure employee engagement. An example of items under vigour includes, "At my work, I feel bursting with energy." This scale employed a five-point scale.

3.8.3 Moderating Variable -Organisational Justice

Three justice scales was used to measure distributive justice, procedural justice and interactional justice. Distributive justice was measured using three items from a scale measuring distributive fairness of decisions across the domains of HPWS practices adapted from Colquitt *et al.,* (2001). These measures focused on an assessment of the degree to which rewards received by employees are perceived to be fair when related to performance inputs. For example, “I am fairly paid for the amount of work I do.”

Procedural justice was measured using seven items adapted from Sweeney and McFarlin (1993) and Tyler and Lind (1992). This scale used both direct and indirect justice measures. An example of a direct justice item is "In my opinion, procedures used to evaluate my performance are fair." The indirect procedural justice items examined the voice perceptions such as "My supervisor allows me to express my views and feelings during my performance evaluation."

Interactional justice was measured using Bies's (1986) measurement rules by considering whether line managers treat employees with dignity and respect (interpersonal justice) and explain decisions clearly (informational justice). The four items were adapted from Colquitt *et al.,* (2001). Interpersonal items included "My supervisor treated with me respect and dignity during pay determination." Informational items included "My supervisor lets me know my appraisal outcomes and provides justification." Respondents were asked to rate their perceptions of distributive, procedural and interactional justice across each domain of HPWS – resourcing, performance management, succession planning, training and development and communication and employee involvement. These individual HR perceptions were then combined to give a justice evaluation of the HPWS as a whole for the three-justice constructs.

3.8.4 Dependent Variable-Employee Performance

Four dimensions of employee performance were measured: task performance, contextual performance, counterproductive work behaviour and adaptive performance. For each dimension, one scale was developed. The operationalization of the scales was based on a study by Koopmans *et al.*, (2013). Twenty items were included in the questionnaire. The task performance scale consisted of questionnaire items such as “I manage to plan my work so that it is always done on time”, contextual performance items like "I come up with creative ideas at work", adaptive performance for example; "I always work at keeping my job knowledge and skills up-to-date”, and counterproductive work behaviour items for example: “I complain about unimportant matters at work.”

3.8.5 Control Variables

The control variables in the study were age, gender, level of education and work experience. Employee gender was measured nominally either male or female and took binary measures. The employee age was measured through the analysis of the four categories of ages, those aged between 21-30 years, within 31-40 years, within 41-50 years, and 51-60 years. The education levels were measured at doctorate/master, bachelor, higher diploma, diploma and high school levels, while work experience was categorized into less than 10 years; 11 – 20 years; 21 – 30 years and above 31 years;, Considering that study variable revolved around HR variables, the study included the employee positions in the organizational structure and this was measured in ordinal measures; operations, technical, supervisors and department managers. Lastly, the study included the departmental functions on ordinal measures; Finance and Accounting, Human Resource, Operations and Sales and Marketing functions. The

purpose of control variables is to eliminate or minimise the spurious effect (Saunders *et al.,* 2019).

3.9 Reliability and Validity of the Instrument

3.9.1 Pilot testing

Pilot testing is a form of face validity which is carried out on the questionnaire to refine the questionnaire. The pre-testing of the instrument enables the researcher to assess the clarity of the instruments and their ease of use (Van Teijlingen & Hundley, 2010). The piloting of the instrument was carried out on five manufacturing firms in Uasin Gishu County (Kenknit Ltd, New KCC- Eldoret plant, Unga Ltd, Eldo Grains and Raiply Ltd). The firms were chosen based on the number of employees and the adoption of modern manufacturing systems that are supported by Human Resource Information Systems (HRIS).

3.9.2 Validity

Validity refers to the degree to which a statistical instrument measures what it is intended to measure. It emphasizes the accuracy of a measurement instrument (Cooper & Schlinder, 2012). According to Creswell and Creswell (2017) establishing the validity of the scores in a survey helps to identify whether an instrument might be a good one to use in survey research. Validity is a critical factor in selecting an instrument for a study (Roebianto *et al.,* 2023) and refers to the extent to which a research instrument truly measures that which it intended to measure (Ewens & Fons-Rosen, 2013).

In general, validity is divided into several categories that serve different purposes and include face validity, content validity, criterion validity and construct validity (Norashida *et al.,* 2021). The validation of a scale is an ongoing process with each form

(face, content, criterion, and construct) building on the other and occurring progressively or sequentially (Depoy & Gitlin, 2011). The submission of the constructed items or draft for a review by a panel of experts such as the university faculty is the most appropriate approach to rate face validity (Depoy & Gitlin, 2016; Cooper & Schindler, 2019; Roy *et al.,* 2023). The feedback given by the faculty formed the basis for rating the face validity of the instrument (Roebianto *et al.,* 2023).

Content validity refers to representative items or tests in measuring the behaviour being studied (Roebianto *et al.*, 2023). Content validity is the degree to which the instrument covers all items necessary or sufficient to measure the construct of interest (Roy *et al.,* 2023) and covers all facets of a given social construct (Noor *et al.,* 2016). Content validation is a rigorous assessment process that is invaluable for the quality of the newly developed instrument. The content validation process seeks assurance that an instrument (checklist, questionnaire, or scale) measures the study construct it is expected to measure (Ayre & Scally, 2014). Content validation processes and content validity indices are critical to the instrument development processes (Almanasreh *et al.,* 2019).

The content validity process involved the submission of draft indicators for review by a panel of experts (Depoy & Gitlin, 2016). Under normal circumstances, the process involves two types of experts; content(domain) experts and evaluator participants representing the population samples (lay experts) (Roebianto *et al.,* 2023). The domain experts are professionals possessing work experience in research or published scientific articles on related studies and can provide constructive feedback in terms of the fulfilment of criteria and the relevancy of the psychometric properties of the instrument (Almanasreh *et al.,* 2019). It is recommended that the minimum number of experts in

the content validation process is three, while the maximum ranges between five and seven (Roebianto *et al.*, 2023).

After the ascertainment of the content validity, the researcher used exploratory factor analysis to determine the construct validity (Cooper & Schindler, 2016). Construct validity is the degree to which an instrument measures the trait or theoretical construct that it is intended to measure (Roy *et al.*, 2023). Convergent validity refers to the extent to which items related to a construct share a high proportion of variance in common and thus the usual rule of thumb is that a simple factor structure (Saunders *et al.*, 2016) emphasizes the internal consistency of the indicators measuring the same construct (Cheung *et al.*, 2023). Convergent validity is indicated by evidence that different indicators of theoretically similar or overlapping constructs are strongly interrelated. When the hypothesized measurement model fits the data adequately, this fundamental establishes convergent validity in that all indicators converge well on their construct (Pendergast *et al.*, 2017).

3.9.3 Factor Analysis

Factor analysis is a method used to recognize underlying factors within a larger set of measures. There are four steps in the factor analysis technique and the first step involves the use of Kaiser-Meyer-Olkin or KMO and Bartlett's tests of sphericity to evaluate the suitability of the data for detecting structures ((Hair *et al.*, 2019). The KMO test measures the adequacy of sampling and takes values between 0 and 1 and a value that is close to 1 at a 0.05 significance level (Bartlett's tests of sphericity) indicates the suitability of data for the factor analysis process.

The second step involved the determination of the factor extraction method to be used. The study used principal component analysis because the model generated the rotated

factor loadings which were used in calculating the indicators of construct validity (Hair *et al.*, 2010). The third step involved the selection of the number of factors to be retained and the study used the latent root criterion where only those factors having latent roots or Eigenvalue greater than 1 were considered significant and used for further analysis. The fourth step involved the determination of the rotation method that would maximize the relationship between variables and factors. Varimax rotated solution is the most preferred option because it yields results and simplifies the identification of the single factor within the variables (Hair *et al.*, 2019).

3.9.4 Reliability

Creswell and Creswell (2017) define reliability as the extent to which an item triggers the same responses every time it is administered. Reliability indicates the stability and consistency with which the instrument measures the concept and aids in the assessment of the goodness of a measure (Sekaran & Bougie, 2010). The internal consistency of measures indicates the homogeneity of the items of the indicator that tap into the construct and was examined through the inter-item consistency reliability tests, Cronbach's coefficient alpha. The cut-off criteria ≥ 0.70 confirm the adequacy of the instrument for confirmatory purposes. However, the higher the coefficients, the better the measuring instrument (Sekaran & Bougie, 2010).

3.10 Data Preparation, Screening and Processing

Preparation of data involved cleaning, screening, coding and entering data into a data analytical tool and then the appropriate data analysis strategy was selected for testing the hypothesis. Data was cleaned and screened to check for inconsistencies, missing responses and other errors to ensure accuracy and completeness before coding and

entry. Coding and data entry were carried out through the use of statistical analysis software package SPSS version 23.

3.10.1 Missing Data Analysis

Missing data is a statistical problem characterized by an incomplete data matrix that arises when one or more individuals in a sampling frame do not respond to one or more survey items (Newman, 2014). The presence of missing values reduces the data available for analysis, compromising the statistical power of the results, and eventually the reliability of its results. In addition, it causes a significant bias in the results and degrades the efficiency of the data (Kwak & Kim, 2017).

Data can be missing randomly or systematically and missing data are inevitable in business research as long as would-be participants are allowed to autonomously opt out of the study (Carpenter & Smuk, 2021). The three scenarios that relate to the data missingness mechanisms are; Missing at Random (MAR), Missing Not at Random (MNAR) and Missing Completely at Random (MCAR) (Carpenter & Smuk, 2021; Papageorgiou *et al.,* 2018). These data missingness mechanisms describe relationships between measured variables and the probability of missing data and dictate the performance of different missing data techniques (Baraldi & Enders, 2010). MCAR mechanisms are considered to be random while the MAR mechanism and the MNAR mechanism are considered to be systematic (Newman, 2014).

The problems of missing data range from biased estimation of parameters to inaccuracy in hypothesis testing coupled with low power explanation and inaccurate standard errors (Newman, 2014). Relatedly, the two main challenges caused by missing data are bias and error. *Bias* refers to the systematic over- or underestimation of a parameter (e.g., underestimated mean, correlation, or regression coefficient). Parameter

estimation bias can be thought of as an external validity problem because the biased estimates reflect a different population from the target population the researcher intends to understand (Baraldi & Enders, 2010).

The choice of a missing data treatment can depend on which level of missing data (Newman, 2014), thus, the study explored the patterns and likely reasons for the missing data, and considered the validity of complete data analysis (Carpenter & Smuk, 2021). Several missing data treatments exist and range from listwise deletion, pairwise deletion, single imputation, maximum likelihood, and multiple imputation (Newman, 2014). Deletion techniques (complete case analysis) are perhaps the most basic of the traditional missing data techniques (Baraldi & Enders, 2010) which involve the removal of all missing values from the analysis and are simplistic but tend to reduce sample size and lower statistical power (Kwak & Kim, 2017; Baraldi & Enders, 2010).

Imputation involves the process of estimating the missing data of an observation based on valid values of the other variables. The objective is to employ known relationships that can be identified in the valid values of the sample to assist in representing or even estimating the replacements for missing values (Hair *et al.,* 2019). Imputations can be created by using either an explicit or an implicit modelling approach (Kwak & Kim, 2017). Though, several imputation methods include single imputation, mean imputation (Baraldi & Enders, 2010), and multiple imputation (Papageorgiou *et al.,* 2018), this study used the regression imputation technique to replace missing values with predicted scores from a regression equation. (Papageorgiou *et al.,* 2018).

3.10.2 Common Method Variance

The use of a single survey respondent as the source of both the predictor and criterion variables introduces the possibility of bias caused by the use of a single method of data

collection or utilizing self-report measures during a survey (Eichhorn, 2014; Jakobsen & Jensen, 2015). Additionally, the design of the survey instrument itself can cause raters to bias their responses and this is represented by the Common Method Variance (CMV) (Eichhorn, 2014). CMV occurs when responses systematically vary because of the use of a common scaling approach on measures derived from a single data source (Fuller *et al.,* 2016). The Common Method Variance (CMV) represents the amount of spurious correlation among the variables generated from the use of the same method (i.e., survey) in measuring each study variable (Tehseen *et al.*, 2017).

The main source of CMV includes the use of only one type of item context, respondent, measurement context, and item characteristics. The four common sources of CMV include; (a) the use of the same respondent to obtain the information for both dependent and independent variables; (b) the manner of items' presentation to respondents; (c) the context in which items are placed on a questionnaire; (d) and the contextual impacts (media, time, and location) used for measurement of the constructs (Tehseen *et al.*, 2017).

Common method biases arise from having a common rater, a common measurement context, a common item context, or from the characteristics of the items themselves. These factors may act singly or collectively to generate the bias (Jakobsen & Jensen, 2015). In business management research, the respondents may overstate their competencies and abilities and provide a more positive assessment of themselves because of social desirability. Therefore, the estimated impacts may suffer from common method bias (Tehseen *et al.,* 2017). Furthermore, common method bias may arise from some respondents' tendency to use (or avoid using) the extreme choices on a response scale and the tendency to agree (or disagree) with attitude statements regardless of content (acquiescence and disacquiescence (Jakobsen & Jensen, 2015).

The two main approaches to control the method biases are the procedural and statistical methods (Tehseen *et al.,* 2017). The procedural remedies use prior data collection; on the other hand, statistical remedies are applied after data collection before/after analyzing the data.

3.10.3 Outlier Analysis

Outliers are patterns in data that do not conform to a well-defined notion of normal behaviour and form significant challenges in the fields of research and application domains (Singh & Upadhyaya, 2012). Outliers refer to extreme values that abnormally lie outside the overall pattern of a distribution of variables (Kwak & Kim, 2017). Outliers significantly affect the process of estimating statistics (*e.g.*, the average and standard deviation of a sample), resulting in overestimated or underestimated values (Kwak & Kim, 2017). The presence of outliers in multivariate data can distort any statistical procedure (Cabana *et al.,* 2021). Outliers can be classified into the following three categories: point outliers, contextual outliers and collective outliers (Singh & Upadhyaya, 2012).

Outlier identification should precede data analysis (Kwak & Kim, 2017) and different methods can used to identify outliers in a normal distribution. Outliers in univariate data values are visualized by the use of box plots or box and whisker diagrams. Another basic form of outlier detection is an extreme-value analysis of dimensional data (Aggarwal & Aggarwal, 2017). Outliers are also identified based on the distance between a data point and the centre of all data points to determine an outlier. Based on this method, the data points that do not fall within three standard deviations of the mean are identified as outliers (Kwak & Kim, 2017).

The median absolute deviation (MAD) is calculated based on a range around the median, multiplied by a constant (with a default value of 1.4826), while the Minimum Covariance Determinant (MCD) is an indicator to detect multivariate outliers because it uses the median, which is the most robust location indicator in the presence of outliers (Leys *et al.,* 2019). Lastly, Mahalanobis distance is a common method for detecting outliers based on the chi-square distribution (Leys *et al.*, 2019; Li *et al.,* 2019). The Mahalanobis method is robust to increasing dimensionality because it uses the covariance matrix to summarize the high dimensional deviations in a statistically effective way (Aggarwal & Aggarwal, 2017).

3.11 Data Analysis Procedures

Data analysis involves a systematic process of categorizing, ordering, manipulating, and summarizing data to obtain answers to pre-set research hypotheses (Cooper and Schlinder, 2012). Data obtained from the field was inspected and edited to detect errors and omissions. Data was then coded by assigning numerical symbols for quick data entry and to minimize errors.

3.11.1 Descriptive Statistics

Descriptive statistics describe patterns and general trends in given data sets. It is used to examine or explore one variable at a time (Creswell & Creswell, 2017). The descriptive methods used included frequency distribution, mean, standard deviations, skewness and kurtosis (Zikmund *et al.,* 2010). Descriptive statistics was used to summarize data and make general observations from the study variables. To describe the rate of respondents, the study used the percentage distribution while the presentation of the descriptive analysis of the study variables used mean and standard deviations (measures of central tendency) and skewness and kurtosis (measures of variability)

(Sekaran & Bougie, 2013). The output from the analysis was presented in tabular and pictorial formats.

3.11.2 Data Transformation

Most statistical procedures assume that data are normally distributed but the violation of this assumption of normality can seriously increase the chances of either a Type I or II error occurring (Osborne, 2012). The presence of outliers in data can be solved through data transformation which also serves many functions in quantitative data analysis (Rönkkö & Aguirre-Urreta, 2020). In linear modelling, variable transformation helps to convert data distribution from non-normal to normal and helps generate a linear relationship between variables from non-linear relation and stabilize variance (Lee, 2020).

The most common transformation techniques are logarithm, square root and reciprocal (Ribeiro-Oliveira *et al.,* 2018), however, the common two options for logarithmic transformation are the logarithm (Log^{10}) and the natural logarithm (Ln) where the constant, (e = 2.7182818) is the base. Logarithms in base 10 (log) and natural/Naperian logarithm (ln) have the same effects on the data set (Lee, 2020). Therefore, the study used the natural/Naperian logarithm (ln) to transform the data for further inferential statistics.

3.11.3 Inferential Statistics

Analysis of Variance (ANOVA)

ANOVA is an extension of the t-test, examines the significant mean differences among more than two groups on an interval or ratio-scaled dependent variable and is indicated by the F statistic. The F distribution is a probability distribution of sample variances

and the family of distributions changes with changes in the sample size ((Hair *et al.,* 2019).

Factor Analysis

Factor analysis is a multivariate method used to identify common underlying variables called factors within a larger set of measures and is based on the notion that measurable and observable variables can be reduced to fewer latent variables that share a common variance (Hair *et al.,* 2019). There are four steps in the factor analysis technique.

The first step involved evaluating the suitability of the data for structure detection using Kaiser-Meyer-Olkin (KMO) and Bartlett's tests of sphericity. Kaiser-Meyer-Olkin Measure of Sampling Adequacy is used to determine the suitability data for factor analysis and takes values between 0 and 1. A high value (close to 1) with a 0.05 significance level indicates that factor analysis may be suitable for the data (Roy *et al.,* 2023).

The second step is the determination of the factor extraction method to be used. There are more than four methods for rotating data but the study used principal components analysis to extract maximum variance from the data set. The goal of the rotation is to attain an optimal simple structure where each variable loads on as few factors as possible (Schreiber, 2021). The third step involved the selection of the number of factors to be retained based on the latent root criterion where only the factors having eigenvalue greater than 1 are considered significant and are retained (Yong & Pearce, 2013). The fourth step involved determining a rotation method that maximizes the relationship between variables and factors. The study used varimax rotation to minimize the number of variables which is the most common rotation option that yields

results which make it as easy as possible to identify each variable with a single factor (Hair *et al.,* 2019).

Multiple Regression Analysis

Multiple regression analysis is used to analyse the relationship between a single dependent variable and several independent variables based on a linear relationship. To reduce reliance on a single item or variable, the study used an index composed of multiple items of a variable. Though there is no single best method, the study used hierarchical techniques to reflect the theoretical basis (Hair *et al*, 2019).

3.12 Statistical Models

3.12.1 Model Specification

Testing for Direct effects

To achieve objectives 1, 2, and 3, being direct relationships, a linear regression model was used to test hypotheses H_{O1}, H_{O2}, and H_{O3}. The test statistics were computed and the coefficients of determination (R^2) which indicate how well the model fits the data based on the F–test, the regression coefficient (Beta coefficient) and the p-values were computed. The study used a 0.05 significance level (p-value) to ensure that the overall model (F-statistic) and the beta coefficient were statistically significant in predicting the dependent variable. The objective of multiple regression analysis is to predict the changes in the dependent variable in response to changes in the independent variables. This objective is most often achieved through the statistical rule of least squares (Hair *et al.,* 2019).

In this first direct effect equation (3.1), the control variables were tested for their contribution to the dependent variable (employee performance) as follows:

$Y = \beta_0 + \beta_1 Gender + \beta_2 Age + \beta_3 Education + \beta_4 Experience + \beta_5 Departmental\ function + e$ ……**Equation 3.1**

Where: Y: Employee Performance

β_0: Constant

$\beta_1 - \beta_5$: coefficients of the dependent variable.

e: Error term

H_{01}: High-Performance Work Systems have no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

$Y = \beta_0 + C + \beta_1 X + e$ …….....**Equation 3.2**

Where: Y: Employee Performance

C : Control variables

X: High-Performance Work Systems

β_0: Constant

β_1: coefficients of the independent variable.

e: Error term

H_{02}: Employee Engagement has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

$Y = \beta_0 + C + \beta_1 X + \beta_2 M + e$ …….....**Equation 3.3**

Where: Y: Employee Performance

M: Employee Engagement

X: High-Performance Work Systems

β_0: Constant

C: control variable

β_1: Coefficient of the independent variable

β_2: Coefficient of the mediator variable

e : Error term

H_{03}: Organizational Justice has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

$Y = \beta_0 + C + \beta_1 X + \beta_2 M + \beta_3 W + e$ …….....**Equation 3.4**

Where : Y: Employee Performance

β_0 : Constant

C: control variable

β_1: coefficients of the independent variable

β_2: coefficients of the mediator variable

β_3: coefficients of the moderator variable

X: High-Performance Work Systems

M: Mediator variable

W: Moderator variable

e : Error term

Testing for Mediation Effect

The relations between variables are often more complex and may be modified by, or informed by the addition of a third variable (Fairchild & Mackinnon 2009). A mediation hypothesis is tested statistically by estimating and conducting an inference about the indirect effect, as it quantifies the difference in Y attributable to a one-unit change in X

through the effect of X on M which in turn affects Y (Hayes, 2018). To determine the mediating effect of employee engagement (mediator variable) on high-performance work systems (independent variable) and employee performance (dependent variable), Hayes (2018) model 4 (mediation model) was employed. This model adopts the three steps explained as follows:

Under *step one,* the independent variable (high-performance work systems) must have a significant influence on the mediator (employee engagement), and the equation took the form of:

$M = a_0 + C + aiX + \varepsilon$.....**Equation 3.6**

Where: M = Employee Engagement,

a_0 = Constant,

C = Control Variable,

X = High-Performance Work Systems and

ε = Error term.

In *step two,* the mediator (employee engagement) must have a significant effect on the dependent variable (employee performance), and the equation took the form of:

$Y = \beta 0 + C + biM + \varepsilon$……..…….....**Equation 3.7**

Where: Y = Employee Performance,

β_0= Constant,

C = Control variables,

bi = coefficients of the mediator

M = Employee Engagement and

ε = Error term

Step *three* focuses on the direct effect, where the relationship between the independent variable (high-performance work systems) and the dependent variable (employee performance) is tested while controlling for the mediator (employee engagement). The model equation is stated below:

$Y= C'0 + C + biM+ C'1X + \varepsilon$…….....……**Equation 3.8**

Where: Y= Employee Performance

C'0 = Constant,

C= control variables,

bi = coefficients of the mediator variable

X = High-Performance Work Systems,

M = Employee Engagement and

ε = Error term.

The indirect effect, where mediation is tested is obtained by equation 3.9 as seen below:

H_{04}: Employee Engagement has no significant mediating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

ai x bi or C - C'…….…….…….**Equation 3.9**

Where C is the total effect obtained as (a1b1) + C', where C' is the direct effect. This is presented in Statistical Model 4 in Fig 3.1.

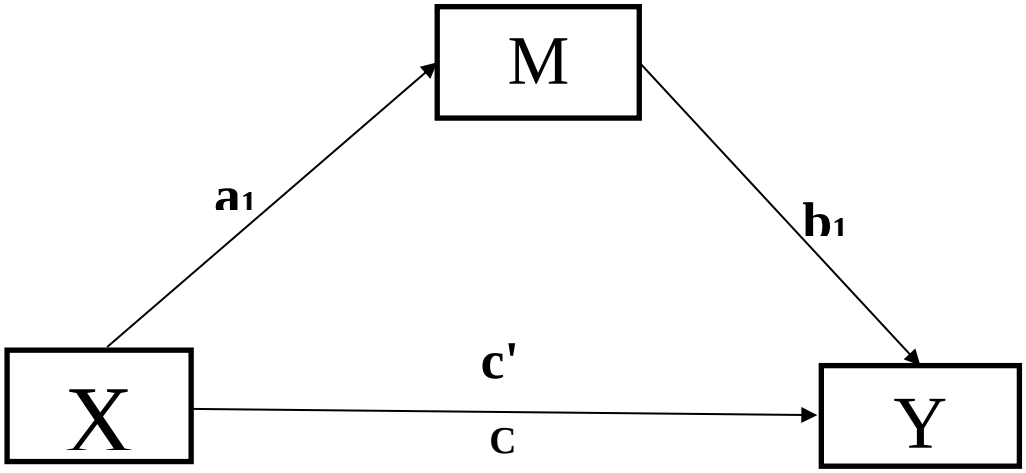

Figure 3.1: Hayes (2018) Mediation Model 4
Source: Hayes (2018)

Testing for Moderation Effects

Moderation effects are typically viewed as an interaction between factors or variables, where the effects of one variable depend on levels of the other variable in the analysis. Moderation describes a situation in which X's effect on Y varies as a function of some third variable, W, the moderator variable. A moderated effect is typically modelled statistically as an interaction between *X* and the moderator variable, frequently quantified as the product of X and W (Hayes, 2009). A linear moderation hypothesis is tested with an inference about the regression weight for XW. If this weight is different from zero, this implies that X's effect on Y varies with W (Hayes, 2018).

H_{05}: Organizational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

$M = a_0 + C + a_1X + a_2W + a_3XW + e$ …….....**Equation 3.10**

Where : M: Employee Engagement

$a_{0:}$ Constant

C: control variable

$a_{1:}$ coefficients of the independent variable

$a_{2:}$ coefficients of the moderator variable

X: independent variable

W: Moderator variable

e : Error term

$H_{06:}$ Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

$Y = C'0 + C + C'1X + C'2W + C'3W + \varepsilon$……....…**Equation 3.11**

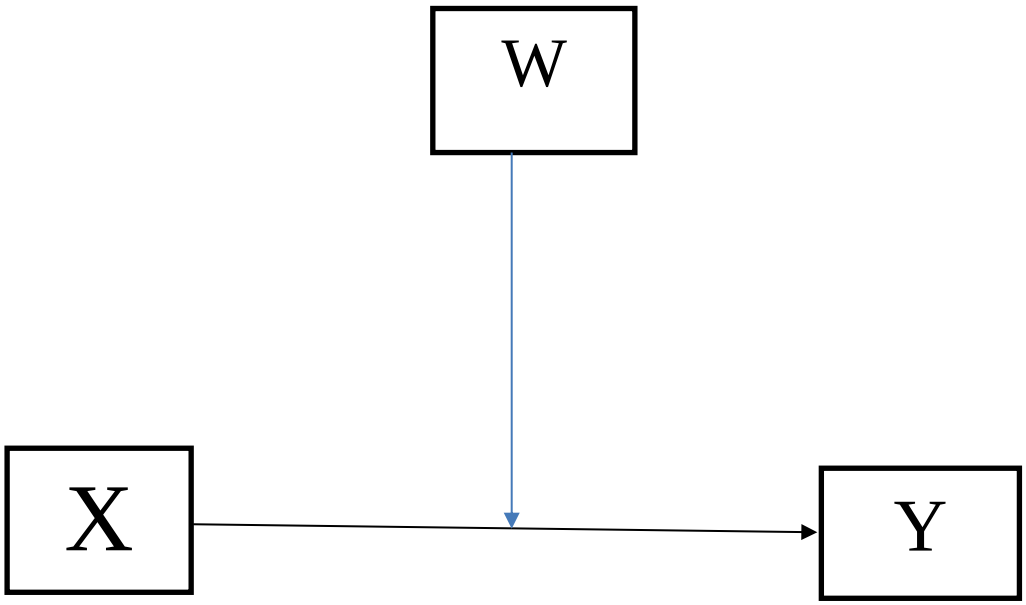

Figure 3.2: Hayes (2018) Moderation Model 1
Source: Hayes (2018)

Testing for Moderated – Mediation effects

Baron and Kenny (1986) coined the term moderated mediation which involves first showing an interaction effect of X and W on Y, then introducing a mediator of that effect. In such models, researchers may be interested in probing the interaction effects of X and W on M and Y separately to clarify the nature of key relationships. When moderated mediation analyses are analytically integrated, they form moderated - mediation effects where the effect of X on Y in a mediation model can be estimated as linearly moderated by W (Hayes, 2018).

The moderated mediation takes the path from the intervention to the mediator (i.e., X → M) is constant, whereas the effect of the mediator on the outcome (i.e., M → Y) depends on the level of Z (Preacher *et al.*, 2007). The moderated mediation model takes the form where moderator, W affects both paths a_1 and b_1. Moderated mediation could occur when a moderator W interaction is observed because of differences in IV to mediator and/or mediator to DV paths or when no moderator interaction is observed because different mediators create the same magnitude of effect or a mediator operates at some levels of the moderator but direct effects occur at other levels (Preacher *et al.*, 2007).

In a moderation model, the effect of X on Y is specified as related to a moderator, W. The moderation hypothesis most often assumes that the relationship between X and Y is linear and also linearly moderated by W. In some instances, the moderation and mediation analysis can be analytically integrated. Thus, the effect of X on M in a mediation model can be estimated as linearly moderated by W. The indirect effect of X on Y is the product of the effect of X on M (a1 + a3W) and the effect of M on Y (b) is a linear function of W (Hayes, 2015). As the indirect effect is the statistical quantification of the mechanism through which X affects Y, when it is a linear function

of a moderator, it means the mechanism's size or strength increases or decreases with changes in the moderator. The inclusion of W and XW in the model of Y would allow the direct effect of X to be moderated by W, though that would not change the function defining the indirect effect of X (Hayes, 2018).

$H_{07:}$ Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance through Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.

The hypothesis testing took the following format:

$Y = (b0 + a0b1 + a_2b_1W + c_2'W) + (a_1b_1 + a_3b_1W + c_1' + c_3'W)X$

Hence, One indirect effect(s) of X on Y, conditional on W: a1b1 + a3b1W = (a1 + a3W)b1

One direct effect of X on Y, conditional on W: c1' + c3'W

The study used a stage-moderated mediation model with the moderator W on the effect of X on M as shown in Figure 3.3 below.

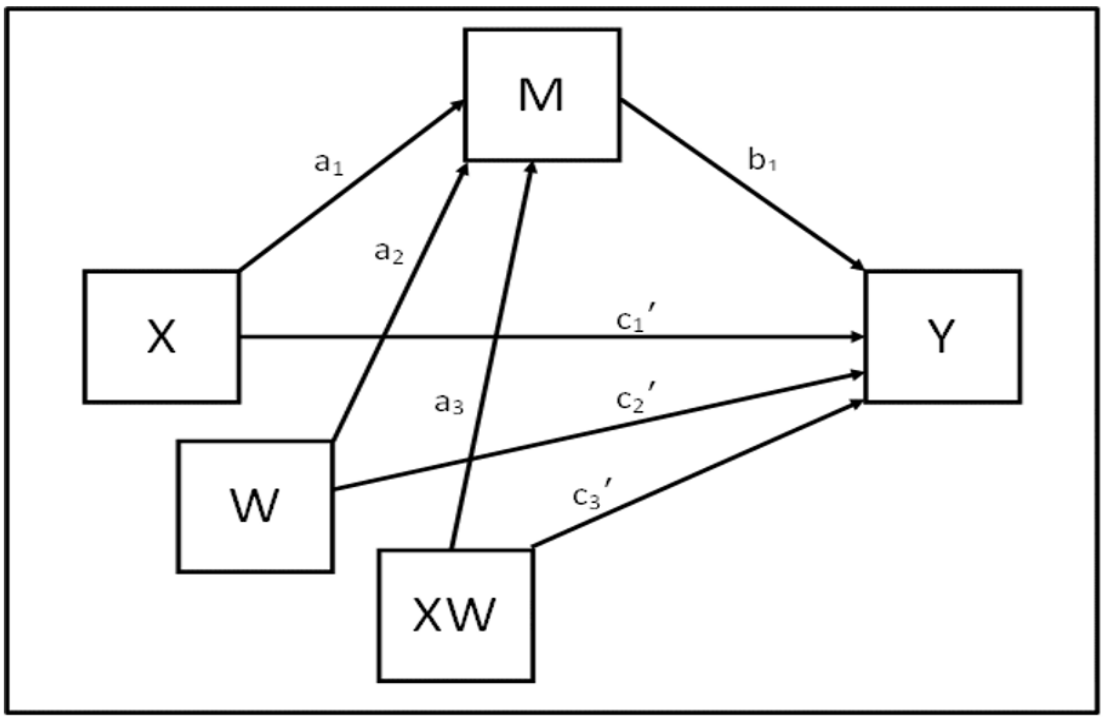

Figure 3.3: Hayes (2018) Moderated- Mediation Model 8
Source: Hayes (2018)

3.12.2 Assumptions of the Regression Model

These tests are based on a set of assumptions made concerning the unobservable error or disturbance terms (Brooks, 2014). They include the linear relationship between parameters, no perfect collinearity, specification of the relationship between the variables, normally distributed and homoscedastic (Wooldridge, 2013).

3.12.2.1 Normality

Normality is considered to be a fundamental assumption in multivariate analysis which assumes that data distribution in each item and all linear combinations of items is normally distributed (Hair *et al.,* 2019). The assumptions of normality can be examined at the univariate level (distribution of scores at an item level) and multivariate level (distribution of scores within a combination of two or more items). Hair *et al.,* (2019) assert that if a variable satisfies the multivariate normality then it definitely would satisfy the univariate normality, but the reverse is not necessarily true. To identify the

shape of the distribution, Kolmogorov-Smirnov and Shapiro-Wilk tests were used (Shapiro & Wilk, 1965). In addition, graphical analysis was used to validate the normality assumption (Hair *et al.,* 2019).

3.12.2.2 Linearity

Linearity refers to the correlation between variables, which is represented by a straight line. Knowing the level of the relationship among variables is considered an important element in data analysis. Hair *et al.,* (2019) argue that linearity is an assumption of all multivariate techniques based on correlational measures of association including multiple regressions. Therefore, it is crucial to examine all relationships between variables to identify any departure from linearity that may affect the correlation. To test for linearity, scatter plots of the variables were examined to identify any non-linear patterns in the data (Hair *et al.,* 2010).

3.12.2.3 Multicollinearity

Multicollinearity means that two or more of the independent variables are highly correlated and this situation can have damaging effects on the results of multiple regressions. The correlation matrix was a powerful tool for getting a rough idea of the relationship between predictors. Multicollinearity was also tested by running regression models in Variance Inflation Factor (VIF) and tolerance values were generated. A threshold VIF of 10 and a tolerance ratio of 0.1 (Tabachnick *et al.,* 2007).

3.12.2.4 Homoscedasticity

According to Hair *et al.,* (2019), homoscedasticity refers to the assumption that the dependent variable exhibits equal levels of variance across a range of predictor variables and that their error terms also have a common variance. Homoscedasticity is desirable because the variance of the dependent variable being explained in the

dependent relationship should not be concentrated in only a limited range of independent values (Hair *et al.*, 2019).

Heteroscedasticity occurs when the variance of the residuals depends on the predicted value (Schmidt & Finan, 2018). When the homoscedasticity assumption is violated, it leads to increased Type I error rates or decreased statistical power (Rosopa *et al.*, 2013). While the White test tends to have low power, Levene's test may not have adequate statistical power to detect violations of the homogeneity of variance assumption, therefore, Breusch, Pagan & Godfrey test is a general test of heteroscedasticity (Rosopa *et al.*, 2013).

3.12.3 Summary of Hypothesis Testing

The summary of hypothesis testing is indicated in Table 3.4 below

Table 3.4: Summary of Hypothesis Testing

Hypothesis	Hypothesis tests	Test statistics	Decision criteria	Interpretations
H_{o1}: High-Performance Work Systems have no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	**$H_{01}: \beta_1 = 0$**	R^2 (F – statistic) β, (t – statistic) & Δ R^2	$t \geq \pm 1.96$, $p \leq 0.05$	Reject H_{01} when $\beta \neq 0$, $p \leq 0.05$, otherwise fail to reject if $p > 0.05$.
H_{o2}: Employee Engagement has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	**$H_{02}: \beta_2 = 0$**	R^2 (F – statistic) β, (t – statistic) & Δ R^2	$t \geq \pm 1.96$, $p \leq 0.05$	Reject H_{02} when, $\beta \neq 0$, $p \leq 0.05$, otherwise fail to reject if $p > 0.05$.
H_{o3}: Organisational Justice has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	**$H_{03}: \beta_3 = 0$**	R^2 (F – statistic) β, (t – statistic) & Δ R^2	$t \geq \pm 1.96$, $p \leq 0.05$	Reject H_{03} when $\beta \neq 0$, if $p \leq 0.05$, otherwise fail to reject if $p > 0.05$.
H_{o4}: Employee Engagement has no significant mediating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	**$H_{04}: \beta_4 = 0$**	R^2 (F – statistic) β, (t – statistic) & Δ R^2	$t \geq \pm 1.96$, $p \leq 0.05$, LLCI & ULCI (none zeros)	Reject H_{04} when $\beta \neq 0$, $p \leq 0.05$, otherwise fail to reject if $p > 0.05$.

Ho_5: Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya	**$H_{05}: \beta_5 = 0$**	R^2 (F – statistic) β, (t – statistic) & Δ R^2	$t \geq \pm 1.96$, $p \leq 0.05$, LLCI & ULCI (none zeros)	Reject H_{05} when $\beta \neq 0$, $p \leq 0.05$, otherwise fail to reject if $p > 0.05$
Ho_6: Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	**$H_{06}: \beta_6 = 0$**	R^2 (F – statistic) β, (t – statistic) & Δ R^2	$t \geq \pm 1.96$, $p \leq 0.05$, LLCI & ULCI (none zeros)	Reject H_{06} when $\beta \neq 0$, $p \leq 0.05$, otherwise fail to reject if $p > 0.05$
Ho_7: Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance through Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.	**$H_{07}: \beta_7 = 0$**		$t \geq \pm 1.96$, $p \leq 0.05$, LLCI & ULCI (none zeros)	Reject H_{07} when $\beta \neq 0$, $p \leq 0.05$, otherwise fail to reject if $p > 0.05$

Source: Author (2025)

3.13 Ethical Considerations

Ethical considerations are the principles that a researcher should abide by when conducting research. Ethical values can be highly influenced by one's moral standards and are based more on the social or cultural acceptability of behaviour. The researcher approached the ethical issues from an idealist point of view where one bases their morality on moral standards (Saunders *et al.,* 2019). Therefore, it concerns the moral choices affecting decisions, standards and behaviour in research. The researcher obtained the requisite clearance from Moi University (Appendix III) and, a research permit from NACOSTI (Appendix IV). Further authorization for the research was sought from the county commisioner's office (Appendix V) and County education office (Appendix VI). Before administering the questionnaire to the respondents, instructions were given to the participants with assurance that the information given out in the questionnaire was purely for academic purposes. They were also informed that their participation was voluntary, and one had a right to participate or end their participation if they so wished.

The researcher's values of sincerity, honesty and integrity and the treatment of other research subjects (respondents) were based on informed consent, confidentiality, and courtesy. Respondents were also guaranteed protection through anonymity. The anonymity and confidentiality of the respondents were respected by ensuring that the research instruments did not bear the names of the respondents. Additionally, the researcher adhered to the Privacy Principle to ensure openness, fairness and flexibility with the respondents when collecting data (Saunders & Lewis, 2012). Finally, the researcher took the responsibility to only collect, analyse and present data required to fulfil the objectives of the study without any manipulations.

During the write-up, the researcher ensured the intergrity of the research work by submitting the work for plagiarism check and further, the researcher declares that the work is purely an intellectual work with no use of aritificial intelligence.

CHAPTER FOUR

4.0 DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Overview

This chapter presents the data analysis, interpretation, and discussion of the study findings. It includes data processing, demographic characteristics of the respondents and presentation of descriptive and inferential statistical results. The chapter reports on response rate, missing data, outliers, control of common method variance and Type 1 and Type 2 errors. Secondly, the chapter presents the results of the demographic profile of the study participants before presenting descriptive statistics on the study variables in the research context. Following these descriptive statistics, the chapter reports the diagnostic statistics associated with multiple regressions embedded in Andrew Hayes' PROCESS Macro 4.2. Finally, the chapter reports the results of hypotheses tests targeting direct effects, mediated effects, moderated effects and moderated-mediation effects.

4.2 Response Rate

The sample size for the study was 376 employees from selected manufacturing firms in the industrial area, of Nairobi City County, Kenya. From a total of 361 administered questionnaires, 317 were returned appropriately filled in a process that ran for two months (from 11th June to 31st August 2024). The response rate is the total number of responses divided by the total number in the sample after ineligible responses have been excluded and is calculated as follows.

$$\text{Response rate} = \frac{(\text{Partial responses} + \text{Full responses})}{\text{Contacted individuals}}$$

$$\text{Response rate} = \frac{(17 + 300)}{361} = 87.80\ \%$$

$$\text{Partial response rate} = \frac{17}{361} = 4.70\ \%$$

The study had a response rate of 87.80 % and a non-response rate of 12.20 %.

Partial respondents represent the number of responses with construct–level missingness, while full response represent the number of responses with no–construct–level missingness and contacted individuals are the number of individuals contacted with the survey initiation (Newman, 2014).

In validating the response rate, Saunders *et al.,* (2020) suggest that the estimates of the respondents should be based on the response rates achieved for similar surveys but the researcher can err on the side of caution. For most academic studies involving individuals or organisations' representatives, response rates of approximately 50 per cent and 35 to 40 per cent respectively are reasonable (Hair *et al.,* 2012). Based on Saunders *et al.,* (2020) a response rate of more than 40 % is considered sufficient for the study to draw inferences from organizational studies. Thus, the study with a response rate of 87.80%, was ideal for the study to draw meaningful inferences (Hair *et al.,* 2019) as other studies with comparable sample size include; Ghosh *et al.,* (2019) with a sample size of 206 of 284 employees (72.5%), Huang *et al.,* (2018), 782 of the 1000 employee (78.2%), Karatepe *et al.,* (2014) used 165 of 200 employees (85%), Strom *et al.,* (2019) 348 of 356 employee (97%), and Kim & Park (2017) 400 of 400 employee (100%) among other studies.

4.3 Data Preparation, Processing, and Screening

Data processing involves classification and summarization of data to make them manageable for analysis. It also involved determining the availability and completeness of data, evaluating, summarizing, and communicating the results (Saunders *et al.,* 2019).

The data that was collected from the field was checked for consistency and completeness before being coded and entered in a statistical package for the social sciences (SPSS 23.0). This process converted the raw data form into reduced and classified forms that were appropriate for analysis and analysed through descriptive and inferential statistics (Cooper & Schindler, 2017).

4.3.1 Missing Data Analysis

The first step in any examination of missing data is to determine the type of missing data involved. Here the researcher is concerned whether the missing data are part of the research design and under the control of the researcher or whether the "causes" and impacts are truly unknown. Also, researchers should understand the "levels" of missingness present in their data so that the most effective missing data strategies can be developed (Hair *et al.,* 2019).

Many times missing data are expected and part of the research design. In these instances, the missing data are termed ignorable missing data, meaning that specific remedies for missing data are not needed because the allowances for missing data are inherent in the technique used. However, in some cases, missing data that cannot be classified as ignorable occurs for many reasons and in many situations (Hair *et al.,* 2019).

Upon receipt of the completed questionnaire, the researcher/research assistants quickly scanned to check that all questions were answered. If a question(s) were ignored, the researcher/research assistant kindly requested the respondent to complete the questionnaire. But if not, then the researcher just took note of the incomplete questionnaire (Saunders *et al.,* 2019).

The missingness is concerned with the absence or presence of a missing/valid value and therefore, determining how that missing data value might be imputed is addressed once the type of missing data process is determined and there are three levels of missingness. The item level is where the level of missingness is first encountered, this is when a value is not available, the construct level is where the level of missingness occurs when item-level missing data acts to create a missing value for an entire construct of interest and the person-level where a participant does not respond to any part of the survey. Typically also known as non-response, it potentially represents influences from both characteristics of the respondent (Hair *et al.,* 2019).

The researcher must next examine the patterns of the missing data and determine the extent of the missing data for individual variables, individual cases, and even overall by tabulating (1) the percentage of variables with missing data for each case and (2) the number of cases with missing data for each variable. Observations with up to 10 per cent missing data are generally acceptable and amenable to any imputation strategy as long as the minimum sample with complete data is sufficient for model estimation (Hair *et al.,* 2019).

The next step is to ascertain the degree of randomness present in the missing data, which then determines the appropriate remedies available. Missing data processes can be classified into one of three types based on two features that distinguish the three types:

(a) the randomness of the missing values among the values of Y and (b) the degree of association between the missingness of one variable (in our example Y) and other observed variable(s) in the dataset (in our example X). Based on features, there are three forms of data missing; data missing at random (MAR), data missing completely at random (MCAR) and data missing not at random (MNAR) (Hair *et al.,* 2019).

MCAR can be diagnosed based *on Little's MCAR Test* which tests randomness and determines whether the missing data is at random or completely at random (Saunders *et al.,* 2019). Before data analysis, descriptive statistics were used to check if any values were missing during data entry. The researcher received three hundred and seventeen (317) questionnaires and three hundred (300) were used in the final tally as indicated in Table 4.1. It is recommended that if the partial response is < 5 %, then any imputation methods can be used (Hair *et al.,* 2019) and if the partial response rate is > 5 %, then appropriate techniques such as regression imputation and maximum likelihood estimation are used (Papageorgiou *et al.,* 2018). In consultation with the supervisors, the seventeen incomplete questionnaires were removed from the final tally of the study.

Table 4.1: Distribution for Missing Items

	Number of items	Missing		No. of Extremes	
		Count	Per cent	Low	High
High - Performance work systems	300	4	1.3	27	0
Employee engagement	300	3	1.0	16	0
Organizational justice	300	3	1.0	26	0
Employee performance	300	4	1.3	35	0

a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

Source: Research Data (2025)

The distribution in Table 4.1 shows that the distribution of the missing items ranged between 1.0 % to 1.3 % and based on recommendation, the study carried out the null hypothesis that data is missing completely at random using Little's MCAR test to ascertain the pattern of data missing completely at random, at $p < 0.05$ significance levels. If the $p > 0.05$, then the study does not reject the null hypothesis that data is completely missing at random (Hair *et al.*, 2019). The statistical values in Table 4.2 indicate the p – values > 0.05 which indicates that the data was MCAR.

Table 4.2: Little MCAR Test

	Number of items	χ^2 - test	df	p-value
High-performance work systems	300	159.385	176	0.810
Employee engagement	300	30.588	56	0.998
Organizational justice	300	151.866	155	0.556
Employee performance	300	265.999	299	0.915

Source: Research Data (2025)

Usually, an empirical examination of the patterns of missing data is to determine whether the missing data are distributed randomly across the cases and the variables. When data is adjudged to be MCAR, it allows a wider range of remedies in the

imputation process. In this instance, the presence of both MCAR missing data processes allows the researcher to apply all of the imputation methods and then compare their results. Numerous imputation methods are available for both MAR and MCAR missing data processes (Saunders *et al.,* 2020). As the missing data level increases, regression, and model-based methods become more preferred, while in other instances, some form of imputation is therefore needed to maintain an adequate sample size for any multivariate analysis. Where there are general consistencies among the all-available information, mean substitution, regression with and without error, estimated means and multiple imputation methods are used. Interestingly, all of these approaches result in comparable regression coefficients except in a few instances (Hair *et al.,* 2020). Based on the recommendations by Hair *et al.,* (2020), regression estimates were used to replace the missing values.

4.3.2 Outlier Analysis

In analyzing quantitative data, the researcher can be unduly influenced by extreme, deviant, or outlier cases. An outlier is a respondent (observation) that has one or more values that are distinctly different from the values of other respondents. Like missing data, outliers can impact the validity of the researcher's findings and therefore must be identified and dealt with as well. Outliers may result from data collection or data entry errors, or they can simply be respondents that are very different from the norm. Descriptive statistics such as graphics and charts help in easily understanding the data. The most common methods for identifying outliers are charts and graphs that include bar charts such as boxplots (Hair *et al.,* 2020).

Based on the recommendations by Hair *et al.*, (2020), the study used boxplots to identify the outliers as indicated in the figures below.

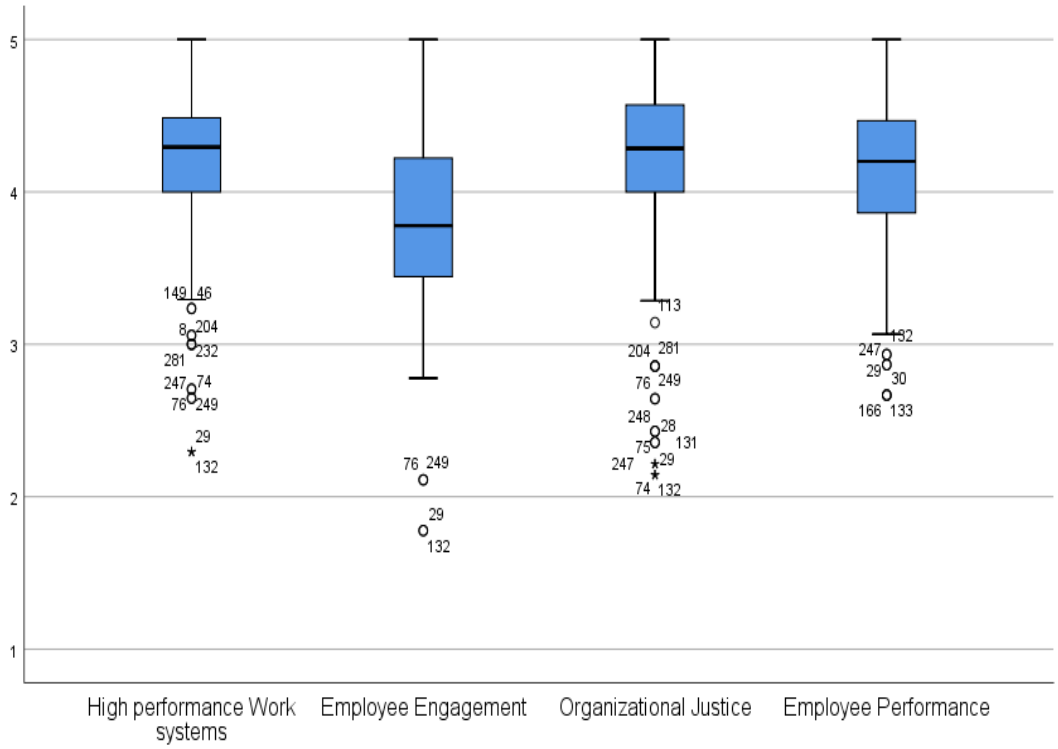

Figure 4.1: Univariate Outlier Analysis

Based on Figure 4.1, the box plot on high-performance work systems identified 12 outliers (at 8, 29, 46, 74, 76, 132, 149, 204, 232, 247, 249 and 281 data points), employee engagement had 4 outliers (at 29, 76, 132 and 249 data points), organizational justice had 13 outliers (at 28, 29, 74, 75, 76, 113, 131, 132, 204, 247, 248, 249 and 281 data points), while employee performance had 6 outliers (at 29, 30, 132, 133, 166 and 247 data points). In total, the data had 19 outliers (at 8, 28, 29, 30, 46, 74, 75, 76, 113, 131, 132, 133, 204, 247, 248, 249 and 281 data points), as per the recommendations, the study then employed regression imputation method to correct outliers (Hair *et al.*, 2020).

The study the used Mahalanobis Distance for discerning construct–level outliers in the residuals. The study ran a regression and checked on the Mahalanobis distance for all the study variables which is shown in Appendix VII. Based on the results, there were 27 outliers. The study solved the outlier problem through natural/naperian logarithm (ln) (Log^e) to transform the variable items and thus reduce the outlier effect. Log or ln is recommended for continuous variables with discrepant values and standard deviations proportional to the mean (Rönkkö & Aguirre-Urreta, 2020).

Logarithmic transformations are referred to as non-linear transformations and help stabilize dispersion, create a linear relationship between variables, and enable parametric statistical estimation with the normality assumption assured (Lee, 2020). The logarithmic transformation compresses the differences between the upper and lower parts of the original scale of data (Lee, 2020). Log^{10} is highly recommended when the data has extreme cases while Log^e is preferred in cases of lesser extremes (Ribeiro-Oliveira *et al.,* 2018).

4.3.3 Control of Common Method Variance

Common method variance (biases) are the main sources of measurement error which affects the validity of the conclusions drawn from the hypothesized relationships between measures (Podsakoff *et al.,* 2003). The two main approaches to control the common method biases are the procedural and statistical methods. The procedural remedies minimize the effect of CMV and thus they may appear in the research findings and this would require statistical remedies (Tehseen *et al.,* 2017). First, the researcher drew all the measures of variables from different literature sources and then improved the scale of items through reconstruction to refine items to remove any ambiguity and maintain simplicity, and conciseness (Tehseen *et al.,* 2017).

Secondly, the study employed Harman's single-factor analysis to check for the CMV and the results of the analysis are located in Appendix VIII. This method seeks to check whether one single factor emerges or whether one general factor accounts for a majority of the covariance between the measures based on factor loadings of all items in an exploratory factor analysis (Chang *et al.,* 2020). In Harman's One Factor Test, all study variables should not produce the first factor with eigenvalues accounting for more than 50% of the variance (Fuller *et al.,* 2016). Based on the results of Harman's One Factor Test, the single factor explains 31.423% of the variance and this is below the 50% level (Fuller *et al.,* 2016), thus the results rule out the common method variance (bias) in the instrument.

4.4 Respondents' Demographic Information

This section discusses the demographic characteristics of the sample respondents in the study area. This information is used to provide a base for further analysis of the specific research objectives and their findings using descriptive statistics, frequency tables and percentages. The information is vital because it sheds light on the nature and calibre of the respondents from which interpretation would be justifiably made. An examination of the questionnaire responses for each of the 300 respondents pertains to age, gender, education level, work experience and job position revealed the data in Tables 4.3 and 4.4.

Table 4.3: Demographic Characteristics of the Respondents

Variable	Categories	N	%
Gender	Male	187	62.3
	Female	113	37.7
	Total	**300**	**100.0**
Age bracket	21 to 30 years	59	19.7
	31 to 40 years	163	54.3
	41 to 50 years	74	24.7
	51 to 60 years	4	1.3
	Total	**300**	**100.0**
Education level	High School	100	33.3
	Diploma	105	35.0
	Higher Diploma	24	8.0
	Bachelors	53	17.7
	Masters	14	4.7
	PhD	4	1.3
	Total	**300**	**100.0**

Source: Researcher (2025)

The results indicated that 62.3% and 37.7% of the respondents were male and female respectively. This indicates a good representation of both genders in the study. The results also revealed that 19.7%, 54.3%, 24.7%, and 1.3% of the respondents confirmed that their age was between 21 to 30 years, 31 to 40 years, 41 to 50 years, and 51 to 60 years respectively. This shows varied perceptions of the respondents were captured based on their age category. Regarding the education level, the distribution shows that 33.3% had high school certificates, 35.0% had a diploma level of qualification, 8.0%, 17.7%, 4.7% and 1.3% had higher diploma, bachelors degree, masters and doctoral degrees respectively. This indicated that most of the respondents had a given level of understanding enough to competently respond to key issues under investigation.

The findings indicated that the male working population is comparatively higher than their female counterparts and that close to three-fourths of the staff are aged below 40 years which is representative of the total population in Kenya. Furthermore, the study observed that all respondents had a minimum basic post-secondary school certification, with the majority (three–fourths) having at most a diploma level of education thus validating the technical requirement for the manufacturing firms.

Table 4.4: Socio-Economic Characteristics of the Respondents

Variable	Categories	N	%
Work experience	Less than 10 years	145	48.3
	11 to 20 years	117	39.0
	21 to 30 years	29	9.7
	Above 31 years	9	3.0
	Total	**300**	**100.0**
Job designation	Operational Staff	152	50.7
	Technical Staff	61	20.3
	Supervisor	65	21.7
	Manager	22	7.3
	Total	**300**	**100.0**
Department	Finance and Accounting	44	14.7
	Human Resource	23	7.7
	Operations	171	57.0
	Sales and Marketing	62	20.7
	Total	**300**	**100.0**

Source: Researcher (2025)

The study also showed that 48.3% of the respondents had work experience of less than 10 years, 39.0% had worked for between 11 and 20 years, 9.7% between 21 and 30 years, and 3% had worked for over 31 years. In terms of job designation, 50.7 % were operational staff, 20.3 % were technical staff, 21.7 % were supervisors, and 7.3 % were

in management. In terms of departmental function, 57.0 % were operations staff, 20.7 % were drawn from the sales and marketing function, 14.7 % were drawn from the finance and accounting function and 7.7% were drawn from the human resource function.

The indications from the study is that the majority of the respondents (48.3%) had worked for less than 10 years and thus are at entry or operational staff as indicated with a technical staff comprising one–fifth of all the staffers. In total close to six-tenths were plant operators and one-fifth sales and marketing staff with 7.7 % being drawn from the HR function.

4.5 Descriptive Statistics

These descriptive statistical analyses provide a variety of techniques that include the measures of central tendency (mean and standard deviation) for reducing large data sets into smaller and singular numerical scores to describe the original observations. This section used a likert-type scale which rated the level of agreement/disagreement with the items with a scale: 1- Strongly Disagree (SD); 2 - Disagree (D); 3 -Neutral (N); 4 - Agree (A); and 5 - Strongly Agree (SA). During data analysis, the study used the two measures of central tendency; mean and standard deviation to reduce the large data sets into numerical scores which were then presented in Tables 4.5, 4.6, 4.7 and 4.8.

4.5.1 Descriptive Analysis of High-performance Work Systems

The descriptive analysis for the items of selective staffing indicated that the respondents perceived that the firms are making significant efforts in selecting the right persons for the firm (Mean = 4.620, SD = 0.625) while emphasizing the long–term commitment to employees (Mean 4.317, SD = 0.652). Further, the firms place great emphasis on

staffing processes (Mean = 4.366, SD = 0.855) and selection processes (Mean = 4.413, SD = 0.687).

Table 4.5: Descriptive Statistics on High-Performance Work Systems

Code	Indicators	Mean	SD	Skew	Kurt
S1	Great effort is taken to select the right person	4.620	0.625	-1.047	1.251
S2	Long-term employee potential is emphasized.	4.317	0.652	-.763	.814
S3	Considerable importance is placed on the staffing process.	4.366	0.855	-1.366	1.224
S4	Very extensive efforts are made in selection.	4.413	0.687	-0.999	0.743
T1	Extensive training programs are provided for employees.	4.285	0.722	-0.814	0.469
T2	There are formal training programs to teach new hires the skills they need to perform their job.	4.427	0.642	-0.676	-0.543
M1	Employees have adequate opportunities for upward mobility.	4.208	0.759	-1.066	1.456
M2	Employees do not have any future in this firm.	2.378	0.786	-1.320	1.502
M3	Promotion in this firm is based on performance.	4.040	0.885	-0.809	0.083
M4	Employees in this firm have clear career paths.	3.966	0.886	-0.728	-.033
JS1	Job security is almost guaranteed to employees.	4.191	0.863	-1.292	1.701
JD1	The job description for a position accurately describes all of the duties performed by individual employees.	4.097	0.822	-0.908	0.996
A1	Performance appraisals are based on objective quantifiable results.	3.957	0.819	-0.619	0.442
R1	Reward in this firm is competitive with other firms in the same region.	4.087	0.738	-0.747	0.810
R2	Reward in this firm is based on employees' performance.	4.097	0.785	-1.425	1.585
P1	Employees in this firm are often asked by their supervisors to participate in decision-making.	4.141	0.986	-1.159	0.989
P2	Employees in this firm are allowed to make decisions about how to do their jobs.	4.164	0.825	-1.070	1.537
P3	Employees are provided the opportunity to suggest improvements in the way things are done.	4.620	0.625	-1.747	1.051
	Average	**4.104**	**0.785**	**-1.031**	**1.004**

N = 300

Source: Researcher (2025)

According to the respondents, the firms extensively train their employees (Mean = 4.285, SD = 0.722) and these programmes are geared towards improving employee knowledge and skills (Mean = 4.427, SD = 0.642). In terms of employee mobility, the respondents affirmed that these firms provide sufficient opportunities for employees seeking upward mobility (Mean = 4.208, SD = 0.759) and that promotion is based on performance standards (Mean = 4.040, SD = 0.885) based on clear career paths (Mean

= 3.966, SD = 0.886). However, the respondents disaffirmed the statement that the employees in the firms have no future (Mean = 2.378, SD = 0.786).

In terms of job security, the respondents affirmed that these firms guarantee job security to employees (Mean = 4.191, SD = 0.863) and that the firms always specify the job positions to fit accurately to employee knowledge and skills (Mean = 4.097, SD = 0.822). The descriptive analysis indicated that the firms conduct performance appraisal based on quantifiable measures (Mean = 3.957, SD = 0.819) and that these firms competitively reward employees (Mean = 4.087, SD = 0.738) based on performance metrics (Mean = 4.097, SD = 0.785). Concerning employee involvement, the respondent affirmed that employees always participate in decision–making processes (Mean = 4.141, SD = 0.986) on issues touching on their job responsibilities (Mean = 4.164, SD = 0.825) and are allowed to contribute towards their task and job performance (Mean = 4.620, SD = 0.625).

The analysis showed that firms are emphasizing the long–term commitment to employees, thus they emphasize staffing and selection processes. The firms extensively conduct employee training to improve employee outcomes. The firms provide sufficient opportunities for upward mobility and promotion based on performance standards and career paths. These firms offer job security to employees and seek to match employees to jobs. The firm carries out performance appraisals based on quantifiable measures and competitively rewards employees based on performance standards. Employees are involved in decision–making on issues touching on their job responsibilities and are allowed to contribute towards their task and job performance.

4.5.2 Descriptive Analysis of Employee Engagement

The descriptive analysis reported in Table 4.6 indicates that most respondents acknowledge that they are enthusiastic at work (Mean = 4.260, SD = 0.784), look forward to going to work every other morning (Mean = 4.207, SD = 0.846) and exhibit vigour and strength at work (Mean = 4.027, SD = 0.854).

Table 4.6: Descriptive Statistics on Employee Engagement

Code	Indicators	Mean	SD	Skew	Kurt
VIG1	At my work, I feel bursting with energy.	4.260	0.784	-1.248	2.409
VIG2	When I get up in the morning, I feel like going to work.	4.207	0.846	-1.146	1.499
VIG3	At my job, I feel strong and vigorous.	4.027	0.854	-0.773	0.487
DED1	I am proud of the work that I do.	4.013	0.842	-0.601	0.158
DED2	I am enthusiastic about my job.	4.164	0.779	-0.894	1.219
DED3	My job inspires me.	3.923	0.873	-0.702	0.564
ABS1	I get carried away when I am working.	3.589	0.956	-0.255	-0.862
ABS2	I feel happy when I am working intensely.	3.277	0.976	0.234	-0.954
ABS3	I am immersed in my work.	3.185	0.984	0.370	-0.898
	Employee engagement	**3.8785**	**0.895**	**-0.557**	**0.402**

N = 300

Source: Researcher (2025)

Concerning employee dedication, most respondents affirmed that they are proud (Mean = 4.013, SD = 0.842) and enthusiastic (Mean = 4.164, SD = 0.779) and are inspired by their jobs (Mean = 3.923, SD = 0.873). Concerning employee attention to detail, respondents affirmed that they are indifferent to working for the company (Mean = 3.589, SD = 0.956), put less sub-optimal effort at work (Mean = 3.277, SD = 0.976) and are not immersing themselves into work (Mean = 3.185, SD = 0.984).

4.5.3 Descriptive Analysis of Organizational Justice

Concerning procedural justice, the descriptive analysis in Table 4.7 indicates that most respondents affirmed that they are conferred the opportunity to express themselves during performance appraisals (Mean = 4.220, SD = 0.788) and can influence the decisions arising from such interactions and procedures (Mean = 4.448, SD = 0.807). Further, the majority of the respondents affirmed that the procedures are consistently applied (Mean = 4.104, SD = 0.862) and are considered to be fair in performance appraisals.(Mean = 4.198, SD = 0.867). The respondents also affirmed that these procedures provide accurate information to employees. (Mean = 4.212., SD = 0.865) and uphold the ethical and moral standards (Mean = 4.121, SD =1.003) and offer the individual employees the opportunity to appeal the disciplinary decisions taken (Mean = 4.030, SD = 0.971).

Table 4.7: Descriptive Statistics on Organizational Justice

Code	Indicators	Mean	SD	Skew	Kurt
PJ1	My supervisor accords me the opportunity to express my views and feelings during my performance appraisal.	4.220	0.788	-1.320	1.947
PJ2	I can influence the decisions arrived at by those procedures.	4.448	0.807	-1.838	1.086
PJ3	Those procedures are applied consistently.	4.104	0.862	-1.000	1.242
PJ4	The procedures used to evaluate my performance are fair.	4.198	0.867	-1.050	0.871
PJ5	Those procedures are based on accurate information.	4.212	0.865	-.992	0.652
PJ6	I can appeal the decisions arrived at by those procedures.	4.030	0.971	-.969	0.716
PJ7	Those procedures uphold ethical and moral standards.	4.121	1.003	-1.197	0.992
DJ1	I am fairly paid for the amount of work I do.	4.090	0.819	-1.491	3.831
DJ2	I think my work schedule is fair.	4.232	0.802	-1.507	3.623
DJ3	I feel my job responsibilities are fair.	4.070	0.845	-1.104	1.868
IJ1	My supervisor treats me with respect, courtesy and dignity.	4.360	0.669	-1.046	1.782
IJ2	When decisions are made about my job, my supervisor treats me with kindness and consideration.	4.327	0.738	-1.009	0.897
IJ3	My supervisor lets me know my appraisal outcomes and justifies them.	4.229	0.713	-.703	0.419
IJ4	My supervisor communicates details promptly.	4.188	0.790	-.883	0.572
	Organizational Justice	**3.9579**	**0.809**	-1.151	1.464

N = 300

Source: Researcher (2025)

Concerning distributive justice components, most respondents affirmed that they are fairly compensated for the work they undertake (Mean = 4.090, SD = 0.819), and consider their work schedules to be fair (Mean = 4.121, SD =1.003) as well as their job responsibilities (Mean = 4.070, SD = 0.845). Concerning interactional justice, most respondents affirmed that their supervisors always accord them respect and dignity (Mean = 4.360, SD = 0.669) and provided them with information on performance appraisal (Mean = 4.229, SD = 0.713). Further, the respondents affirmed that their communication with supervisors is timely and detailed (Mean = 4.188, SD = 0.790) and that their supervisors treat them with kindness and consideration (Mean = 4.327, SD = 0.738).

4.5.4 Descriptive Analysis of Employee Performance

Regarding task performance, the descriptive analysis in Table 4.8 indicates that most respondents affirmed the quality output of their work has been commendable (Mean = 4.390, SD = 0.616) and that the work quantity has also been commendable (Mean = 4.447, SD = 0.561). Further, the majority of the respondents affirmed that they always complete the task on time (Mean = 4.373, SD = 0.650) and are conscious of the work standards required of them (Mean = 4.251, SD = 0.751) and that they are indifferent to the setting work priorities (Mean = 3.559, SD = 1.123).

Table 4.8: Descriptive Statistics on Employee Performance

Code	Indicators	Mean	SD	Skew	Kurt
TP1	The quality of my work in the past three months was very good.	4.390	0.616	-1.521	1.154
TP2	The quantity of my work in the past three months was very good.	4.447	0.561	-.360	-.858
TP3	I manage to plan my work so that it is always done on time.	4.373	0.650	-.552	-.659
TP4	I always keep in mind the results that I have to achieve in my work.	4.251	0.751	-.735	.054
TP5	I have trouble setting priorities in my work.	3.559	1.123	-.292	-.954
TP6	I can perform my work well with minimal time and effort.	4.167	0.689	-.541	.320
CP1	I can fulfil my responsibilities.	4.169	0.758	-1.138	2.571
CP2	I come up with creative ideas at work.	4.224	0.781	-1.095	1.965
CP3	I take the initiative when there is a problem to be solved.	4.083	0.836	-.988	1.299
CP4	I ask for help when needed.	4.128	0.860	-1.018	1.121
CP5	I take on challenging work tasks, when available.	3.845	0.885	-.726	.386
AP1	I always work at keeping my job knowledge and skills up-to-date.	4.070	0.805	-.710	.228
AP2	I can cope well with difficult situations and setbacks at work.	4.239	0.780	-.833	.263
AP3	I come up with creative solutions to new problems.	4.125	0.741	-.605	.220
AP4	I can cope well with uncertain and unpredictable situations at work.	4.040	0.759	-.392	-.318
AP5	I easily adjust to changes in my work.	4.010	0.814	-.621	.413
CWB1	I often complain about unimportant matters at work.	2.314	1.066	1.154	.804
CWB2	I sometimes focus on the negative aspects of a work situation, instead of on the positive aspects.	2.228	1.108	1.124	.797
CWB3	I sometimes behave rudely towards someone at work.	2.115	1.132	1.240	.991
CWB4	I purposely make mistakes.	1.910	1.182	1.525	1.547
	Employee performance	**3.8592**	**0.926**	-0.354	0.567

N = 300

Source: Researcher (2025)

Regarding the issue of contextual performance, most respondents affirmed that they can fulfil their work responsibilities (Mean = 4.169, SD = 0.758), and can bring up new ideas at work (Mean = 4.224, SD = 0.781). Most of them take initiative in problem-solving (Mean = 4.083, SD = 0.836), always ask for help when needed (Mean = 4.128, SD = 0.860) and take on challenging tasks whenever called upon (Mean = 3.845, SD = 0.885). When quizzed on the issue of adaptive performance, the respondents affirmed that they always update their job knowledge and skills (Mean = 4.070, SD = 0.805),

and are therefore able to cope well with uncertainties and unpredictable situations at the workplace (Mean = 4.040, SD = 0.759). Further, the respondents affirmed that they are creative at work (Mean = 4.125, SD = 0.741) and can easily adjust to work changes (Mean = 4.010, SD = 0.814).

Lastly, on the issue of counterproductive work behaviour, most respondents affirmed that they do not complain about trivial work matters (Mean = 2.314, SD = 1.066), nor do they focus on the negative aspects of the work (Mean = 2.228, SD = 1.108) and do not exhibit rudeness at work (Mean = 2.115, SD = 1.132) and neither do they make intentional mistakes (Mean = 1.910, SD = 1.182).

4.6 Categorical Differences in Demographic Information

The study used ANOVA statistics to examine for any statistically significant categorical differences in the study variables based on the socio-demographic attributes of the respondents. ANOVA is used to compare the means between two or more groups and is an omnibus test statistic with a significant *p*-value indicating that there is at least one pair in which the mean difference is statistically significant (Mishra *et al.,* 2019). The study also used Tukey's post hoc to differentiate between the means of the three groups to ascertain if they may differ and at least one group may show any significant difference (Kim, 2017). Because the study had several indicators that individually measured the study variable, the researcher used arithmetic mean to reduce the data into a single index.

4.6.1 Categorical Differences in Study Variables Based on Gender

The results presented in Table 4.9 showed that there was a statistically significant gender difference in perceptions of high-performance work systems ($F = 8.298$, $\rho < 0.05$), perceptions of employee engagement ($F = 5.157$, < 0.05), perceptions of

organizational justice ($F = 21.818, < 0.05$), and perceptions of employee performance ($F = 6.352, < 0.05$).

Table 4.9: Categorical Differences Between Gender

Variable	Gender	Descriptives			ANOVA	
		n	Mean	SD	F	p-value
High-performance work systems	Male	187	4.121[a]	0.550	8.298	.004
	Female	113	4.390[b]	0.405		
	Total	**300**	**4.222**	**0.516**		
Employee Engagement	Male	187	3.779[b]	0.632	5.157	.024
	Female	113	3.968[a]	0.483		
	Total	**300**	**3.851**	**0.587**		
Organizational Justice	Male	187	4.059[b]	0.602	21.818	.000
	Female	113	4.439[a]	0.343		
	Total	**300**	**4.202**	**0.551**		
Employee Performance	Male	187	4.066[b]	0.482	6.352	.012
	Female	113	4.255[a]	0.409		
	Total	**300**	**4.137**	**0.464**		

[a, b, c] Means with the same letter superscript in a column are not significantly different (p<0.05)

Source: Researcher (2025)

This implies that the gender of the study participants influences the perceptions of high-performance work systems, employee engagement, organizational justice and employee performance. In particular, female participants held higher perception than their male counterparts indicating that female employees tend to hold positive and favourable perceptions in terms of HR processes and practises that included' high-performance work systems, employee engagement, organizational justice and employee performance. This indicates that employee gender has a significant influence on the perceptions towards high-performance work systems, employee engagement, organizational justice and employee performance.

4.6.2 Categorical Differences in Study Variables Based on Age

The results in Table 4.10 indicated that there were statistically significant age differences in perceptions of high-performance work systems ($F = 4.295, < 0.05$), perceptions of employee engagement ($F = 7.271, < 0.05$), perceptions of organizational

justice ($F = 4.574$, < 0.05), and perceptions of employee performance ($F = 11.282$, < 0.05).

Table 4.10: Categorical Differences Between Age

Variable	Age	Descriptives			ANOVA	
		n	Mean	SD	F	p-value
High-performance work systems	Below 30 years	59	4.165[a]	0.620		
	31 to 40 years	163	4.260[a]	0.452		
	41 to 50 years	74	4.142[a]	0.537	4.295	.005
	51 to 60 years	4	5.000[b]	0.000		
	Total	**300**	**4.222**	**0.516**		
Employee Engagement	Below 30 years	59	3.952[a]	0.666		
	31 to 40 years	163	3.843[a]	0.513		
	41 to 50 years	74	3.725[a]	0.615	7.271	.000
	51 to 60 years	4	5.000[b]	0.000		
	Total	**300**	**3.851**	**0.587**		
Organizational Justice	Below 30 years	59	4.117[a]	0.666		
	31 to 40 years	163	4.254[a]	0.505		
	41 to 50 years	74	4.112[a]	0.519	4.574	.004
	51 to 60 years	4	5.000[b]	0.000		
	Total	**300**	**4.202**	**0.551**		
Employee Performance	Below 30 years	59	4.194[a]	0.476		
	31 to 40 years	163	4.187[a]	0.389		
	41 to 50 years	74	3.935[a]	0.526	11.282	.000
	51 to 60 years	4	5.000[b]	0.000		
	Total	**300**	**4.137**	**0.464**		

[a, b, c,] Means with the same letter superscript in a column are not significantly different ($p<0.05$)

Source: Researcher (2025)

This implies that the age of the study participants influences the perceptions of high-performance work systems, employee engagement, organizational justice and employee performance. In particular, individuals aged between 51 and 60 years held significantly more favourable perceptions than every other individual aged 50 years and below. Individuals aged between 41 and 50 years held significantly lower perceptions in all the study variables than all the age groups. This indicates that age has a significant influence on the perceptions towards high-performance work systems, employee engagement, organizational justice and employee performance.

4.6.3 Categorical Differences in Study Variables Based on Education Level

The results in Table 4.11 indicated that there were statistical differences in education qualification and perceptions of high-performance work systems (F = 12.164, < 0.05), perceptions of employee engagement (F = 6.539, < 0.05), perceptions of organizational justice (F = 6.936, < 0.05), and perceptions of employee performance (F = 7.788 < 0.05).

Table 4.11 Categorical Differences Between Educational Levels

Variable	Level	Descriptives			ANOVA	
		n	Mean	SD	F	p-value
High-performance work systems	High school	100	3.948[a]	0.471		
	Diploma	105	4.36 [ab]	0.363		
	Higher Diploma	24	4.348[ab]	0.260	12.164	.000
	Bachelors	53	4.266[ab]	0.720		
	Masters	14	4.509[bc]	0.380		
	PhD	4	5.000[c]	0.000		
	Total	**300**	**4.222**	**0.516**		
Employee Engagement	High school	100	3.599[a]	0.472		
	Diploma	105	3.936[a]	0.491		
	Higher Diploma	24	3.889[a]	0.428	6.539	.000
	Bachelors	53	4.022[a]	0.762		
	Masters	14	3.963[a]	0.746		
	PhD	4	5.000[b]	0.000		
	Total	**300**	**3.851**	**0.587**		
Organizational Justice	High school	100	3.988[a]	0.529		
	Diploma	105	4.318[a]	0.392		
	Higher Diploma	24	4.328[a]	0.195		
	Bachelors	53	4.237[a]	0.769	6.936	.001
	Masters	14	4.132[a]	0.673		
	PhD	4	5.000[b]	0.000		
	Total	**300**	**4.202**	**0.551**		
Employee Performance	High school	100	3.968[a]	0.374		
	Diploma	105	4.259[a]	0.405		
	Higher Diploma	24	4.166[a]	0.288		
	Bachelors	53	4.158[a]	0.579	7.788	.000
	Masters	14	4.054[a]	0.712		
	PhD	4	5.000[b]	0.000		
	Total	**300**	**4.137**	**0.464**		

[a, b, c] *Means with the same letter superscript in a column are not significantly different (p<0.05)*

Source: Researcher (2025)

This implies that the education qualification of the study participants influences the perceptions of high-performance work systems, employee engagement, organizational justice and employee performance. In particular, individuals with doctoral degrees held significantly more favourable perceptions than every other individual with significantly lower educational qualifications. Individuals with high school certificates held significantly lower perceptions in all the study variables than all the educational qualifications. This indicates that educational qualification has a significant influence on the perceptions towards high-performance work systems, employee engagement, organizational justice and employee performance.

4.6.4 Categorical Differences in Study Variables Based on Work Experience

The results in Table 4.12 indicated that there were statistical differences in work experience and perceptions of high-performance work systems ($F = 8.008, < 0.05$), and perceptions of employee performance ($F = 2.654, < 0.05$) but there were no statistical differences in perceptions of employee engagement ($F = 2.210, \rho > 0.05$) and perceptions of organizational justice ($F = 1.182, > 0.05$).

Table 4.12: Categorical Differences between Work Experience Levels

Variable	Years	Descriptives			ANOVA	
		n	Mean	SD	F	p-value
High-performance work systems	Less than 10 years	145	4.112[ab]	0.507		
	11 to 20 years	117	4.307[bc]	0.435		
	21 to 30 years	29	4.523[c]	0.398	8.008	.000
	Above 31 years	9	3.928[a]	1.134		
	Total	**300**	**4.222**	**0.516**		
Employee Engagement	Less than 10 years	145	3.820	0.541		
	11 to 20 years	117	3.843	0.486		
	21 to 30 years	29	4.097	0.759	2.210	.087
	Above 31 years	9	3.654	1.377		
	Total	**300**	**3.851**	**0.587**		
Organizational Justice	Less than 10 years	145	4.193	0.508		
	11 to 20 years	117	4.257	0.455		
	21 to 30 years	29	4.057	0.792	1.182	.317
	Above 31 years	9	4.103	1.169		
	Total	**300**	**4.202**	**0.551**		
Employee Performance	Less than 10 years	145	4.153[b]	0.399		
	11 to 20 years	117	4.170[b]	0.379		
	21 to 30 years	29	4.041[ab]	0.655	2.654	.049
	Above 31 years	9	3.763[a]	1.178		
	Total	**300**	**4.137**	**0.464**		

[a, b, c] Means with the same letter superscript in a column are not significantly different (p<0.05)

Source: Researcher (2025)

This implies that the experience of the study participants influences the perceptions of high-performance work systems and employee performance. In particular, individuals with 11 to 20 years of experience held significantly more favourable perceptions of high-performance work systems and employee performance than every other individual in other age groupings. This indicates that work experience has a significant influence on the perceptions towards high-performance work systems, and employee performance.

4.6.5 Categorical Differences in Study Variables Based on Job Designation

The results in Table 4.13 indicated that there were statistical differences in job designation and perceptions of high-performance work systems ($F = 14.283, < 0.05$), perceptions of employee engagement ($F = 9.470, < 0.05$), perceptions of organizational justice ($F = 11.467, < 0.05$), and perceptions of employee performance ($F = 9.397 < 0.05$).

Table 4.13: Categorical Differences between Job Designation

Variable	Position	Descriptives			ANOVA	
		n	Mean	SD	F	p-value
High-performance work systems	Operational Staff	152	4.045[a]	0.496		
	Technical Staff	61	4.414[b]	0.402		
	Supervisor	65	4.436[b]	0.395	14.283	.000
	Manager	22	4.283[ab]	0.782		
	Total	**300**	**4.222**	**0.516**		
Employee Engagement	Operational Staff	152	3.692[a]	0.552		
	Technical Staff	61	4.125[b]	0.380		
	Supervisor	65	3.931[ab]	0.527	9.470	.000
	Manager	22	3.946[ab]	1.013		
	Total	**300**	**3.851**	**0.587**		
Organizational Justice	Operational Staff	152	4.058[a]	0.526		
	Technical Staff	61	4.446[b]	0.344		
	Supervisor	65	4.373[b]	0.398	11.467	.000
	Manager	22	4.015[a]	1.029		
	Total	**300**	**4.202**	**0.551**		
Employee Performance	Operational Staff	152	4.011[a]	0.449		
	Technical Staff	61	4.311[b]	0.212		
	Supervisor	65	4.280[b]	0.432	9.397	.000
	Manager	22	4.100[ab]	0.808		
	Total	**300**	**4.137**	**0.464**		

[a, b, c,] Means with the same letter superscript in a column are not significantly different (p<0.05)

Source: Researcher (2025)

This implies that the job designation of the study participants influences the perceptions of high-performance work systems, employee engagement, organizational justice and employee performance. In particular, technical staffers held significantly more favourable perceptions than every other job designation. Operational staffers seem to hold significantly lower perceptions of all study variables than all other job designations. This indicates that job designation has a significant influence on the perceptions towards high-performance work systems, employee engagement, organizational justice and employee performance.

4.6.6 Categorical Differences in Study Variables Based on Department/Function

The results in Table 4.14 indicated that there was a statistical functional difference in perceptions of high-performance work systems (F = 8.225, < 0.05), perceptions of

organizational justice (F = 7.306, < 0.05), and perceptions of employee performance (F = 10.306, < 0.05).

Table 4.14: Categorical Differences Between Departmental Function

Variable	Department	Descriptives			ANOVA	
		n	Mean	SD	F	p-value
High-performance work systems	Finance and Accounting	44	4.307[a]	0.583		
	Human Resource	23	4.640[b]	0.291		
	Operations	171	4.125[a]	0.480	8.225	.000
	Sales and Marketing	62	4.277[a]	0.544		
	Total	**300**	**4.222**	**0.516**		
Employee Engagement	Finance and Accounting	44	4.040[bc]	0.670		
	Human Resource	23	4.322[c]	0.478		
	Operations	171	3.729[a]	0.537	9.742	.069
	Sales and Marketing	62	3.876[ab]	0.577		
	Total	**300**	**3.851**	**0.587**		
Organizational Justice	Finance and Accounting	44	4.272[a]	0.622		
	Human Resource	23	4.631[b]	0.308		
	Operations	171	4.105[a]	0.502	7.306	.000
	Sales and Marketing	62	4.261[a]	0.612		
	Total	**300**	**4.202**	**0.551**		
Employee Performance	Finance and Accounting	44	4.272a	0.536		
	Human Resource	23	4.529[b]	0.300		
	Operations	171	4.038[a]	0.454	10.306	.000
	Sales and Marketing	62	4.170[a]	0.382		
	Total	**300**	**4.137**	**0.464**		

[a, b, c] *Means with the same letter superscript in a column are not significantly different ($p<0.05$)*

Source: Researcher (2025)

This implies that the functional areas of the study participants influence the perceptions of high-performance work systems, organizational justice and employee performance. In particular, individuals drawn from human resource functions held significantly more favourable perceptions of high-performance work systems, organizational justice and employee performance than every other individuals drawn from all other functions. Staff from the operations department seem to hold the significantly lowest perceptions most in all study variables. This indicates that functional area has a significant influence on the perceptions towards high-performance work systems, organizational justice and employee performance.

4.7 Reliability Test of the Research Instruments

This study deemed it necessary to subject all items of the study variables for consistency. In this study, Cronbach's alpha was considered appropriate in determining the reliability of the instrument (Sekaran & Bougie, 2010).

Table 4.15: Reliability Statistics

Variable	Cronbach's Alpha	Cronbach's Alpha if Item is deleted	Non of Items
High-performance work systems	0.917	0.909	18
Employee engagement	0.817	0.815	9
Organizational justice	0.906	0.894	14
Employee performance	0.851	0.838	20

Source: Research Data (2025)

Table 4.15 highlights the statistical values for the Cronbach's Alpha coefficient which ranged from 0.817 to 0.917 and were above the threshold of 0.7, indicating that the study instrument had an acceptable level of measurement and scale.

4.8 Factor Analysis

Before testing the hypotheses, factor analysis was used to examine the relationship between interrelated variables. Factor analysis is a useful technique for reducing a large number of variables and items from questionnaires to a smaller set representing an underlying concept, and facilitating interpretations (Shrestha, 2021). The use of exploratory factor analysis (EFA) is contingent on certain conditions (Tabachnick & Fidell, 2013). One of which is the adequate sample size to ensure a sufficient ratio of subjects to variables.

This condition recommends a sample size of at least 300 participants, and that the variables should each have at least 5 to 10 observations, where the ratio of respondents

to variables should be at least 10:1 and the factors are considered to be stable and to cross-validate with a ratio of 30:1 (Schreiber, 2021). The study used the sample–to–variable ratio to check for the factorability of the scale items. The SVR is the ratio of the number of respondents to the variable items (Osborne & Costello, 2014). Based on the recommendation of 10:1, the SVR value in Table 4.16 indicates that high-performance work systems had a ratio of 17.64:1 employee engagement had a ratio of 33.34:1, organizational justice had a ratio of 21.43:1 and employee performance had a ratio of 15:1. This indicates that the study managed to meet the recommended requirement of a minimum ratio of respondents to variables of at least 10:1

Table 4.16: Sample–to–Variable Ratio Analysis

Scale	High-performance work systems	Employee Engagement	Organizational Justice	Employee Performance
Number of respondents	300	300	300	300
Number of items	18	9	14	20
SVR	17.64	33.34	21.43	15

Source: Research Data (2025)

After the data met the initial methodological requirement for factor analysis, the study then carried out factor analysis based on the requirements of the Kaiser-Meyer-Olkin or KMO for evaluating the suitability of the data detection structures (Roy *et al.*, 2023). The study used a principal component analysis approach to extract maximum variance from the data set (Schreiber, 2021), while Kaiser's criterion of retaining factors with eigenvalue ≥ 1 was adopted (Yong & Pearce, 2013). Varimax rotated solution was preferred because it simplifies the identification of the single factor within the variables (Mooi *et al.*, 2018).

Factor analysis produces commonalities between variables using variances. The communality is the variance in the observed variables which are accounted for by a common factor or common variance (Goretzko *et al.,* 2021). The communality is denoted by h^2 and is the summation of the squared correlations of the variable with the factors (Schreiber, 2021), the correlation r must be 0.30 or greater since anything lower would suggest a really weak relationship between the variables (Yong & Pearce, 2013).

Furthermore, Hair *et al.,* (2020) summarized the criteria for the practical or statistical significance of factor loading and these criteria include a minimum factor loading of 0.3 is significant for a sample size of ≥ 350 elements while the study adopted a factor loading of 0.4 which is significant with a minimum sample size of 200 elements.

4.8.1 Exploratory Factor Analysis for High-Performance Work Systems

As indicated in Table 4.17, the KMO sampling adequacy value of 0.895 and Bartlett's test for sphericity value ($\chi^2 = 2406.008$, df = 136, p = 0.00) indicate that the data was suitable for EFA. The statistical results revealed the presence of four components with eigenvalue > 1.0 explaining 65.847% variance in the high-performance work systems construct.

Table 4.17: Exploratory Factor Analysis for High-Performance Work Systems

Code		Component				h^2
		1	**2**	3	4	
S1	Great effort is taken to select the right person			.868		.826
S3	Considerable importance is placed on the staffing process.			.753		.727
S4	Very extensive efforts are made in selection.			.454		.567
S2	Long-term employee potential is emphasized.				.611	.568
T2	There are formal training programs to teach new hires the skills they need to perform their job.				.743	.599
P2	Employees in this firm are allowed to make decisions about how to do their jobs.				.726	.717
M1	Employees have adequate opportunities for upward mobility.	.743				.697
M2	Employees do not have any future in this firm.	.674				.599
M3	Promotion in this firm is based on performance.	.703				.661
M4	Employees in this firm have clear career paths.	.701				.673
JS1	Job security is almost guaranteed to employees.	.814				.766
JD1	The job description for a position accurately describes all of the duties performed by individual employees.		.660			.688
A1	Performance appraisals are based on objective quantifiable results.		.678			.604
R1	Reward in this firm is competitive with other firms in the same region.		.649			.601
R2	Reward in this firm is based on employees' performance.		.660			.641
P1	Employees in this firm are often asked by their supervisors to participate in decision-making.		.682			.683
T1	Extensive training programs are provided for employees.		.533			.578
	Eigenvalue	3.566	3.289	2.200	2.139	
	% of Variance	20.976	19.347	12.943	12.581	
	Cumulative % variance	20.976	40.323	53.266	65.847	

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.895
Bartlett's Test of Sphericity, $\chi^2 = 2406.008$, df = 136, p = 0.00
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 8 iterations.

Source: Researcher (2025)

4.8.2 Exploratory Factor Analysis for Employee Engagement

As indicated in Table 4.18, the KMO sampling adequacy value of 0.793 and Bartlett's test for sphericity value ($\chi^2 = 1400.411$, df = 36, p = 0.00) indicated that the data was

suitable for EFA. The statistical results revealed the presence of two components with eigenvalue > 1.0 explaining 66.338% variance in the employee engagement construct.

Table 4.18: Exploratory Factor Analysis for Employee Engagement

Code		Factor 1	Factor 2	h^2
VIG1	At my work, I feel bursting with energy.	.826		.684
VIG2	When I get up in the morning, I feel like going to work.	.795		.633
VIG3	At my job, I feel strong and vigorous.	.872		.766
DED1	I am proud of the work that I do.	.750		.659
DED2	I am enthusiastic about my job.	.675		.586
DED3	My job inspires me.	.676		.563
ABS1	I get carried away when I am working.		.674	.508
ABS2	I feel happy when I am working intensely.		.881	.776
ABS3	I am immersed in my work.		.880	.796
	Eigenvalue	3.626	2.345	
	% of Variance	40.287	26.051	
	Cumulative % variance	40.287	66.338	

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.793
Bartlett's Test of Sphericity, $\chi^2 = 1400.411$, df = 36, p = 0.00
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 3 iterations.

Source: Researcher (2025)

4.8.3 Exploratory Factor Analysis for Organizational Justice

As indicated in Table 4.19, the KMO sampling adequacy value of 0.859 and Bartlett's test for sphericity value ($\chi^2 = 2124.322$, df = 91, p = 0.00) indicated that the data was suitable for EFA. The statistical results revealed the presence of three components with eigenvalue > 1.0 explaining 66.092 % variance in the organizational justice construct.

Table 4.19: Exploratory Factor Analysis for Organizational Justice

Code		Factor 1	2	3	h^2
PJ1	My supervisor accords me an opportunity to express my views and feelings during my performance appraisal.	.724			.605
PJ2	I can influence the decisions arrived at by those procedures.	.718			.579
PJ3	Those procedures are applied consistently.	.713			.589
PJ4	The procedures used to evaluate my performance are fair.	.756			.581
PJ5	Those procedures are based on accurate information.	.758			.581
PJ6	I can appeal the decisions arrived at by those procedures.	.763			.651
PJ7	Those procedures uphold ethical and moral standards.	.781			.647
DJ1	I am fairly paid for the amount of work I do.	.808			.693
DJ2	I think my work schedule is fair.	.706			.552
DJ3	I feel my job responsibilities are fair.	.694			.592
IJ1	My supervisor treats me with respect, courtesy and dignity.			.849	.792
IJ2	When decisions are made about my job, my supervisor treats me with kindness and consideration.		.893		.841
IJ3	My supervisor lets me know my appraisal outcomes and justifies them.			.870	.801
IJ4	My supervisor communicates details promptly.		.818		.750
	Eigenvalue	5.615	1.848	1.790	
	% of Variance	40.107	13.200	12.785	
	Cumulative % variance	40.107	53.307	66.092	

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.859
Bartlett's Test of Sphericity, $\chi^2 = 2124.322$, df = 91, p = 0.00
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 3 iterations.

Source: Research Data (2025)

4.8.4 Exploratory Factor Analysis for Employee Performance

As indicated in Table 4.20, the KMO sampling adequacy value of 0.800 and Bartlett's test for sphericity value ($\chi^2 = 3240.830$, df = 190, p = 0.00) indicated that the data was suitable for EFA. The statistical results revealed the presence of five components with eigenvalue > 1.0 explaining 68.313 % variance in the employee performance construct.

Table 4.20: Exploratory Factor Analysis for Employee Performance

		Factor					h^2
Code		**1**	**2**	**3**	**4**	5	
TP1	The quality of my work in the past three months was very good.	.834					.745
TP2	The quantity of my work in the past three months was very good.	.712					.710
TP3	I manage to plan my work so that it is always done on time.				.779		.691
TP4	I always keep in mind the results that I have to achieve in my work.	.618					.612
TP5	I have trouble setting priorities in my work.					.821	.764
TP6	I can perform my work well with minimal time and effort.	.620					.516
CP1	I can fulfil my responsibilities.	.734					.655
CP2	I come up with creative ideas at work.	.774					.645
CP3	I take the initiative when there is a problem to be solved.	.621					.573
CP4	I ask for help when needed.	.516					.511
CP5	I take on challenging work tasks, when available.	.596					.575
AP1	I always work at keeping my job knowledge and skills up-to-date.			.625			.618
AP2	I can cope well with difficult situations and setbacks at work.			.653			.614
AP3	I come up with creative solutions to new problems.			.586			.682
AP4	I can cope well with uncertain and unpredictable situations at work.			.723			.660
AP5	I easily adjust to changes in my work.			.752			.692
CWB1	I often complain about unimportant matters at work.		.822				.733
CWB2	I sometimes focus on the negative aspects of a work situation, instead of on the positive aspects.		.937				.893
CWB3	I sometimes behave rudely towards someone at work.		.947				.912
CWB4	I purposely make mistakes.		.888				.862
	Eigenvalue	4.611	3.462	2.867	1.382	1.340	
	% of Variance	23.057	17.311	14.316	6.909	6.702	
	Cumulative % variance	23.057	40.368	54.703	61.612	68.313	

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.800
Bartlett's Test of Sphericity, $\chi^2 = 3240.830$, df = 190, p = 0.00
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 10 iterations.

Source: Research Data (2025)

4.9 Data Transformation

Data transformation was performed to change the data from the likert scale to the ratio scale before the analysis of inferential statistics. This involved moving data from its

original data type to a new format using the arithmetic method to reduce variables from multiple questions and create new variables through logarithmic transformation of data. Means of single scores loaded with items were used to create composite scores. Finally, data was analyzed using Statistical Package for Social Sciences (SPSS) software version 23. Hierarchical and multiple regression analysis using Hayes (2018) model 4 were used to test for direct effects and mediation process, and Hayes (2018) model 1 for testing moderation and Hayes (2018) model 8 to test for the moderated mediation effects respectively using Hayes (2018) Process Macro computational tool version 4.2. The findings of the study were then presented through tables, percentages, descriptions, graphs and discussions.

Several data transformation techniques include squaring or raising to a power, logarithm, square root and reciprocal, trigonometric transformations such as sine wave transformations. However, the most common transformation techniques are logarithm, square root and reciprocal (Ribeiro-Oliveira *et al.,* 2018). Whereas, logarithmic or square-root transformations have been used for converting non-normal data to normal data, it is often difficult to choose which approach to take in a principled, a priori fashion. Box–Cox transformation is a slightly more general transformation approach which subsumes logarithmic and square-root transformations and is useful for transforming skewed data into comparatively more normal data, but it is not able to address all forms of non-normality (Bishara & Hittner, 2015). Considering that the study was comparatively and normally distributed based on the graphical and statistical test results (Hair *et al.,* 2019), the study transformed the individual indices using the natural logarithm.

Table 4.21: Summary of Descriptive Statistics for Constructs

Construct	Items	Mean	SD
High-performance work systems	**300**	1.4133	0.1182
Employee Engagement	**300**	1.4321	0.1332
Organizational justice	**300**	1.3360	0.1595
Employee performance	**300**	1.4254	0.1503

Source: Research Data (2025)

The statistics in Table 4.21 indicate the mean values for the transformed data which ranged from low mean values for HPWS (Mean = 1.4133, SD = 0.1182), employee engagement (Mean = 1.4321, SD = 0.1332), organizational justice (Mean = 1.3360, SD = 0.1595) and employee performance (Mean = 1.4254, SD = 0.1503). The standard deviation values for the study variables are closer to zero which indicates that the transformation of the data has normalised the data values for the study variables.

4.10 Testing Assumptions of Regression Analysis

Before carrying out correlation and regression analysis, the researcher tested several assumptions of the regression model. This is because if the assumptions are not met the results may not be trustworthy, resulting in a Type I or Type II error, or over- or under-estimation of significance or effect size(s).

4.10.1 Control of Type 1 and Type II Errors

In hypothesis testing, the H_0 is usually rejected if the test statistic is statistically significant at a chosen significance level (α) while on the converse, it is not rejected if the test statistic is not significant. Based on these two decisions, two possible errors could be made regarding the interpretation of H_0: either, rejecting H_0 when it is true, that is Type I error or failing to reject the H_0 when it is, in fact, false, a Type II error

(Brooks, 2014). Based on these inferences, attempts made to decrease the risk of a Type I error, incidentally, also increase the chances of a Type II error occurring (Depoy & Gitlin, 2011).

To control a Type II error from affecting the hypothesis tests, the study selected the sample size because the given alpha (α) level is based on the conventional guidelines of either 0.05 or 0.01, that is 95% or 99% confidence interval respectively. The study used a sample size of 361 and achieved a 90% response rate at 0.05 alpha level (95% confidence level). The study specified the appropriate level of Type I error (α) at 0.05 levels, and the researcher was able to set the acceptable limits of error while keeping the probability of the existence of Type II error (β). By specifying the α (0.05), the researcher was able to establish the level of acceptable statistical significance.

4.10.2 Testing for Linearity Assumption

The first assumption of regression is that all independent variables should have a linear relationship with the dependent variable. Research has shown that standard multiple regression can only accurately determine the relationship between dependent and independent variables if the relationship is linear in nature (Jäntschi *et al.*, 2015). These authors have argued that if the relationship between independent variables (IV) and the dependent variable (DV) is not linear, the results of the regression analysis underestimate or overestimate the true relationship which leads to an increased chance of a Type II error or Type I error.

In this study, the linearity assumption was examined through the use of simple inspection of a P-P plot of the scores represented by a straight line (Pallant, 2013) and also proved through the coefficient of determination (R^2). This regression equation is very useful for making predictions since the value of R^2 is close to 1 (Hair *et al.*, 2020).

The study examined the linearity of the data by testing for an alternative model specification through curve fitting (Hair *et al.*, 2020) as shown in Figures 4.2, 4.3 and 4.4.

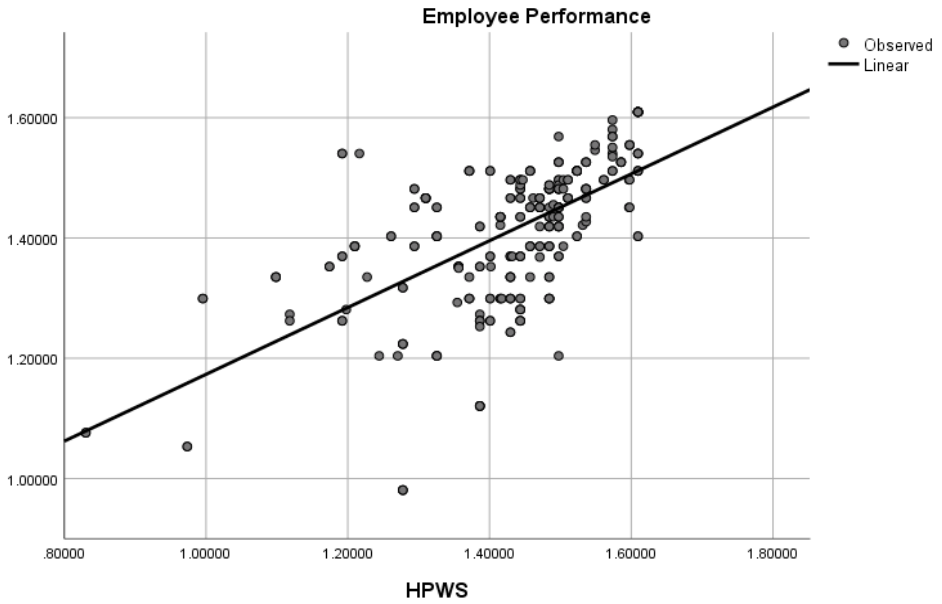

Figure 4.2: Curve Fitting for HPWS
Source: Research Data (2025)

Figure 4.2 shows that the fitted line is straight and diagonal, thus the relationship between HPWS and employee performance is linear. The fitted line plot shows that the

regression line systematically over- and under-predicts the data at different points in the curve.

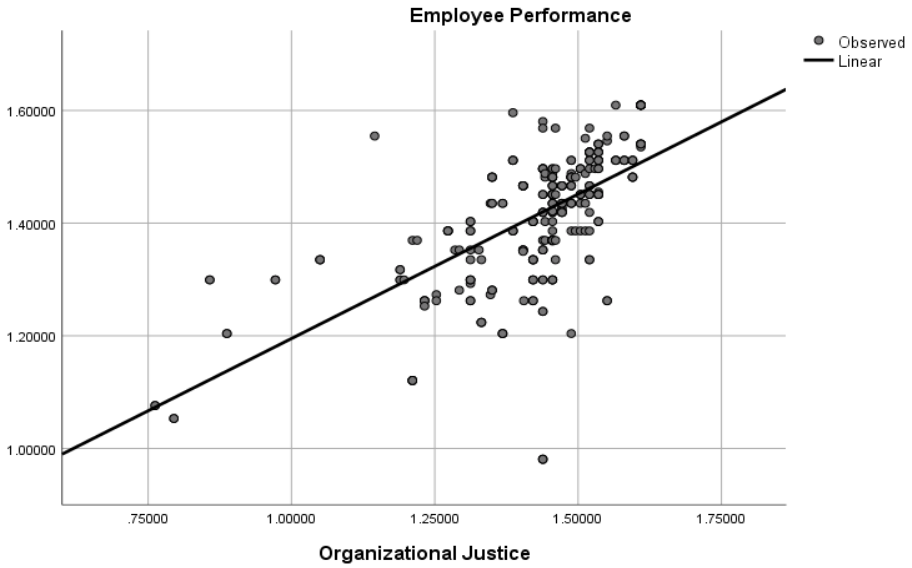

Figure 4.3: Curve Fitting for Organizational Justice
Source: Research Data (2025)

Figure 4.3 shows that the fitted line is straight and diagonal, thus the relationship between organizational justice and employee performance is linear. The fitted line plot shows that the regression line systematically over- and under-predicts the data at different points in the curve.

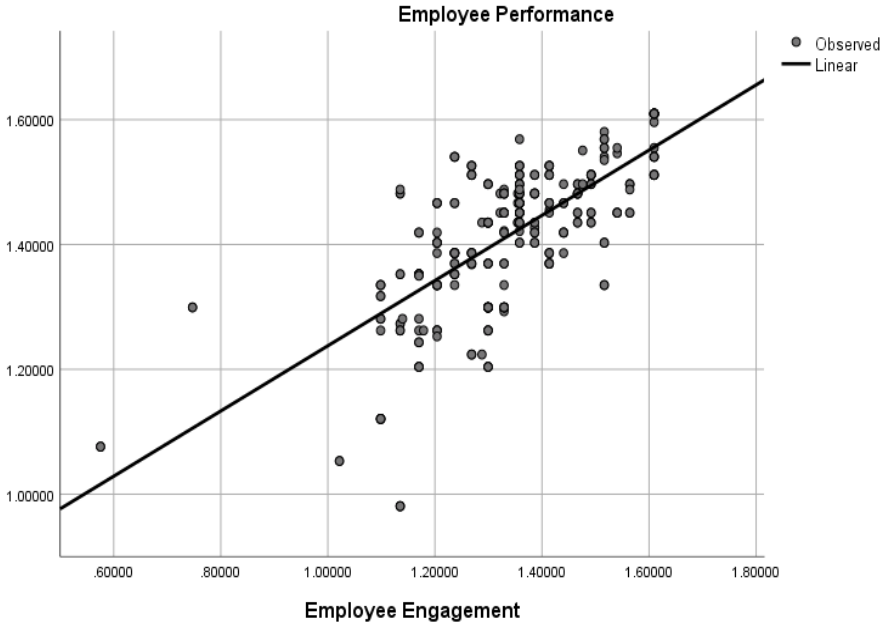

Figure 4.4: Curve Fitting for Employee Engagement

Source: Research Data (2025)

Figure 4.4 shows that the fitted line is straight and diagonal, thus the relationship between employee engagement and employee performance is linear. The fitted line plot shows that the regression line systematically over- and under-predicts the data at different points in the curve.

The figures display the pictorial representations of curve-fitting plots which indicate that the independent and dependent variables take the linear functional format, where y = a + bx, which implies that a one-unit change in *x* has a corresponding effect on *y* regardless of the initial value of x (Hair *et al.*, 2020).

4.10.3 Testing for Normality Assumption

To make valid inferences from one's regression results, the residuals of the regression should follow a normal distribution. The study tested for normality by testing whether the data was drawn from a normally distributed population using the Shapiro-Wilk Test and graphical analysis (Hair *et al.*,2019). Shapiro-Wilk Test is applied to sample sizes < 2000 while Kolmogorov-Smirnov is employed when the sample size > 2000 and in both cases, an insignificant p-value ($p>0.05$) indicates that the null hypothesis, that the data was drawn from a normally distributed population cannot be rejected (Hair *et al.*, 2019). In the first instance, the study carried out a Shapiro–Wilk test which is indicated in Table 4.22 below.

Table 4.22: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
HPWS	.146	300	.000	.892	300	.000
Employee Engagement	.088	300	.000	.937	300	.000
Organizational Justice	.195	300	.000	.809	300	.000
Employee Perfomance	.100	300	.000	.969	300	.000

a. Lilliefors Significance Correction

Source: Research Data (2025)

The statistics from Table 4.22 which tested for any departure in normality indicated that W values for high-work performance systems (0.892), employee engagement (0.937), organization (0.809) employee perfomance (0.969) were not significantly closer to 1 with significant p-value ($p < 0.05$), therefore the null hypothesis was rejected. The conclusion is that the data violates the assumption of normality.

The second test for normality was carried out through analysis of normality probability distribution plots which compared the cumulative distribution of actual data values for the study with the cumulative distribution of normally distributed data. Usually, the normally distributed data forms a straight diagonal line and a comparison is made between the plotted data values with the diagonal. The decision criterion is that the line representing the actual data distribution must closely follow the diagonal line of the normally distributed data (Hair *et al.*, 2020).

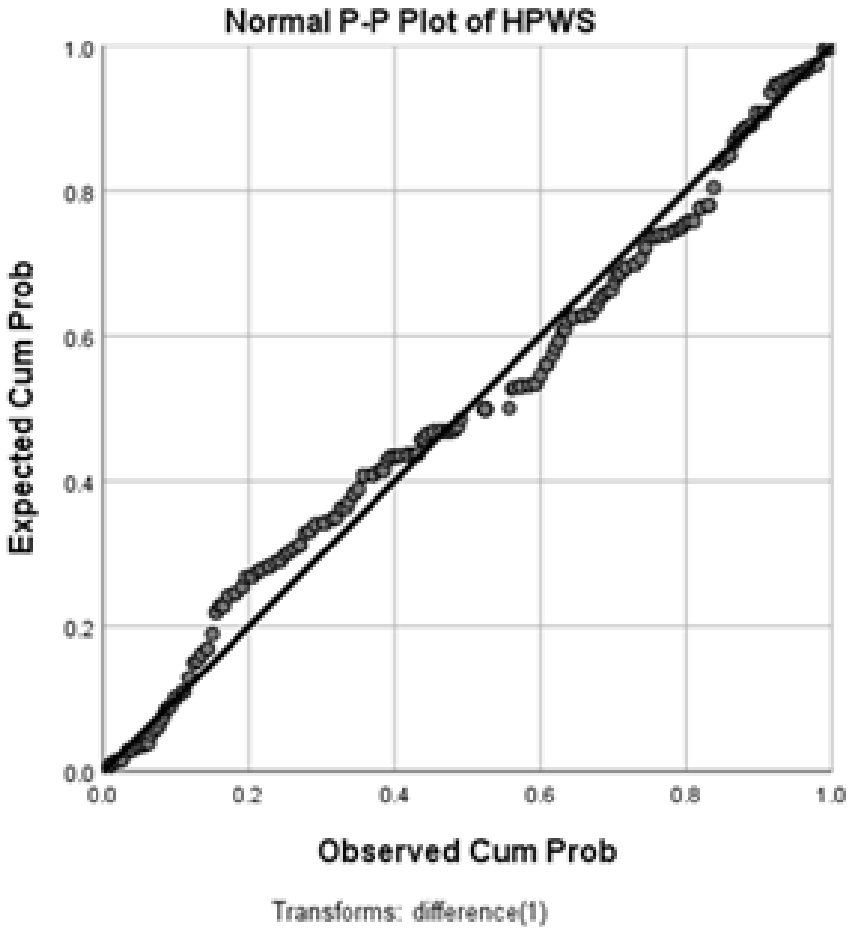

Figure 4.5: Normality plot for HPWS
Source: Research Data (2025)

Usually, the normally distributed data forms a straight diagonal line and a comparison is made between the plotted data values with the diagonal line representing the normally distributed population (Hair *et al.*, 2019). As indicated by Figure 4.5, the plotted data values for the HPWS shadows closely the diagonal line of the normally distributed data indicate that data is normally distributed.

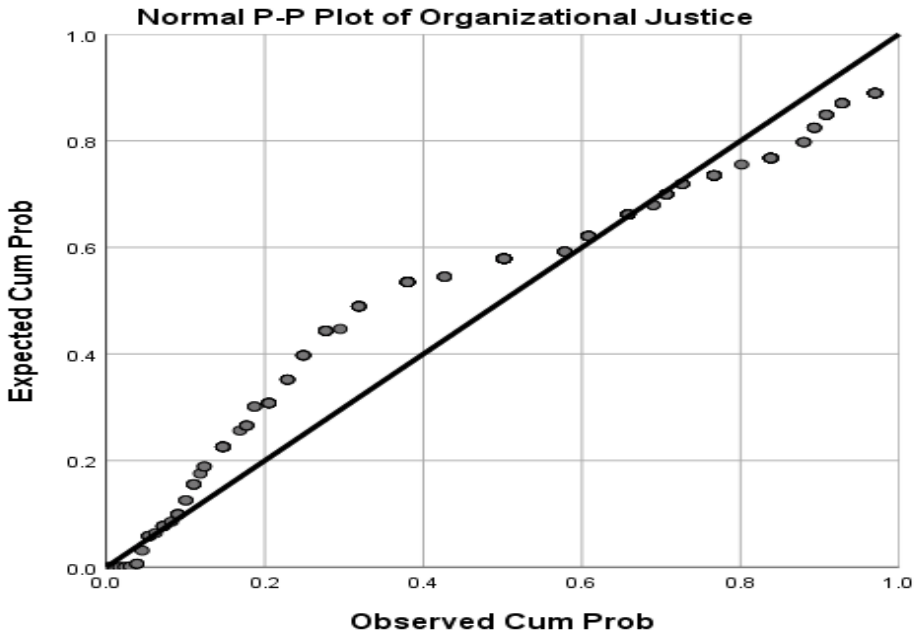

Figure 4.6: Normality plot for organizational Justice
Source: Research Data (2025)

Usually, the normally distributed data forms a straight diagonal line and a comparison is made between the plotted data values with the diagonal line representing the normally distributed population (Hair *et al.,* 2019). As indicated by Figure 4.6, the plotted data values for the organizational justice shadows closely the diagonal line of the normally distributed data indicating that data is normally distributed.

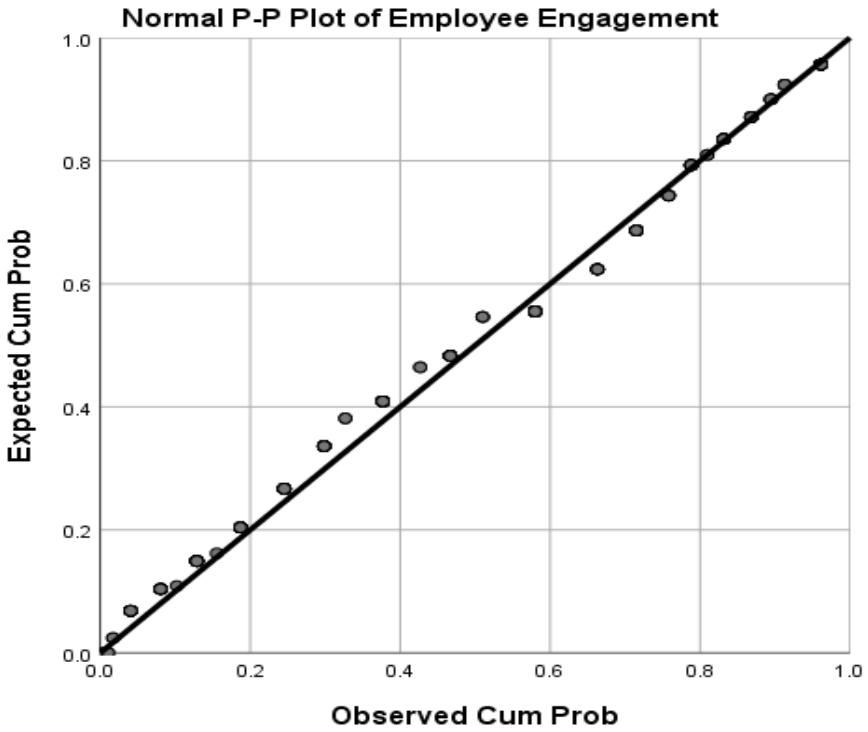

Figure 4.7: Normality plot for Employee engagement
Source: Research Data (2025)

Usually, the normally distributed data forms a straight diagonal line and a comparison is made between the plotted data values with the diagonal line representing the normally distributed population (Hair *et al.*, 2019). As indicated by Figure 4.7, the plotted data values for the employee engagement shadows closely the diagonal line of the normally distributed data indicating that data is normally distributed.

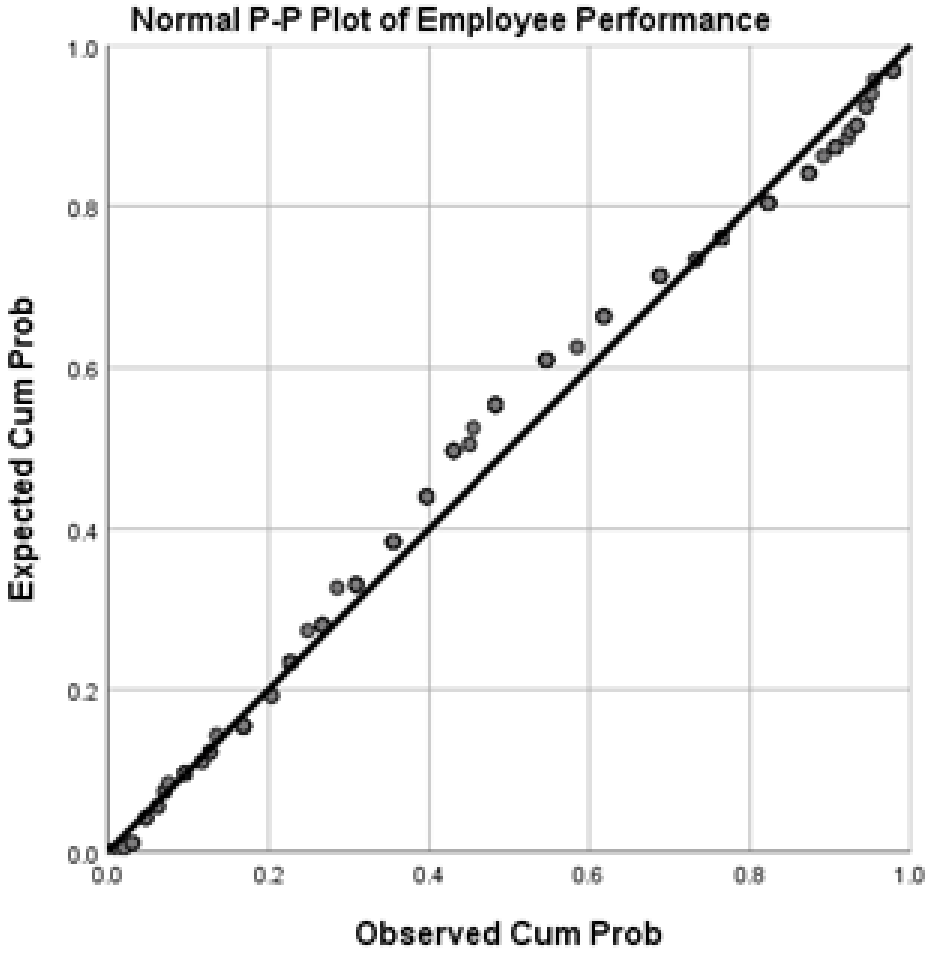

Figure 4.8: Normality plot for Employee performance

Source: Research Data (2025)

Usually, the normally distributed data forms a straight diagonal line and a comparison is made between the plotted data values with the diagonal line representing the normally distributed population (Hair *et al.*, 2019). As indicated by Figure 4.8, the plotted data values for the employee performance shadows closely the diagonal line of the normally distributed data indicating that data is normally distributed.

In all the cases as seen in Figure 4.5, 4.6, 4.7 and 4.8 the data appear to portray a normal distribution since the data points for the study variables were closely shadowing the straight diagonal line of the normal distribution.

In addition to fulfilling the testing for the normality assumption, the study employed the naperian logarithmic transformation to stabilize dispersion, normalize data distribution and generate a linear relationship between variables (Lee, 2020). Both Log^{10} and Log^{e} are highly recommended when the data has extreme cases (Ribeiro-Oliveira *et al.*, 2018)

Table 4.23: Normality Test for Transformed Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
HPWS	.146	300	.000	.992	300	.074
Employee Engagement	.188	300	.000	.987	300	.120
Organizational Justice	.195	300	.000	.979	300	.084
Employee Perfomance	.117	300	.000	.989	300	.069

a. Lilliefors Significance Correction

Source: Research Data (2025)

The statistics from Table 4.23 which tested for any departure in normality indicated that W values for high-work performance systems (0.992), employee engagement (0.987), organization (0.979) employee perfomance (0.989) were not significantly closer to 1 with significant p-value ($p > 0.05$), therefore the null hypothesis was not rejected. The conclusion is that the data assumed a normal distribution.

4.10.4 Testing for Homoscedasticity Assumption

Homoscedasticity implies the relationship under which the dispersion of dependent variable data points exhibits equal levels of variance across the range of independent variable data points (Schmidt & Finan, 2018). The study used both graphical analysis and the Breusch-Pagan - Godfrey test for detecting heteroscedasticity (Astivia & Zumbo, 2019; Rosopa *et al.*, 2013). Therefore the study examined for homoscedasticity using the Breusch-Pagan-Godfrey test with a finding of significance ($p < 0.05$) indicating that the null hypothesis, that homoscedasticity cannot be assumed, is rejected (Hair *et al.*, 2020).

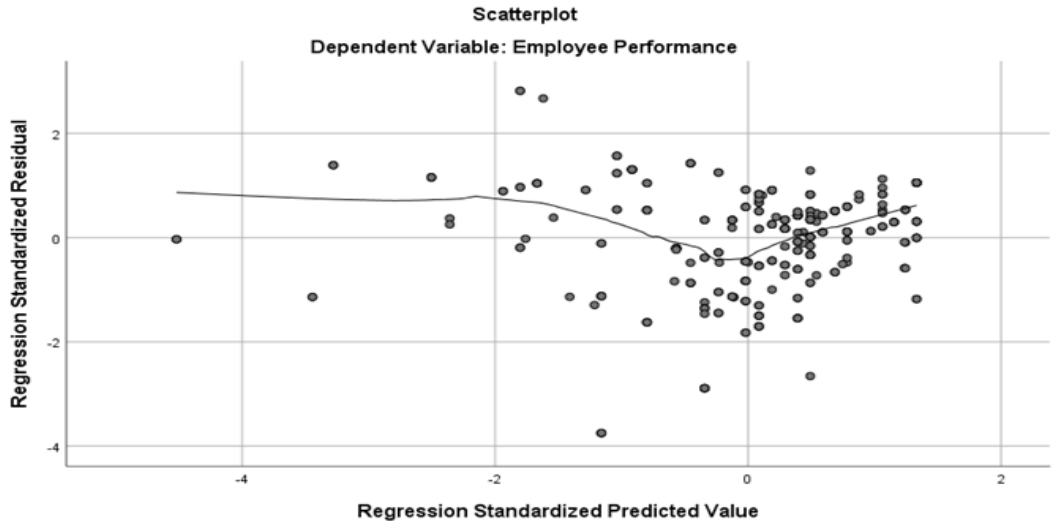

Figure 4.9: Standardized regression residual
Source: Research Data (2025)

Figure 4.9 relates to the graphical test for homoscedasticity based on the interpretation that the homoscedasticity is indicated by a flat smooth line, the graphical analysis

indicated that data exhibited heteroscedasticity, upon which the study used robust regression models.

Table 4.24: Breusch-Pagan - Godfrey test

Variable	χ^2	p-value	Conclusion
High-performance work systems	4.81	0.061	homoscedasticity can be upheld
Organizational justice	3.10	0.123	homoscedasticity can be upheld
Employee engagement	3.14	0.189	homoscedasticity can be upheld

Source: Researcher (2025)

Table 4.24 shows the statistical test for homoscedasticity which was carried out using the Breusch – Pagan - Godfrey test for homogeneity of variance. Since the p-values > 0.05, the variances were not statistically different from each other, therefore, homoscedasticity can be upheld.

4.10.5 Testing for Multicollinearity Assumption

Multi-collinearity is an unreasonable level of inter-correlation between the independents so that the results of the independents cannot be differentiated. This is essentially the assumption that the study predictors are not too highly correlated with one another. Multi-collinearity was tested through examination of tolerance and VIF using regression results with the cut-off criteria: the variance inflation factor (VIF) ≤ 10 and a tolerance figure, of $1 / \text{VIF} \geq 0.1$ (Sekaran & Bougie, 2010).

Table 4.25: Multicollinearity Statistics

Variable	Tolerance	VIF	Conclusion
High-performance work systems	**0.3462**	**2.89**	No multicollinearity
Organizational justice	**0.3959**	**2.53**	No multicollinearity
Employee engagement	**0.4371**	**2.29**	No multicollinearity

Source: Research Data (2025)

Table 4.25 concerns the collinearity statistics as indicated by the variance inflation factor (VIF) and tolerance (1 / VIF). The results of this test showed that the VIF figures range between 2.29 and 2.89 while the tolerance value ranges between 0.3462 and 0.4371, thus, it can be inferred that multicollinearity was not a significant problem in the dataset.

4.10.6 Testing for Linear Relationship

Pearson correlation coefficient analysis is used to evaluate the direction of linear relationship and the level of strength between variables in the study. According to Gogtay and Thatte (2017), correlation is a term used to indicate the correlation or relationship between two or more quantitative variables. It also measures the strength or magnitude of the association between the variables and their direction. The value of the coefficient can range from -1 to +1, which shows a positive or negative correlation. The correlation analysis was arrived at through the use of Pearson's correlation coefficient(r) which tested for not only the existing interdependency between variables but also the presence of significant correlations between the independent and dependent variables (Cooper & Schindler, 2014).

Table 4.26: Correlation Analysis

	Employee Performance	High-performance work systems	Employee Engagement	Organizational Justice
Employee Performance	1			
High-performance work systems	.625**	1		
Employee Engagement	.705**	.754**	1	
Organizational Justice	.652**	.724**	.675**	1

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

Source: Researcher (2025)

Table 4.26 concerns the nature of the association between the study variables. The dependent variable, employee performance positively correlates with high-performance work systems ($r = 0.625$, $p < 0.01$), employee engagement ($r = 0.705$, $p < 0.01$) and organizational justice ($r = 0.652$, $p < 0.01$). This would indicate that any change in the independent variable constructs would have a corresponding shift in employee performance.

4.11 Regression Results

As discussed in the previous chapter, this study adopted a hierarchical regression model to test the effect of the covariates in the study and all direct effect hypotheses; a multiple regression model using Hayes (2018) Model 4 to test for mediation and Hayes (2018) Model 1 and 8 for testing moderation and moderated mediation hypotheses respectively. In all the models, the results from data were presented/reported in respective tables but interpretation, discussion and inferences were made based on

results from data without influential outliers which indicates improved coefficient of determination (R^2) and parameter estimates (apart from a few cases). The study had four models: direct, mediated, moderated and moderated–mediated effects models.

4.11.1 Regression Results for Covariates

Before testing for the direct effect hypotheses, the researcher sought to examine the effect of the covariates on the dependent variable. The results in Table 4.27 indicate that gender, work experience and job designation were significant ($p < 0.05$) in explaining employee performance ($F = 6.552$, $p = 0.000$), while age, education and departmental function were not significant. The finding could be explained by both individual and institutional contextual factors inside the firms that influenced the perceptual views of the respondents. For instance, age and education do not influence employee performance, while gender and work experience have a significant effect.

Table 4.27: Regression Results for Covariates

	Unstandardized Coefficients		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	1.455	0.034		42.665	.000
Gender	0.035	0.014	0.142	2.517	0.012
Age	-0.008	0.011	-0.045	-0.681	0.496
Work experience	-0.031	0.011	-0.205	-2.944	0.004
Education	0.005	0.007	0.053	0.710	0.478
Job designation	0.023	0.008	0.192	2.854	0.005
Departmental function	-0.014	0.008	-0.110	-1.849	0.065
Model Summary Statistics					
R			0.344		
R^2			0.118		
Adjusted R^2			0.100		
Std. Error of the Estimate			0.112		
ANOVA (goodness of fit statistics)					
F Stat			6.552		
F prob			0.000		

Gender ($\beta = 0.142$, $p < 0.05$), work experience ($\beta = -0.205$, $p < 0.05$) and job designation ($\beta = 0.192$, $p < 0.05$) were statistically significant in explaining the 11.8 % variance in employee performance of selected manufacturing firms in Nairobi City County ($F = 6.552$, $p < 0.05$).

4.11.2 Regression Results for Direct Effects

The study carried out hierarchical regression to test the hypothesis for the direct effects of High-Performance Work Systems on Employee Performance of selected manufacturing firms **(H_{01})**, the effect of Employee Engagement on Employee Performance **(H_{02})**, and the effect of Organisational Justice on Employee Performance **(H_{03})**.

H_{o1}: High-Performance Work Systems have no effect on Employee Performance

H_{01} stated that high-performance work systems have no significant effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya. The results in Table 4.28 indicate that high-performance work systems have a statistically significant positive effect ($\beta_1 = 0.106$, $p < 0.05$) on the employee performance of selected manufacturing firms in Nairobi City County, Kenya. Therefore, the H_{01} was rejected and a finding that high-performance work systems have a statistically significant positive effect on employee performance of selected manufacturing firms in Nairobi City County.

H_{o2}: Employee Engagement has no significant effect on Employee Performance

H_{02} hypothesized that employee engagement has no significant effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya. The results in Table 4.28 indicate that employee engagement has a statistically significant

positive effect on employee performance ($\beta_2 = 0.423$, $p < 0.05$). Therefore, the H_{02} was rejected and a finding that employee engagement has a statistically significant positive effect on the employee performance of selected manufacturing firms in Nairobi City County. This implies that when firms engage their employees in their tasks, employee performance tends to increase in tandem.

H_{o3}: Organisational Justice has no significant effect on Employee Performance

H_{03} stated that organisational justice has no significant effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya. The results in Table 4.28 indicate organizational justice has a statistically significant positive effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya ($\beta_3 = 0.280$, $p < 0.05$). Therefore, the H_{03} was rejected and a finding that organizational justice has a statistically significant positive effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya. This means that when the employee perceives fairness within the organization, they tend to raise their performance threshold.

Table 4.28: Regression Results for Direct Effects

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	0.618	0.054		11.349	0.000
Gender	-0.004	0.010	-0.016	-0.392	0.696
Age	-0.014	0.008	-0.082	-1.776	0.077
Work experience	-0.007	0.005	-0.081	-1.553	0.122
Education level	-0.019	0.008	-0.125	-2.530	0.012
Job designation	0.016	0.005	0.139	2.987	0.003
Departmental function	-0.009	0.005	-0.067	-1.661	0.098
HPWS	0.094	0.060	0.106	3.581	0.015
Employee Engagement	0.314	0.046	0.423	6.887	0.000
Organizational justice	0.221	0.048	0.280	4.589	0.000
Model Summary Statistics					
R			0.771		
R^2			0.595		
Adjusted R^2			0.582		
Std. Error of the Estimate			0.076		
ANOVA (goodness of fit statistics)					
F Stat			47.293		
F prob			0.000		

The F - statistic in Table 4.28, F = 47.293, $p < 0.05$, shows that the overall model is statistically significant in predicting employee performance. High-performance work systems ($\beta = 0.106$, $p < 0.05$), employee engagement ($\beta = 0.423$, $p < 0.05$), and organizational justice ($\beta = 0.280$, $p < 0.05$) are statistically significant. In addition, education level ($\beta = -0.125$, $p < 0.05$) and job designation ($\beta = 0.139$, $p < 0.05$) are statistically significant in explaining the 59.5 % variance in employee performance of selected manufacturing firms in Nairobi City County, Kenya.

4.11.3 Regression Results for the Mediation Effect

The study carried out hierarchical and multiple regression to test the hypothesis for the mediated effects model of employee engagement on the relationship between high-performance work systems and employee performance (H_{04}). MacKinnon's (2012)

four-step procedure was followed to analyse all the direct and mediation effects. This procedure requires;

i. A significant association between the independent variable (high-performance work systems) and the mediator variable (employee engagement) represented by an equation, $Y = a_1X + \varepsilon$ (side a_1 of the conceptual framework)

ii. A significant association between the mediator variable (employee engagement) and dependent variable (employee performance) represented by equation $Y = b_1M + \varepsilon$ (side b_1 as indicated by H_{02})

iii. Testing an association between high-performance work systems and employee performance while controlling for employee engagement represented by equation $Y= b_1M + C'X + \varepsilon$ (side C' of the conceptual framework).

iv. A significant coefficient for the indirect path between high performance work systems and employee performance via employee engagement (The product of $a_1 \times b_1$ or C - C'). The bias-corrected percentile bootstrap method determines whether the last condition is satisfied.

H_{04}: Employee Engagement has no mediation effect on Employee Performance

Preacher and Hayes (2009) recommend further examination of the indirect path to confirm the presence or absence of mediation effects. Thus, the indirect path was examined through the application of the bootstrapping method Table 4.28 where data was resampled 5,000 times at 95% CI. Hayes, (2009) recommends that this approach requires the researcher to estimate each of the paths in the model and then ascertain whether a variable functions as a mediator by seeing if certain statistical criteria are met. For example, if both *a* and *b* paths in a model are statistically significant and *c′* is closer to zero than *c*, then *M* is deemed a mediator of the relationship between *X* and *Y*.

Table 4.29: Regression Results for Mediated Effects

	Path a1				Path C				Path C'			
	β	**p**	**LLCI**	**ULCI**	**β**	**p**	**LLCI**	**ULCI**	**β**	**p**	**LLCI**	**ULCI**
Gender	-.0493	.2120	-.0417	.0093	.0053	.9066	-.0205	.0231	.0303	.4608	-.0123	.0270
Age	-.0264	.5530	-.0259	.0139	-.0447	.3843	-.0245	.0095	-.0313	.4983	-.0206	.0100
Education	.1198	.0201	.0023	.0272	-.0200	.7357	-.0125	.0088	-.0806	.1344	-.0170	.0023
Work experience	-.1123	.0181	-.0424	-.0040	-.2375	.0000	-.0528	-.0200	-.1807	.0003	-.0426	-.0128
Job position	-.0546	.2367	-.0232	.0058	.0951	.0744	-.0011	.0236	.1227	.0109	.0034	.0257
Departmental function	-.0555	.1696	-.0234	.0041	-.0964	.0391	-.0242	-.0006	-.0683	.1051	-.0194	.0018
HPWS	.7597	.0000	.8159	1.0045	.6292	.0000	.4782	.6394	.2447	.0001	.1088	.3258
Employee Engagement									.5061	.0000	.2866	.4638

R	.7714	.6794	.7519
R^2	.5950	.4616	.5653
MSE	.0106	.0077	.0062
F - Statistic	61.2912	35.7625	47.3104
p-value	.0000	.0000	.0000

	Effect	**se**	**t**	**p**	**LLCI**	**ULCI**
Total effect of X on Y	.5588	.0410	13.6447	.0000	.4782	.6394
Direct effect of X on Y	.2173	.0551	3.9428	.0001	.1088	.3258

Indirect effect(s) of X on Y:	**Effect**	**BootSE**	**BootLLCI**	**BootULCI**
	.3415	.0516	.2404	.4425

p-value = .000, LLCI = Lower-Level Confidence Interval, ULCI = Upper-Level Confidence Interval

Path a1 shows that high-performance work systems (β = 0.7597, p < 0.05) are statistically significant (F = 61.2912, p < 0.05) in explaining the variations in the mediator, employee engagement. Path C shows that high-performance work systems (β = 0.6292, p < 0.05) are statistically significant in predicting employee performance (F = 35.7625, p < 0.05). Path C' shows that the mediated effects of High-performance work systems (β = 0.2447, p < 0.05), employee engagement (β = 0.5061, p < 0.05) are statistically significant in predicting employee performance (F = 47.3104, p < 0.05).

Since these models are statistically significant (p < 0.05), this validates the three conditions which test for the linkages in the mediation model (Baron and Kenny, 1986). After the fulfilment of these conditions, the study then examined the indirect path coefficient as the last condition for the mediation effects model to hold and the results are shown in Table 4.30

Table 4.29 reveals the results based on Hayes' (2018) PROCESS Macro (4.2) mediation model 4 under a stepwise mediation procedure (Hayes, 2018). Under path (a_1): high performance work systems have a significant positive effect on employee engagement (β = 0.7597, p < 0.05). Under path (C): high-performance work systems have a significant direct positive effect on employee performance (β = 0.6292, p < 0.05). Path (C'): high-performance work systems have a significant indirect effect on employee performance (β = 0.2447, p < 0.05). The results show that the Baron and Kenny (1986) mediation requirements were fulfilled, as paths a1 and b1 remained statistically significant. The inclusion of employee engagement as a mediator in the model decreased the effect of high-performance work systems on employee performance from β = 0.6292 to β = 0.2447.

Based on the recommendation by Hayes, (2009), path (C'); (β = 0.2447, $p < 0.05$) is closer to zero than path (C); (β = 0.6292, $p < 0.05$) indicates that employee engagement can be deemed to have mediated between high-performance work systems and employee performance. This means that an increase in employee engagement activities by the firms bolsters the impact of high-performance work systems on the performance of employees. Hence, Ho_4 was rejected and employee engagement has a significant mediating effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya.

4.11.4 Regression Results for the Moderation Effects

The study carried out hierarchical regression to test the hypothesis for the moderating effect of Organisational Justice on employee engagement of selected manufacturing firms in Nairobi City County, Kenya (H_{05}) and the moderating effect of organisational justice on employee performance of selected manufacturing firms in Nairobi City County, Kenya (H_{06}). The study employed Hayes (2018) model 1 using PROCESS Macro version 4.2 to test for Ho_5 and Ho_6.

H_{o5}: Organisational Justice has no moderating effect on Employee Engagement

According to Preacher *et al.*, (2007) moderation is said to occur when the strength of the relationship between two variables is dependent on a third variable, The third variable, or moderator (W), interacts with X in predicting Y if the regression weight of Y on X varies as a function of W.

The results in Table 4.30 ANOVA statistic, $F = 54.962$, $p < 0.05$, show that the regression model is statistically significant with the moderating effect of organizational

justice explaining 63.04 per cent variance in employee engagement in selected manufacturing firms in Nairobi City County, Kenya.

Table 4.30: Regression Results for Moderated Effects

Model summary for Moderated effects of organisational justice						
R	**R^2**	**MSE**	**F**	**df1**	**df2**	**p**
.7940	.6304	.0097	54.9620	9	290	.0000

	Coeff	**se**	**t**	**p**	LLCI	ULCI
(Constant)	.1807	.2974	.6075	5440	-.3232	.6889
HPWS	.5351	.2286	2.3408	.0199	.2115	.9610
Organizational justice	.5831	.2323	3.7881	.0313	.0701	.2069
Int_1	.3958	.1694	2.5652	.0224	-.0810	.1135
Gender	-.0311	.0127	-2.441	.0152	-.0578	-.0080
Age	-.0169	.0100	-1.6871	.0927	-.0355	.0034
Work experience	-.0101	.0099	-1.0216	.3078	-.0300	.0083
Education level	.0131	.0061	2.1470	.0326	.0006	.0245
Job designation	-.0058	.0071	-.8138	.4164	-.0207	.0071
Departmental function	-.0086	.0067	-1.2869	.1992	-.0218	.0044

Test(s) of highest order unconditional interaction(s):

	R^2-change	F	df1	df2	p
X*W	0.0268	4.5250	1	290	.0341

Conditional effects of the focal predictor at values of the moderator(s)							
	Justice	Effect	SE	t	p	LLCI	ULCI
Low(-1SD)	-.1849	.9849	.1025	9.6072	.0000	.7832	1.1865
Mid (0SD)	.0000	1.1408	.0665	17.1660	.0000	1.0101	1.2715
High+1SD)	.1849	1.2967	.0952	13.6182	.0000	1.1094	1.4839

The beta coefficients in Table 4.30 show that HPWS ($\beta = 0.5351$, $p < 0.05$), organizational justice ($\beta = 0.5831$, $p < 0.05$), the interaction effect(Int_1) ($\beta = 0.3958$, $p < 0.05$) had a statistically significant effect on employee engagement. In addition, gender ($\beta = -0.0311$, $p < 0.05$) and education levels ($\beta = 0.0131$, $p < 0.05$) had a statistically significant effect on employee engagement. Preacher *et al.,* (2007) recommended that W moderates the relationship between X and Y for values of W where the confidence bands do not contain zero. As indicated, all the LLCI and ULCI

levels were significantly different from zero, that is they had positive numbers indicating that the beta coefficients were statistically significant.

To interpret this result, ModGraph in Figure 4.9 below illustrates the relationship. Jones and Waller (2013) indicated that the testing for moderation through the use of a modgraph uses distinctively non-parallel lines to indicate a statistically significant interaction. Moderators can be classified into either buffers or exacerbators. Buffers dampen the effect of the IV - DV relationship and thus the relationship would exhibit a flatter slope while exacerbators refer to a situation where the IV - DV relationship is stronger and thus, a steeper slope (Aiken, West & Reno, 1991).

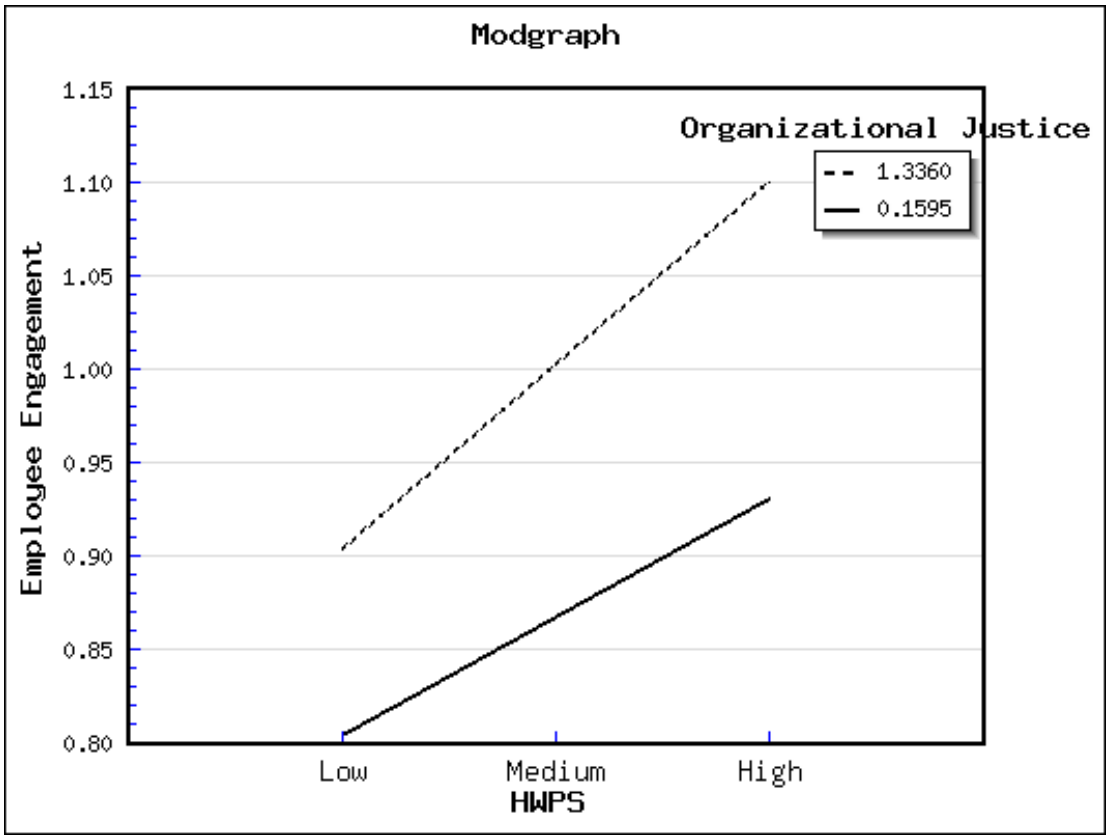

Figure 4.10: Modgraph for Moderated Effects (H_{05})

Figure 4.10 shows the modgraph concerning the moderating effect of organizational justice on employee engagement. Based on Jones and Waller (2013), the modgraph is distinctively non - parallel indicating a statistically significant interaction. The two lines are non – parallel which indicates statistically significant interaction and when perceived organizational justice is at its lowest levels employee engagement is also at its lowest levels and when organizational justice is at its highest levels, employees tend to exhibit higher levels of engagement. The graphs also show a distinctively steeper slope which implies that organizational justice exacerbates the strength of the IV - DV relationship, thus the relationship is stronger as indicated by the steeper slope (Aiken *et al.,* 1991). Based on this finding, the study rejects the **Ho_5** and concludes that organisational justice has a moderating effect on the relationship between HPWS and employee engagement of selected manufacturing firms in Nairobi City County, Kenya.

H_{o6}: Moderating Effects of Organisational Justice on Employee Performance

The results in Table 4.30 ANOVA statistic, $F = 41.9522$, $p < 0.05$, show that the regression model is statistically significant with the moderating effect of organizational justice explaining 56.56 per cent variance in employee performance of selected manufacturing firms in Nairobi City County, Kenya.

Table 4.31: Regression Results for Moderated Effects

Model summary for Moderated effects of organisational justice						
R	**R^2**	**MSE**	**F**	**df1**	**df2**	**p**
.7521	.5656	0063	41.9522	9	290	.0000

	Coeff	**se**	**t**	**p**	LLCI	ULCI
(Constant)	1.4460	.2083	6.9433	.0000	1.0361	1.8559
HPWS	.2535	.1542	-3.6439	.0213	.1571	.6500
Organizational justice	.1073	.0570	-2.8825	.0408	.1195	.3249
Int_1	.1467	.0400	3.6673	.0003	.0680	.2255
Gender	-.0171	.0102	-1.667	.0960	-.0373	.0031
Age	-.0147	.0080	-1.8315	.0681	-.0304	.0011
Work experience	-.0281	.0079	-3.5625	.0004	-.0436	-.0126
Education level	-.0061	.0049	-1.2416	.2154	-.0158	.0036
Job designation	.0106	.0057	1.8568	.0644	-.0006	.0219
Departmental function	-.0111	.0054	-2.0527	.0410	-.0217	-.0005

Test(s) of highest order unconditional interaction(s):					
	R^2-change	F	df1	df2	p
X*W	.0201	13.4488		290	.0003

Conditional effects of the focal predictor at values of the moderator(s)							
	Justice	Effect	SE	t	p	LLCI	ULCI
Low(-1SD)	3.7143	.2914	.0528	5.5248	.0000	.1876	.3953
Mid (0SD)	4.2857	.3753	.0589	6.3696	.0000	.2593	.4912
High+1SD)	4.6429	.4277	.0666	6.4239	.0000	.2966	.5587

The beta coefficients in Table 4.31 show that HPWS ($\beta = 0.2535$, $p < 0.05$), organizational justice ($\beta = 0.1073$, $p < 0.05$), the interaction effect (Int_1) ($\beta = 0.1467$, $p < 0.05$) had a statistically significant effect on employee performance. In addition, work experience ($\beta = -0.0281$, $p < 0.05$) and departmental function ($\beta = -0.0111$, $p < 0.05$) had a statistically significant effect on employee performance. Preacher *et al.,* (2007) recommended that W moderates the relationship between X and Y for values of W where the confidence bands do not contain zero. As indicated, both the LLCI and ULCI levels were significantly different from zero, that is they had positive numbers indicating that the beta coefficients were statistically significant. To interpret this result, ModGraph in Figure 4.10 below illustrates the relationship.

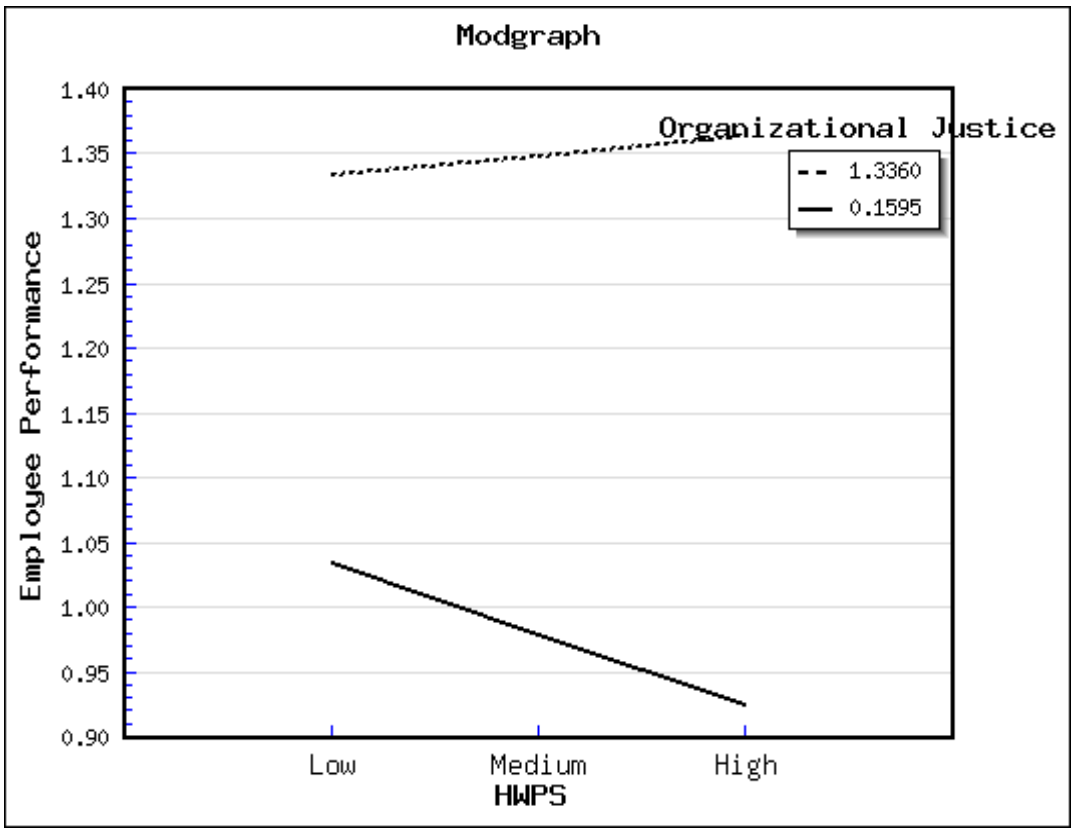

Figure 4.11: Modgraph for Moderating Effects (H_{06})

Figure 4.11 shows the modgraph concerning the moderating effect of organizational justice on employee performance. Based on Jones (2013), the modgraph is distinctively non - parallel indicating a statistically significant interaction. The two lines are non – parallel indicating a statistically significant interaction where perceived organizational justice is at its lowest point, employee performance is also at its highest and when organizational justice is at its highest levels, employees tend to exhibit lower levels of performance. The graphs also show a distinctively flatter slope which implies that organisational justice is a buffer of the strength of the IV - DV relationship, thus the relationship is indicated by the flatter slope (Aiken, West & Reno, 1991). Based on this finding, the study rejected the **H_{o6}** and concluded that organisational justice has a moderating effect on the relationship between HPWS and employee performance of selected manufacturing firms in Nairobi City County, Kenya.

4.11.5 Regression Results for the Moderated – Mediation Effect

The study carried out hierarchical regression to test the hypothesis for moderated effects of organisational justice on the strength of the relationship between high-performance work systems and employee performance through employee engagement of selected manufacturing firms in Nairobi City County, Kenya (**H_{07}**). The hypothesis stated that organisational justice has no significant moderating effect on the relationship between high-performance work systems and employee performance through employee engagement of selected manufacturing firms in Nairobi City County, Kenya. The study employed Hayes (2018) model 8 using PROCESS Macro version 4.2 to test for **H_{07}**.

Table 4.32: Regression Results for Moderated – Mediated Effects

Model summary for Moderated Effects of organizational justice

R	**R^2**	**MSE**	**F**	**df1**	**df2**	**p**
.7976	.6362	.0095	56.3592	9	290	.0000

	Coeff	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	.1829	.2571	7112	.4775	-.3232	.6889
HPWS	.5863	.1904	3.0791	.0023	.2115	.9610
Organizational justice	.2684	.0704	4.9719	.0319	.1701	.4069
Int_1	.3163	0494	3.3292	.0422	.1810	.3135
Gender	-.0329	.0127	-2.6020	.0097	-.0578	-.0080
Age	-.0160	.0099	-1.6231	.1057	-.0355	.0034
Work experience	-.0109	.0097	-1.1168	.2650	-.0300	.0083
Education	.0125	.0061	2.0657	.0397	.0006	.0245
Job designation	-.0068	.0071	-.9637	3360	-.0207	.0071
Departmental function	-.0087	.0067	-1.312	.1906	-.0218	.0044

Test(s) of highest order unconditional interaction(s):

	R^2-change	F	df1	df2	p
X*W	.0212	3..1084	1	290	.0422

Conditional effects of the focal predictor at values of the moderator(s)

	Justice	Effect	SE	t	p	LLCI	ULCI
Low(-1SD)	3.4176	.3914	.0428	5.6268	.0000	.1876	.4953
Mid (0SD)	4.8457	.3353	.0619	6.6736	.0000	.2493	.4894
High+1SD)	4.8694	.4177	.0586	6.5269	.0000	.2566	.5687

R	**R^2**	**MSE**	**F**	**df1**	**df2**	**p**
.7519	.5653	.0062	47.3104	8	291	.0000

	Coeff	**se**	**t**	**p**	LLCI	ULCI
(Constant)	.6702	.0550	12.1788	.0000	.5619	.7785
HPWS	.2173	.0551	3.9428	.0001	.1088	.3258
Employee engagement	.3752	.0450	8.3341	.0000	.2866	.4638
Gender	.0074	.0100	0.7386	4608	-.0123	.0270
Age	-.0053	.0078	-0.6780	.4983	-.0206	.0100
Work experience	-.0277	.0076	-3.650	.0003	-.0426	-.0128
Education	-.0074	.0049	-1.5012	.1344	-.0170	.0023
Job designation	.0145	.0057	2.5615	.0109	.0034	.0257
Departmental function	-.0088	.0054	-1.6257	.1051	-.0194	.0018

	Effect	**se**	**t**	**p**	**LLCI**	**ULCI**
Direct effect of X on Y	.2173	.0551	3.9428	.0001	.1088	.3258

Conditional indirect effects of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Low(-1SD)	3.7143	.2426	.0393	.1613	.3160
Mid (0SD)	4.2857	.2461	.0421	.1635	.3293
High+1SD)	4.6429	.2483	.0469	.1598	.3426

H_{o7}: Moderating effect of Organisational Justice on the relationship between HPWS and Employee Performance through Employee Engagement

Moderated mediation occurs when the strength of an indirect effect depends on the level of some other variable, or in other words when mediation relations are contingent on the level of a moderator (Preacher *et al.,* 2007). There are multiple ways in which the magnitude of an indirect effect may be dependent upon a moderator. When using the Johnson-Neyman (J-N) technique, the continuously plotted CIs around simple slopes for all values of W are termed confidence bands (Preacher *et al.,* 2006).

To establish the conditional indirect effect, Preacher *et al.,* (2007) recommend that the following analytical procedures be followed. First, the HPWS ($\beta = 0.5863$, $p < 0.05$), organizational justice ($\beta = 0.2684$, $p < 0.05$), and interaction effects ($\beta = 0.3163$, $p < 0.05$), had a statistically significant effect on employee performance. Further, the conditional effects of the moderator were significant.

Secondly, the mediation effects of high-performance work systems ($\beta = 0.2173$, $p < 0.05$) and employee engagement ($\beta = 0.3752$, $p < 0.05$) are statistically significant ($F = 47.3104$, $p < 0.05$) in explaining variations in employee performance. The total direct of X on Y ($\beta = 0.2173$, $p < 0.05$) was statistically significant.

Preacher *et al.,* (2007) recommended that W moderates the relationship between X and Y for values of W where the confidence bands do not contain zero. Confidence bands can easily be plotted to facilitate the interpretation of the interaction effect. As indicated, both the LLCI and ULCI levels were positive and significantly different from zero, that is they had positive numbers indicating that the model is statistically significant.

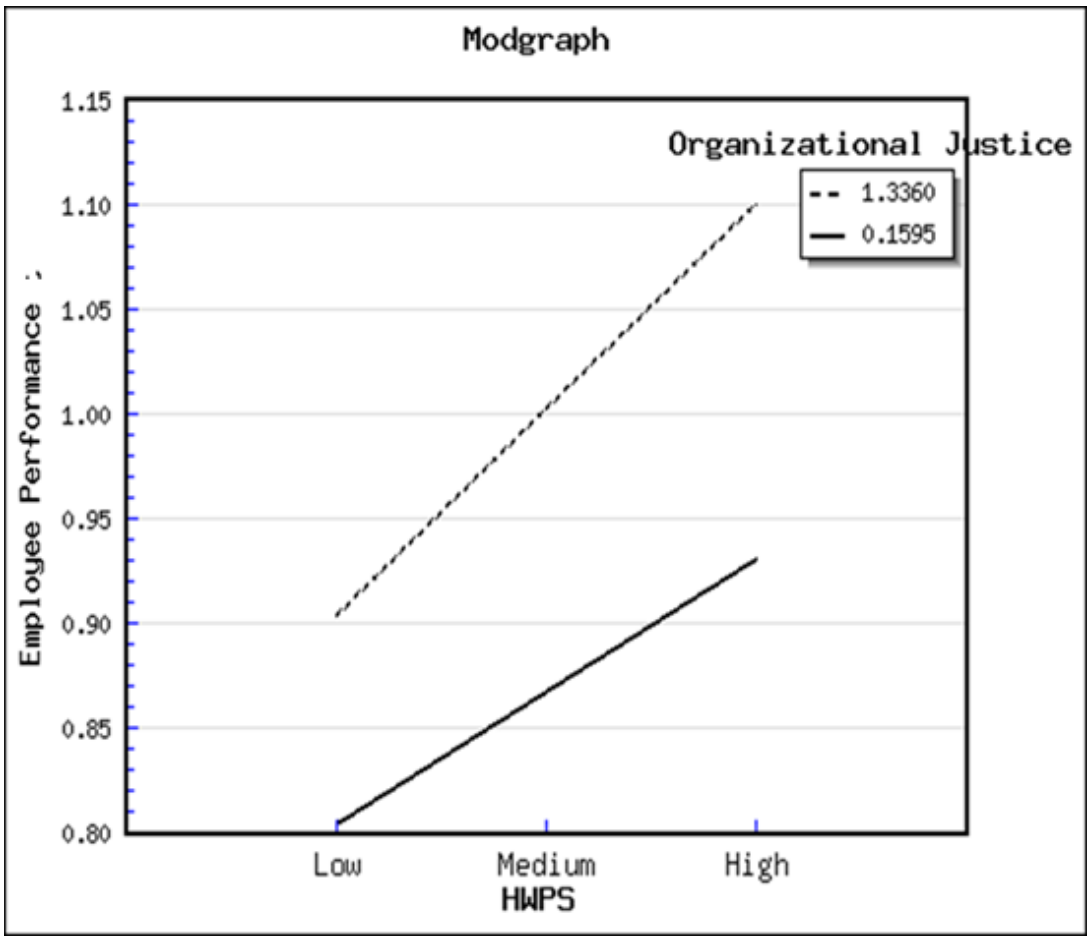

Figure 4.12: Modgraph for Moderated–mediated Effects (H_{07})

Figure 4.12 shows the modgraph concerning the moderated–mediated effect of organizational justice on employee performance. Based on Jones and Waller (2013), the modgraph is distinctively non - parallel indicating a statistically significant interaction. The two lines are non – parallel indicating a statistically significant interaction when the perceived organizational justice is at its lowest point, employee performance is also at its lowest and when organizational justice is at its highest levels, employees tend to exhibit higher levels of performance. The graphs also show a distinctively steeper slope which implies that organizational justice is an exacerbator of the strength of the IV - DV relationship, thus the relationship is stronger as indicated by the steeper slope (Aiken, West & Reno, 1991).

Based on this finding, the study, therefore rejected the **H_{07}** and concluded that organizational justice has a significant moderating effect on the relationship between HPWS and employee performance conditionally through employee engagement.

4.12 Discussion of Results

4.12.1 Covariates and Employee Performance

The study examined whether covariates have a significant direct effect on employee performance. The results in Table 4.26 indicate that gender, work experience and job designation were significant ($p < 0.05$) in explaining the direct effect on employee performance ($F = 6.552$, $p = 0.000$), while age, education and departmental function were not significant. The finding could be explained by both individual and institutional firm contextual factors that influence the perceptual views of the respondents. Socioeconomic and demographic factors influence the employee performance (Potrich, Vieira and Kirch, 2018).

4.12.2 High-Performance Work Systems and Employee Performance

The study evaluated the effect of high-performance works systems on employee performance of manufacturing firms **(H_{01})** in Nairobi City County, Kenya. The results in Table 4.28 indicate that high-performance works systems have a statistically significant positive effect on employee performance of selected manufacturing firms in Nairobi City County, Kenya ($\beta_1 = 0.106$, $p < 0.05$). This means that when firms adopt high-performance work systems tend to induce higher levels of performance from employees.

The positive effect of high-performance work systems on employee performance has been indicated by several studies (Alfes *et al.,* 2013). These studies support the notion

that HPWS has a positive impact on employee performance. The high-performance HRM practices are broadly focused around three areas; (1) employee skills, including selective recruitment; (2) motivation, including such practices as performance-based rewards; and (3) empowerment, including participation mechanisms. HPWSs positively predict employee performance through psychological empowerment but negatively affect employee performance through emotional exhaustion (Han *et al.*, 2023). Growing evidence suggests that HPWP promote organizational performance through the mediating role of employee outcomes (Ogbonnaya and Valizade, 2018). High-performance work systems (HPWS) yield positive performance outcomes for organizations (Shahzad *et al.,* 2024).

HPWSs help select competent and creative employees and assist in ensuring that employees are provided with opportunities to contribute to organizational goals (Tzabbar *et al.,* 2017). In this manner, greater commitment is fostered, and this ultimately enhances motivation within the HR unit. Increased commitment is likely to result in behaviours that are beneficial to the department, which will ultimately enhance organisational productivity (Wojtczuk-Turek & Turek, 2021). The HPWP framework operates to optimize employees' work-related knowledge, skills and abilities in ways consistent with organizational performance by enabling employees to take greater ownership of their jobs and go beyond their interests for sustained performance (Ogbonnaya & Valizade, 2018). Complementary sets of HRM practices, rather than individual HRM practices lead to higher performance levels at individual and organizational levels. The HRM practices, commonly referred to as high-performance work systems, are built on the notion that individual experiences of clusters of HRM practices shape employees' beliefs about the nature of the exchange relationship they enter into with their organization (Alfes *et al.,* 2013).

Organisational performance tends to increase due to the bundling of specific HR practices into HPWSs which result from the appropriate matching of implemented HR practices (Wojtczuk-Turek & Turek, 2021). HPWSs is useful in its systemic nature and its innovativeness. HPWS is a range of innovative HR practices and work design processes that, when used in certain combinations or bundles, mutually reinforce each other and produce synergistic benefits (Heffernan & Dundon, 2016). HRM system consists of "interconnected HR activities, designed to ensure that employees have a broad range of superior skills and abilities, which are utilized to achieve the organization's goals (Alfes *et al.,* 2013).

HPWPs affect employee performance through empowerment, ownership of decisions, job autonomy/discretion and participation (Garg and Sharma, 2015). HPWS, through its collaborative and synergistic bundle of developmental and motivational practices, enhances the collective knowledge, skills and motivation level of organizational members which helps organizations achieve higher performance outcomes (Zhou *et al.,* 2019) such as increased market performance and higher workforce retention (Raineri, 2017).

Accordingly, HPWS is designed to increase employee influence through greater participation in decision-making, teamwork and information-sharing. As a result, their procedural justice perceptions are enhanced, leading to more positive work attitudes (Heffernan & Dundon, 2016). Procedural justice is positively associated with several attitudes and behaviours, such as job satisfaction, employee commitment, and work effort (Cafferkey & Dundon, 2015). Furthermore, job satisfaction and employee commitment indirectly influence employee performance.

HPWP is directly and positively related to job satisfaction and employee engagement. This corroborates the proposition that a coherent bundle of HRM practices encourage positive employee attitudes and behaviours (Bal *et al.,* 2013). When HRM practices are bundled together, they generate mutually supportive effects that shape the quality of employees' functioning at work (Ogbonnaya & Valizade, 2018). HPWP might influence organizational performance through the mediating role of these employee outcomes. The direct positive relationship between HPWP and desired employee outcomes lends support to the 'universalist' principle of HRM, that management models such as HPWP represent a set of 'best' HRM practices that generate positive effects irrespective of organizational settings, size, industry, or corporate strategy.

Theoretically, social exchange theory argues that employees are motivated within the employment relationship to demonstrate positive attitudes and behaviours when they perceive that their employer values them and their contribution. Certain HRM practices may be viewed as signalling an intent for long-term investment in employees that obliges them to reciprocate with discretionary role behaviour and contributions (Alfes *et al.,* 2013). Ability-enhancing HRM practices (recruitment and selection, training and development) increase employees' abilities and competencies to achieve organisational goals. Recruitment and selection are likely to enhance a highly skilled workforce by attracting and selecting those with higher levels of organisation-relevant knowledge and skills (Heffernan & Dundon, 2016).

The social exchange theory conceptualizes human capital and employee satisfaction as collective organization-level mechanisms to mediate the effect of HPWS on organizational performance outcomes (Shahzad *et al.,* 2024). The theory posits that when individuals collaboratively invest in and draw upon the combined knowledge,

skills and motivation level of the organization, it results in a synergistic effect, ultimately enriching the collective human capital and satisfaction level of the organization (Zhou *et al.,* 2019). The theory also explains how members of an organization homogeneously interpret the social exchange relationship and influence each other's cognitive and affective interpretations and evaluations during this process (Shahzad *et al.,* 2024).

Consequently, a shared sense of social exchange emerges at the collective level which transcends individual exchange relationships to form a collective governing standard that may exert influence on exchange parties not to deviate from the collective standards governing exchange transactions (Chun *et al.,* 2013). Under the social exchange relationship, individuals tend to abide by the collective expectation of performance attitudes and behaviours even when their perceptions of the exchange relationship differ (Shahzad *et al.,* 2024).

Organizational support can create a sense of obligation which improves the employees' physical, social and cognitive attachment to the organization and its well-being. Accordingly, offering appropriate support improves employee engagement which often determines how much effort an employee is willing to commit to their jobs and the organization (Bedarkar & Pandita, 2014). Employees feel an obligation towards organizations and their agents is an essential link between organizational justice perceptions and outcomes (Roch *et al.,* 2019). As stated by Cropanzano *et al.,* (2001), healthy social exchange relationships are fostered by perceptions of fairness, which engender feelings of obligation on the part of employees to reciprocate to their organization and/or supervisors with behaviours that benefit the organization.

According to Khoreva and Wechtler (2018), when organizations invest in different dimensions of HR practices, which are likely to be viewed by employees as an indication of the employer's commitment toward them, employees may, in turn, act in ways that meet organizational interests. Empirical evidence indicates that organizational commitment directly reduces turnover intention as employees have a natural tendency to build and maintain long-lasting bonds of affection with familiar reputable organizations. Once these ties have been created, their quality, security, and stability are related to some positive outcomes in the organizations (Zhang *et al.*, 2015).

HPWS can contribute to the development of collective human capital by first transforming and amplifying individual KSAs into a valuable organization-level resource, and then fostering an environment that encourages collaboration, continuous learning and shared problem-solving (Jeong & Shin, 2019). By offering training and development programs that focus on the development of collective knowledge and skills, and through the involvement of employees in decision-making processes and problem-solving, HPWS can leverage individual talents and also promote organization-wide sharing of insights and expertise (Jeong & Shin, 2019).

Furthermore, incentive systems tied to performance encourage employees to contribute their best efforts and share knowledge to achieve collective developmental and performance goals. HPWS also promote open communication and information sharing across the organization which facilitates the dissemination of knowledge, best practices and lessons learned, contributing to the collective learning and development of human capital. Empirical evidence suggests that strategically designed HRM practices such as HPWS are instrumental in acquiring, developing and motivating collective capabilities, attitudes and behaviours in an organization (Ma *et al.,* 2017; Zhou *et al.,* 2019).

The collective human capital is embedded in an organization's social processes, allowing the organization to develop firm-specific collective competencies to manage positive organizational change and resultantly obtain a performance advantage over rivals (Zhou *et al.,* 2019). Collective human capital promotes organizational market success and builds competitive advantage by harnessing the synergies of shared knowledge and skills, fostering innovative collaboration among members and enabling the organization to navigate complexities and adapt swiftly to dynamic market conditions (Littlejohn *et al.,* 2012). Similarly, collective human capital can enhance workforce retention by fostering a positive and collaborative work environment where shared skills and knowledge create a sense of belonging and satisfaction, promoting long-term commitment and reducing turnover within the organizational collective.

As collective human capital strengthens, organizational members are more likely to engage in collaborative efforts, adapt to changing circumstances and contribute positively to the organizational performance goals. This, in turn, influences firm performance by enhancing productivity, innovation and overall organizational effectiveness. Similarly, HPWS nurtures collective employee satisfaction by providing a positive work environment, recognizing and rewarding performance and promoting meaningful engagement. Satisfied employees are more likely to reciprocate through increased commitment, higher levels of effort and a positive contribution to organizational goals. As per the social exchange theory, the frequent reciprocal exchanges between the organization and employees, characterized by positive workplace practices and satisfaction, are likely to translate into enhanced organizational performance (Zhou *et al.,* 2019).

On the other hand, training and development practices increase employees' abilities within the organisation by providing them with the appropriate knowledge and skills to perform their jobs (Tzabbar *et al.,* 2017). Motivation-enhancing HRM practices involve the use of contingent rewards and performance management to increase employees' motivation to perform (Raineri, 2017). Opportunity-enhancing HRM practices enhance employee involvement and increase their opportunities to engage (Tzabbar *et al.*, 2017).

The AMO theoretical framework has been applied in describing the intermediary role of employee outcomes in the HPWP–performance relationship. The model assumes HRM systems improve employee attitudes and reinforce organizational performance when HRM systems develop employees' ability and motivation to perform well and provide opportunities for employees to exert discretionary effort (Ogbonnaya & Valizade, 2018). Within the AMO framework, job satisfaction is a positive employee outcome (Bal *et al.*, 2013).

4.12.3 Employee Engagement and Employee Performance

The study evaluated the effect of employee engagement on employee performance of manufacturing firms in Nairobi City County, Kenya. The results in Table 4.28 indicate that employee engagement has a statistically significant positive effect on employee performance of manufacturing firms in Nairobi City County, Kenya ($\beta_2 = 0.423$, $p < 0.05$). This means that high levels of employee engagement by the firms translate into higher levels of performance from employees.

Specifically, employee engagement results in enhanced individual and/or group performance, in addition, to bettering customer loyalty, which ultimately improves profitability (Kim & Park, 2017). Based on the norm of reciprocity in the social exchange theory, employees feel they have an obligation to reciprocate organizations

through the provision of benefits when they receive benefits provided by organizations. HR outcomes, in turn, may mediate the influence of HR practices on productivity, quality, service, safety, innovation, and other operational outcomes (Jiang *et al.*, 2012). Literature suggests that, with the provision of incentives, employees will feel they are treated fairly and they tend to respond positively towards their company by enhancing their performance (Obeidat *et al.*, 2016). High engagement represents high levels of emotional and cognitive activity and has been associated with positive emotional and mental well-being (Soane *et al.*, 2012).

The positive effect of employee engagement has been informed by several studies (Ismail *et al.*, 2019; Carter *et al.*, 2018). Employee engagement has a positive influence on organisational performance indicators such as employee satisfaction, productivity, employee turnover, organisational commitment, and safety (Dajani, 2015). These studies reported that employee engagement is significantly related to improved performance; higher satisfaction, and employee productivity. Ismail *et al.*, (2019) observed a positive relationship between job performance and employee engagement and the finding is supported by Carter *et al.*, (2018) observed linkages between employee engagement and job performance, and that employee engagement predicts job performance.

Employee engagement is considered a crucial tool of strategic importance for the attainment of competitive advantage. Optimizing job demands and job and personal resources, work engagement facilitates and fosters performance (Waseem & Mehmood, 2019). In the healthcare and hospitality industry, employee engagement correlates with higher customer satisfaction and expectations. Employee engagement strongly predicts

several positive organizational outcomes such as job performance (Albrecht & Marty, 2020).

When employees are valued and supported by the organization, their work engagement is enhanced. Increased engagement leads to better job performance, as engaged employees are more productive, innovative, and willing to go the extra mile (Opoku & Boateng, 2024). Work engagement is an active state where an employee experiences positive work-related affect and heightened motivation (Wang *et al.,* 2015). Engagement is an active state associated with high levels of cognitive activity and effort which generates a positive cycle of emotions and cognitions that function to improve performance (Soane *et al.,* 2012).

Highly engaged employees are passionate about their work and are deeply connected to their organization. They are more creative, and enthusiastic, work harder, and show organizational commitment more likely to perform better and can create and further maintain sustainable competitive advantage (Huang *et al.,* 2018). Employee engagement as a construct indirectly affects employee performance by fostering positive affect in employees at the workplace, which, in turn, influences creativity which drives performance. Thus employee engagement is considered a critical antecedent of creativity and innovation in the workplace (Ismail *et al.,* 2019).

Engaged employees are better at developing creative solutions, thinking innovatively and using flexible reasoning in challenging organizational situations (Eldor, 2017). Individuals can be 'personally' engaged in their work, investing positive emotional and cognitive energy into their role performance." Highly engaged employees exhibit a passion for their work, understand the significance of their job and depict loyalty to their organizations as compared to disengaged employees (Parker & Griffin, 2011).

The performance benefits accrued from increased employee engagement include: increased job satisfaction, increased job performance; decreased employee turnover, and decreased absenteeism (Dajani, 2015). Employee engagement is similar to self-efficacy in that it focuses on an individual's cognitive beliefs concerning organizational goals (Carter *et al.*, 2018). High levels of engagement require vigour and energy to be invested in the job, in addition to diligence and job focus by which engagement impacts job performance (Bakker & Bal, 2010). Engagement is seen as more than job satisfaction since it implies activation and not merely satiation (Alfes *et al.*, 2013).

Employee engagement encompasses the marshalling and deployment of intra-individual resources to the performance of work roles (Soane *et al.*, 2012). Employee engagement increases employee commitment which in turn improves their job performance (Albrecht & Marty, 2020). Employee engagement positively predicts both work satisfaction and job performance while reducing employee turnover intentions and counterproductive employee behaviours (Kura & Alkashami, 2021).

Employee engagement is considered a critical construct behind vital employee outcomes at work as a high level of employee engagement has been shown to have a significant influence on job performance (Ismail *et al.*, 2019). Employee engagement connotes high levels of personal investment in the work tasks performed on a job. Engagement represents a state in which employees "bring in" their selves during work role performances, investing personal energy and experiencing an emotional connection with their work. In this view, work roles represent opportunities for individuals to apply themselves behaviorally, energetically, expressively, holistically and simultaneously (Christian *et al.*, 2011).

Theoretically, social exchange theory, suggests that when employees feel that their organization is investing in them through the positive experiences of HRM policy, they are more willing to reciprocate through high levels of engagement and performance (Ramamoorthy *et al.*, 2005). Employment exchange is one in which the organization offers inducements in return for employee activities that benefit the organization. Thus, the rules of exchange involve reciprocity or repayment such that the actions of one party lead to a response or actions by another party (Eldor & Harpaz, 2016).

The job demands-resources (JD-R) model of work engagement includes job resources (e.g., autonomy and performance feedback) and personal resources (e.g., self-efficacy and optimism) as antecedents of work engagement, which lead to performance improvement. Accordingly, organizations understand and utilize various antecedents in that relationship to help and facilitate employees in becoming engaged and maintaining the engaged status (Kim *et al.*, 2013). The employee–organization relationship is an overarching term describing the relationship between the employee and the organization and includes micro-attachments such as the concepts of employee engagement, psychological empowerment and the psychological contract (Eldor & Vigoda-Gadot, 2017).

Based on the social exchange theory, HPWS focused on providing support to employee development by enriching jobs, enhancing employee job skills, and encouraging participative decision-making, the employee will reciprocate through increased work engagement and commitment to the organizations, which consequently leads to high organizational performance (Huang *et al.,* 2018). Individuals in a social exchange relationship are normally viewed as emotional beings who obtain information, cognitively process it, and then make decisions concerning the nature and pattern of

exchange with organizations. The exchange process thus produces emotions and feelings which lead individuals to attribute these emotions to different social units such as their organizations (Huang *et al.,* 2018). These emotional attributions, in turn, dictate how strongly individuals feel attached to their organizations, which further drives engagement behaviour and commitment to the relationship (Huang *et al.,* 2018).

Employee engagement has been considered a source of competitive advantage or an antecedent of productivity. Employee engagement is related to organizational outcomes such as employees' productivity, creativity and innovativeness. They found strong relationships between employees' perceptions of supervisor support, organizational justice and employees' participation in decision-making processes (Al-Tit & Hunitie, 2015). Engaged employees often have positive emotions (Eldor, 2016) and are more likely to think creatively (Eldor & Harpaz, 2016), leverage opportunities at work (Eldor, 2016), seek to achieve the goals of their organisations and welcome new experiences (Eldor & Harpaz, 2016). Thus, engaged employees are expected to be creative, share information with their colleagues, take the initiative and adapt to the circumstances of their employment.

4.12.4 Organizational Justice and Employee Performance

The study evaluated the effect of organizational justice on employee performance of manufacturing firms in Nairobi City County, Kenya. The results in Table 4.28 indicate that organizational justice has a statistically significant positive effect on employee performance of manufacturing firms in Nairobi City County, Kenya ($\beta_3 = 0.280$, $p < 0.05$). This means that when the high levels of organisational justice by the firms translate into higher levels of performance from employees.

The positive effect of organizational justice has been informed by several studies (Fiaz *et al.,* 2021; Cafferkey & Dundon, 2015; Imamoglu *et al.,* 2019). Procedural justice has also been shown to be positively associated with employee attitudes and behaviours, such as job satisfaction, employee commitment, work effort and work pressure as well as a more positive organisational climate (Cafferkey & Dundon, 2015). Organizational justice positively influences firm performance through its moderating role of organizational commitment (Fiaz *et al.,* 2021). Employees' perceptions of organizational justice tend to determine attitudes towards the organization and therefore influence employee commitment (Imamoglu *et al.,* 2019).

When organizations ensure just and fair treatment, courteous interaction, ethical and impartial decision-making, and equitable benefit and compensation packages, they share this critical information and feedback with employees. In return, employees would demonstrate positive work-related outcomes for the behaviour and actions they received (Rahman & Karim, 2022). Employees' positive attitudes, behaviours, skills, and abilities work under the consideration of the organization gaining a competitive advantage in the market (Fiaz *et al.,* 2021). Empirical research on organizational justice shows that employees reciprocate conditions of perceived fairness experienced in their workplace with attitudes and behaviours favourable to the employer, through these acts of reciprocity being employee performance (Colquitt *et al.,* 2003). According to social exchange theory, feeling obligation after being treated justly is key to explaining why justice perceptions influence behaviours important to organizations, such as task performance (Roch *et al.,* 2019).

Empirical literature indicates that justice perceptions have important implications for organizations and their employees. Distributive justice is related to work outcomes such

as organizational commitment (Cohen-Charash & Spector, 2001). Procedural justice has also been shown to be positively associated with several attitudes and behaviours, such as job satisfaction, employee commitment, work effort and work pressure as well as a more positive organisational climate (Cafferkey & Dundon, 2015). Organizational justice is directly linked to employee performance as it determines the perceptions of fairness within the organization and in turn influences job-related attitudes and behaviours (Iqbal, 2017). When the organization display fairness, employees have a positive attitude and behaviour toward the organization. Since employees are the unique assets of firms, their positive attitudes toward the organization and their behaviour for the benefit of the organization determine the firm performance status (Imamoglu *et al.*, 2019). Actively engaged employees often perform their tasks and duties with passion, enthusiasm and pleasure. Engaged employee contributes through their productive and innovative ways to ensure that the organization achieves its goals and objectives. Engaged employees are creative and problem–solvers and perform better in collaborative contexts (Opoku *et al.,* 2023).

The elements of organizational justice are imperatives for employees as they determine employee attitudes towards the organization. Organizational justice tends to increase the motivational level and trust factor of employees and therefore boost performance (Fiaz *et al.,* 2021). Organizational justice positively affects organizational commitment and firm performance. Studies have indicated a positive relationship between job resources such as autonomy, job control, role fit, skills variety, task identity, task significance, supervisor support and feedback and employee engagement (Eldor & Vigoda-Gadot, 2017). Productive employee behaviours are better explained by organisational HRM practices such as HPWSs which better explain innovative work behaviours (Raineri 2017).

Theoretically, the social exchange theory proposes that employee engagement causes higher job performance by eliciting positive emotions and that improves motivation to undertake job tasks and responsibilities (Parker & Griffin, 2011). Social exchange theory (SET) postulates that when employees have been treated well by the organization, employees tend to behave more positively towards the organization (Hermanto & Srimulyani, 2022). AMO proposes that HR practices are complex and that performance is a function of employee's ability, motivation and opportunity. Therefore, HR practices such as teamwork and job autonomy can help employees to identify and exploit opportunities. Similarly, opportunities for skill development and employee participation have been shown to impact job satisfaction which in turn influence employee performance (Heffernan & Dundon, 2016).

The AMO theory assumes that a cohesion of various elements, such as employees' abilities (e.g. via staff training), motivation (e.g. through performance appraisals) and opportunities (e.g. with teamwork), can help achieve the desired behavioural effects (Ogbonnaya & Valizade, 2018). The JD-R framework distinguishes between resources, in the form of either job-related resources or personal resources, and demands. Resources energize employees and foster engagement which, in turn, yields positive outcomes such as high levels of well-being and performance (Schaufeli 2014). Thus, the JD-R explains engagement on the basis that where employees have high levels of job-related and/or personal resources, then they are more likely to be engaged with their work (Bailey *et al.*, 2017).

4.12.5 Mediating Effect of Employee Engagement on Employee Performance

The study examined whether employee engagement has a statistically significant mediating effect on employee performance of manufacturing firms in Nairobi City

County, Kenya. The results in Table 4.29 indicate that under path (a_1): high-performance work systems have a direct positive effect ($\beta = 0.6292$, $p < 0.05$)on employee performance. Under path (C): high-performance work systems have a significant positive effect ($\beta = 0.7597$, $p < 0.05$). Path (C'): high-performance work systems ($\beta = 0.2447$, $p < 0.05$) and employee engagement ($\beta = 0.5061$, $p < 0.05$) have a significant positive effect on employee performance. The results show that the Baron and Kenny (1986) mediation requirements were fulfilled, as paths a1 and b1 remained statistically significant. The inclusion of employee engagement as a mediator in the model decreased the effect of HPWS on employee performance from $\beta = 0.6292$ to $\beta = 0.2447$.

Preacher and Hayes (2009) recommend further examination of the indirect path to confirm the presence or absence of mediation effects. Thus, the indirect path was examined through the application of the bootstrapping method in Table 4.30 where data was resampled 5,000 times at 95% CI. Hayes (2009) recommends that this approach requires the researcher to estimate each of the paths in the model and then ascertain whether a variable functions as a mediator by seeing if certain statistical criteria are met. For example, if both *a* and *b* paths in a model are statistically significant and *c′* is closer to zero than *c*, then *M* is deemed a mediator of the relationship between *X* and *Y*.

Based on the recommendation by Hayes, (2009), path (c'); ($\beta = 0.2447$, $p < 0.05$) is closer to zero than path (c); ($\beta = 0.6292$, $p < 0.05$) indicates that employee engagement can be deemed to have mediated between high-performance work systems and employee performance.

The positive mediating effect of employee engagement on high-performance work systems is drawn from both direct and indirect effects as indicated by the empirical studies. The positive mediating effect of employee engagement on employee performance has been informed by several studies (Ismail *et al.,* 2019). Employee engagement has a direct effect on employee performance by directly influencing task and contextual performance (Ismail *et al.,* 2019). Employee engagement acts as a mediator linking perceived HRM practices and managerial behaviour to induce individual performance (Ramamoorthy *et al.,* 2005).

The direct effects of employee engagement have been informed by several studies (Ho *et al.,* 2011; Ramamoorthy *et al.,* 2005). Empirical studies have linked high levels of engagement with high-performance HRM practices. Engaged employees invest themselves fully in their roles which may lead to the enactment of active in-role performances (Ho *et al.,* 2011). Employee engagement is generally viewed as a positive, fulfilling, affective-motivational state of work-related well-being (Kim *et al.,* 2013). Engagement is associated with higher levels of performance at both the individual and the organizational level, quality service to customers, client loyalty satisfaction and financial returns. Thus, employee engagement boosts the organization's bottom line by giving it a competitive advantage (Eldor, 2017).

Al-Tit and Hunitie, (2015) observed the mediating role of employee engagement in work-related outcomes such as job satisfaction and involvement. Engagement varies substantially across business units within firms and is a predictor of business-unit outcomes (Badal & Harter, 2014). Moreover, employee engagement improves in-role and task performance and thus, employees are more likely to exert extra effort when dealing with uncertainty in their work environment (Eldor, 2017).

Employee work engagement is a key component for improving human performance for organizational sustainability (Kim & Park, 2017). Engagement and organizational justice have a significant place in terms of both the organization and the individual employees (Köse and Uzun, 2018). HPWS practices tends to increase employee participation, team building and total quality management that results in lower turnover intention and increased satisfaction and employee engagement (Garg and Sharma, 2015).

Engagement involves the harnessing of employee members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances (Lysova *et al.,* 2019). Specifically, engaged workers have greater job satisfaction and commitment, fewer turnover intentions, greater organizational citizenship behaviour, and improved health (Schaufeli & Bakker, 2010). Engagement has also been associated with increased performance and company financial outcomes (Albrecht *et al.,* 2021). Engaged employees are excited, find meaning in their work activities and experiences, and have the ability to deal with work-related demands. Similarly, highly engaged employees exhibit a higher likelihood of working with their present organization for the foreseeable future, while disengaged employees tend to leave their organizations (Rafiq *et al.,* 2019). An engaged employee has more ownership and can contribute towards his/her growth and overall productivity. Employee engagement contributes to the empowerment. Employee engagement plays a mediating role in the relationship between employee empowerment and performance (Natrajan *et al.,* 2019).

Employee engagement has been empirically validated to mediate the relationship between value congruence, perceived organizational support and task performance,

leading to proactive employee behaviour. Mediating effect of engagement on the relationship between job characteristics, leadership, and, task performance (Ramamoorthy *et al.,* 2005). The influence or effect of employee engagement follows through its influence on proactive employee behaviour which connects employees to their workplace.

There is evidence to suggest a direct positive relationship between HPWP and work engagement (Bal *et al.,* 2013). HPWP impacts favourably on these outcomes because they transmit positive signals regarding the extent to which employees are valued by the organization (Ogbonnaya & Valizade, 2018). These signals may be transmitted through the AMO components of HPWP. Thus, by enhancing employees' skills through training, motivating employees and providing opportunities for employees to utilize their skills, HPWP influence employees' perceptions as to how much the organization is concerned about their welfare. This in turn might enhance employees' job satisfaction and stimulate employee engagement (Bal *et al.,* 2013).

Engagement should refer to a psychological connection with the performance of work tasks, rather than an attitude toward features of the organization or the job. As such, work engagement is fundamentally a motivational concept that represents the active allocation of personal resources toward the tasks associated with a work role (Christian *et al.,* 2011). Engaged employees have high levels of energy and are enthusiastically and actively involved in their work (Eldor & Vigoda-Gadot, 2016). They also use their allocation of resources to secure desired outcomes and to protect themselves from feeling stressed and anxious in demanding situations (Eldor, 2016).

High-performance HRM practices, draw on social exchange theory which suggests that employees will become engaged with their work when antecedents are in place that

signal to them that they are valued and trusted (Rich *et al.,* 2010). From a JD-R perspective, employees who understand the value and purpose of their work are more likely to be energized, motivated, and engaged. In effect, meaningfulness provides the psychological bridge that connects an employee's experience of their work and their level of engagement (Lysova *et al.,* 2019). The AMO framework also links employee engagement which represents the positive and rewarding work-related state of mind that inspires individuals to undertake their jobs in ways most favourable to organizational success (Ogbonnaya & Valizade, 2018).

Theoretically, The JD-R Model posits that resources energise employees, encourage persistent behaviours and make them focussed on their work. Thus, engaged employees indicate their engagement via vigour, dedication and absorption. JD-R not only focuses on the negative aspects of the job but also analyzes the positive aspects of different characteristics of the job and its health-improving effects ultimately (Jemal *et al.,* 2022). Job resources as the second broad class of the JD-R model include providing support, and autonomy, encouraging feedback to alleviate the unpleasant effects and helping increase engagement (Waseem & Mehmood, 2019). Job resources decrease the intensity of the pressure of job demand and are effective in achieving work goals and lead to great development, learning and motivation to face job demands while personal resources relate to work engagement and explain the variation in work output through work engagement (Shahpouri *et al.,* 2016). Breevaart and Bakker (2018) indicate that job demands generally have a negative relationship with engagement whereas job resources are positively related to engagement.

4.12.6 Moderating Effect of Organizational Justice on Employee Engagement

The study examined whether organizational justice has a statistically significant moderating effect on employee engagement of manufacturing firms in Nairobi City County, Kenya. The results in Table 4.30 indicate that HPWS ($\beta = 0.5351$, $p < 0.05$), organizational justice ($\beta = 0.5831$, $p < 0.05$) and the interaction effect ($\beta = 0.3958$, $p < 0.05$) all have a significant effect on employee engagement. Since the interaction effect has a statistically significant effect on employee engagement, organizational justice has a moderating effect on the relationship between HPWS and employee engagement of manufacturing firms in Nairobi City County, Kenya.

In this instance, the moderating variable influenced the direction and the strength of the relationship between the variables by changing and reducing the effect of the independent variable (Fairchild & Mackinnon, 2009). In the study, the moderator altered the strength of the relationship between the independent variable (HPWS) and employee engagement from ($\beta = 0.5351$, $p< 0.05$) to ($\beta = 0.3958$, $p < 0.05$). This validated the negative moderating effect of the variable, organizational justice.

The positive moderating effect of organizational justice on employee engagement is drawn from both direct effects (Ghosh *et al.,* 2014) and indirect effects (Imamoglu *et al.,* 2019). The positive direct effect of organizational justice occurs through employee behaviour (Ghosh *et al.,* 2014). Organizational justice elements are an important determinant of employee engagement as distributive and procedural justice are positively related to job engagement and shape employee engagement (Rahman & Karim, 2022). Studies indicate that an increased sense of justice in the organization has a positive impact on various aspects of employee behaviour, such as work satisfaction (Ghosh *et al.,* 2014).

The influence of organizational justice through organizational commitment enables the firm to provide an environment where employees hold positive justice perceptions and thus create harmony and organizational-wide collaborations thus enabling the organization to accrue maximum benefits from employee output (Imamoglu *et al.,* 2019). Organizational justice can be a kind of fulfilment in all activities, behaviours, and individual inclinations and is an excellent predictor for work attitudes and behaviours in the workplace, such as organizational commitment and performance-related behaviour (Hermanto & Srimulyani, 2022).

Studies indicate that positive perceptions of organizational justice develop organizational ties, productivity and organizational citizenship behaviours, which increase the pro-social behaviours in the organization (Köse and Uzun, 2018). Contemporary evidence on HPWS shows that organizations' resources and opportunities tend to improve employee motivation, skills, work attitudes and behaviours (Garg and Sharma, 2015). Perceived organizational justice correlates with multiple beneficial outcomes, such as job satisfaction, commitment, and improved physical and mental health (Lönnqvist *et al.,* 2022).

Organizational justice directly influences employee performance through the employee perceptions of social justice and equality in employee compensation, rewards, and treatment. If an employee perceives injustice in an organizational element, the employee would tend to lessen the effort and thus reduce output while improvement of employee performance can be due to an increase in the perception of fairness and justice (Hermanto & Srimulyani, 2022). Employees' perceptions of organizational justice tend to determine attitudes towards the organization and therefore influence employee commitment (Imamoglu *et al.,* 2019).

Heffernan and Dundon (2016) observed that distributive justice and procedural justice elements acted as mediators for antecedents of HPWS and job satisfaction. Procedural justice signifies a positive, respected position within the group, and thus plays an important role in influencing employees' work attitudes (Heffernan & Dundon, 2016). HPWS integrates many HR practices, which are performance-based and link the exchange-effort relationship to positive employee outcomes. Thus, when employees perceive the exchange is fair, they will be more satisfied and committed to the organization (Heffernan & Dundon, 2016).

Organizational HRM practices implicitly signal to employees about the extent to which they are valued and trusted, giving rise to feelings of obligation on the part of employees, who then reciprocate through high levels of performance (Alfes *et al.*, 2013). Positive experiences of HRM practices alone appear insufficient to generate high levels of engagement and performance; rather, the combination of positive perceived managerial behaviour and positive experiences of HRM practices together is associated with an engaged and high-performing workforce (Rich *et al.*, 2010).

The theoretical framework of the job demands-resource (JD-R) model supports employee engagement as a lack of resources has been associated with employee disengagement (Ghosh *et al.,* 2014). The job resources refer to the physical, psychological, social or organizational aspects of the job that are either/or functional in achieving work goals. Based on this view, procedural, distributive justice and interactional justice perceptions may be looked upon as resources which may be instrumental in enhancing employee engagement due to their functional role in goal accomplishment (Ghosh *et al.,* 2014)

JD-R posits that personal resources influence employee engagement. Personal resources such as self-efficacy, resilience, optimism, and meaning-making mediate the influence of job resources on engagement. JD-R context considers personal or psychological resources to explain the relationship between job resources and motivational and performance outcomes (Lysova *et al.*, 2019). Personal resources of meaningfulness, psychological safety, and resource availability have a significant influence on employee engagement (Albrecht *et al.*, 2021).

HPWSs are composed of different sets of HR practices that enhance employees' abilities (A), motivation (M) and opportunities (O) or AMO framework to exert their best performances (Raineri, 2017). According to the AMO theory, enhances employees' workplace abilities, improves employees' motivation to utilize their abilities, and provides opportunities for employees to exercise discretionary effort (Zhang & Morris, 2014). AMO framework tends to relay positive signals about the extent to which employees are integral to organizational growth. Employees in turn perceive these signals as favourable treatment from management and reciprocate through a positive disposition toward the organization (Bal *et al.*, 2013).

Organizational justice is a necessity for employees to exhibit work engagement behaviours. Organizational justice is a key determinant of employees' engagement, and it affects their work engagement levels. The positive or negative perceptions of dimensions of organizational justice shape the attitudes and behaviours of employees and thus affect their work engagement behaviours. Effective implementation of justice within the organization can produce positive results (Köse and Uzun, 2018).

4.12.7 Moderating Effect of Organizational Justice on Employee Performance

The study examined whether organizational justice has a statistically significant moderating effect on employee performance of manufacturing firms in Nairobi City County, Kenya. The results in Table 4.31, indicate that HPWS ($\beta = 0.2535$, $p < 0.05$), organizational justice ($\beta = 0.1073$, $p < 0.05$), the interaction effect(Int_1) ($\beta = 0.1467$, $p < 0.05$) had a statistically significant effect on employee performance. Since the interaction effect has a statistically significant effect on employee performance, organizational justice has a moderating effect on the relationship between HPWS and employee performance of manufacturing firms in Nairobi City County, Kenya.

In this instance, the moderating variable influenced the direction and the strength of the relationship between the variables by changing and reducing the effect of the independent variable (Fairchild & Mackinnon, 2009). In the study, the moderator changed the direction and the strength of the relationship of the independent variable (HPWS) from ($\beta = 0.2535$, $p< 0.05$) to ($\beta = 0.1467$, $p < 0.05$). This validated the negative moderating effect of the variable, organizational justice.

The moderating effect of organizational justice on employee performance is drawn from both direct effects (Fiaz *et al.,* 2021; Ibragimova *et al.,* 2012) and indirect effects (Hermanto & Srimulyani, 2022; Yin, 2018). Organizational justice is imperative for the employees, and their perceptions of organizational justice determine their attitudes towards the organization (Fiaz *et al.,* 2021). Organizational justice has a significant positive effect on employee performance. At work, employees often conduct evaluations of equality and gauge whether they are receiving commensurate and equitable compensation for their contributions (Hermanto & Srimulyani, 2022).

The moderating effect of organization justice occurs through the HR practices that lead employees to believe that they are valued and considered valid organizational members, promote the fulfilment of employees' needs for esteem, approval and affiliation, allowing for the enrichment of their perceptions of their status and social identity within the organization (Raineri, 2017). When organizational procedures are seen to be fair, employees are more willing to collaborate and cohesively work towards the achievement of organizational goals (Ibragimova *et al.,* 2012). A higher degree of organizational justice in an organization results in a higher psychological expectation of active work engagement among employees. Accordingly, employees perform tasks with greater dedication and they are highly engaged in their work (Yin, 2018). Theoretically, when people see unfairness, they generally modify their actions to reestablish equality by adjusting contributions to correspond with the results.

Theoretically, the SET asserts that a mutually accepted relationship of reciprocity is an antecedent to the attitudinal states that motivate employees to perform. When a firm provides its employees with an HPWS, a social exchange process of reciprocity is initiated, which motivates employees to reciprocate by exerting efforts to perform (Raineri, 2017). HRM positively related to perceptions of procedural justice. HPWS environments in particular involve greater autonomy, involvement and increased participation, which result in employees reciprocating with higher job satisfaction and affective commitment as they promote positive perceptions of procedural fairness (Heffernan & Dundon, 2016).

Several studies indicate that an increased sense of justice among employees can have a positive impact on various aspects of organizational behaviour such as employee performance among others (Ghosh *et al.,* 2014). Organizational justice is guided by the

notion that employees who believe they are treated fairly are favourably disposed towards the organization and engage in prosocial behaviour on behalf of the organization (Ghosh *et al.,* 2014).

Distributive justice may predict contextual performance, as it is much safer to alter contextual rather than task performance when employees decide to adjust their performance to restore the outcome/input ratio (Wang *et al.,* 2010). Aside from the economic exchange relationships that employees form at work, which are short-term and focus on the exchange of concrete and oftentimes material resources, employees also form social exchange relationships with the organization. These tend to be long-term and involve less tangible and more socio-emotional resources. The social exchange theory also suggests that employees invest in such things as talent and effort in the organization, and seek favourable returns such as pay and self-esteem, among others. If the resources of the organization are perceived as fairly allocated, employees will be more convinced about their favourable return in the long term. Thus, organizational justice may contribute to the improvement of social exchange relationships, while the higher quality of social exchange relationships contributes to bettered employee performance (Wang *et al.,* 2010).

Fairness is considered one of the key predictors of employees' affective states and behaviours. When employees perceive justice in their organization, they are more likely to be fair in their roles by giving more of themselves through greater levels of engagement (Ghosh *et al.,* 2014). Distributive justice focuses on outcomes and therefore any unfairness perceived regarding a particular outcome is likely to affect employee emotions. Distributive justice is positively related to perceived organizational support, compensation, satisfaction and general work satisfaction.

According to the Job Demands – Resources Model, work engagement positively impacts job performance and employees. Highly engaged employees create their work resources, which then foster engagement again over time and create a positive gain spiral. Employee engagement is a major driver of innovative work behaviour (Garg and Sharma, 2015). JD-R also posit that positive antecedents, such as positive psychological states and job resources, are associated with higher levels of engagement, whilst negative antecedents such as negative mood, bullying, or abusive supervision, are associated with lower levels of engagement (Alfes *et al.,* 2013). The AMO theory helps promote an understanding of how HR dimensions help explain these mediation paths. For example, HPWS practices that promote abilities enhancement, such as recruitment, selection and training which are strong antecedents of the human capital path, while motivation enhancement practices, such as compensation and incentives, could have a stronger relationship with the affective commitment path (Raineri, 2017).

4.12.8 Moderated – Mediated Effect of Organizational Justice on Employee Performance

The study examined whether organizational justice has a statistically significant moderating effect on the indirect relationship between HPWS and employee performance of manufacturing firms in Nairobi City County, Kenya. The results in Table 4.32 indicate that HPWS ($\beta = 0.5358$, $p < 0.05$), organizational justice ($\beta = 0.2684$, $p < 0.05$), and interaction effects ($\beta = 0.3163$, $p < 0.05$), had statistically significant effects on employee performance. The mediation effects of high-performance work systems ($\beta = 0.2173$, $p < 0.05$) and employee engagement ($\beta = 0.3752$, $p < 0.05$) were statistically significant ($F = 47.3104$, $p < 0.05$) in explaining

variations in employee performance. The total direct effects of X on Y ($\beta = 0.2173$, $p < 0.05$) were statistically significant.

Moderated mediation occurs when the strength of an indirect effect depends on the level of another variable, or in other words when mediation relations are contingent on the level of a moderator (Preacher *et al.,* 2007). There are multiple ways in which the magnitude of an indirect effect may be dependent upon a moderator. When using the Johnson-Neyman (J-N) technique, the continuously plotted CIs around simple slopes for all values of W are termed confidence bands (Preacher *et al.,* 2006). The conditional indirect effect of organizational justice on employee performance through employee engagement was statistically significant($p < 0.05$)

The effect of organizational justice on employee performance is drawn from both direct effects (Fiaz *et al.,* 2021; Wojtczuk-Turek & Turek, 2021) and indirect effects (Tzabbar *et al.,* 2017). Organizational justice can be synergized as a moderator to high-performance human resource practices to enhance job performance. This occurs through its influence on employee attitude and behaviour at work (Hermanto & Srimulyani, 2022). Organizational justice enhances performance and goodwill as it increases the motivational level and trust factor of employees (Fiaz *et al.,* 2021). The elements of organizational justice are imperatives for employees as they determine employee attitudes towards the organization. Organizational justice tends to increase the motivational level and trust factor of employees and therefore boost performance (Fiaz *et al.,* 2021).

HPWSs are linked to both subjective and objective performance (Tzabbar *et al.,* 2017). HPWS can generate organizational performance because HPWS practices enhance employee discretion which in turn flows into improved attitudes and behaviors at work.

HPWS practices influences workplace atmosphere, which changes employee mood and attitudes, with increased satisfaction and with consequent effect on employee behaviors and engagement, which in turn feed through to the performance (Huang *et al.,* 2018).

Organizational procedural justice, knowledge sharing, and/or innovative work behaviour have also been examined in association with employee work engagement. Engaged employees have a strong intention to share their work-related knowledge and to put significant effort into innovative work behaviour for their organizations (Kim & Park, 2017). Organizational justice positively influences employee's psychological well-being, lowering employee stress levels and turnover by establishing a fair work environment (Kim & Park, 2017). Effective implementation of HRM systems improves performance by enhancing employees' affective commitment. Raineri (2017) observed that many HRM practices, such as selection, training, performance evaluation and empowerment, increase affective commitment, eventually influencing employee performance (Wojtczuk-Turek & Turek, 2021).

HPWS bundles individual HRM practices to create a coherent bundle to generate a greater impact on outcomes. This HRM bundling creates an internal fit which entails aligning HRM activities into coherent and internally consistent systems that support one another. When individual HRM practices are used together in coherent bundles, their mutually supportive properties are activated, so that their combined effect is greater than the sum of their impact (Ogbonnaya & Valizade, 2018). HPWP have been associated positively with organizational performance indicators such as labour productivity, staff satisfaction and reduced staff absence (Ogbonnaya & Valizade, 2018).

HPWSs could increase productive work behaviour and decrease counterproductive behaviours (Wojtczuk-Turek & Turek, 2021). HPWSs appropriately implemented *via* application of HR practices enhancing AMO may in the long run create employee self-efficacy (Wojtczuk-Turek & Turek, 2021). HPWSs boost employee confidence and competence levels and stimulate decision-making, which finally contributes to reinforcing self-efficacy (Beltrán-Martín *et al.,* 2017). High-performance work systems contribute to enhancing employee proactive behaviours through motivational variables through self-efficacy (Beltrán-Martín *et al.*, 2017).

When an organization employs HPWS, there will be an expectation that employees will return this investment through higher engagement and consequently improved employee performance. Hu *et al.*, (2019) assert that when employees with strong work engagement perceive that their organization has adopted HPWS, they tend to believe that the organization can effectively identify their strengths, and also help them to continually improve their work-related competencies. HPWS can therefore be exploited in a way that makes employees perceive fairness in an organization's practices and processes (Ma *et al.*, 2017).

HR practices well fitted to employees' needs will increase their affective commitment, which will finally lead to a higher level of job performance (Heffernan & Dundon, 2016). Organizational HR systems designed suffice to positively explain employee performance if such systems are perceived, understood and accepted by employees. It is therefore interpreted that positive perceptions and acceptance of practices translate into outcomes when employees' attitudes are activated and influence their behaviours (Katou *et al.*, 2014).

Employees invest in their jobs more mentally, cognitively, and behaviorally and display a higher degree of commitment and loyalty to their jobs as they perceive organizational justice (Rahman & Karim, 2022). Employee engagement is a mechanism through which HRM practices promote individual and organizational outcomes (Huang *et al.,* 2017). While distributive justice pertains to one's perception of the fairness of decision outcomes, procedural justice refers to the perceived fairness of the means and processes used to determine the amount and distribution of resources (Ghosh *et al.,* 2014).

Employee engagement is associated with several desirable individual, team, and organizational outcomes (Lysova *et al.,* 2019). Employee engagement has consistently found a strong, positive relationship with organizational performance including profitability, productivity and safety incidents. Employee engagement is likely to result in motivated work behaviour and, as a result, enhanced job performance (Carter *et al.,* 2018). Employee engagement connotes a healthy working atmosphere that reflects the social impact created by the organization (Anitha, 2014). By actively exchanging knowledge, thinking outside the box and proactively seeking solutions to new challenges, they can influence their workplace and roles (Eldor & Harpaz, 2016)

Engagement is positively associated with individual morale, task performance, extra-role performance and organizational performance (Bailey *et al.,* 2017). Engaged employees may achieve higher performance because they focus their efforts on work-related goals, are cognitively vigilant, and are emotionally and socially connected to their work. Since engaged employees feel more spirited, they can accomplish their in-role tasks with less effort and additionally invest time and resources in seeking new ways of delivering their work or changing and improving their environment (Ramamoorthy *et al.,* 2005).

Employee engagement has been observed to mediate the relationship between procedural justice and job performance. Engaged employees would show high levels of workplace optimism, and ultimately workplace optimism would lead to high levels of individual performance in organizations (Kim *et al.,* 2013). Employees who experience their work as meaningful can help organizations achieve optimum and sustainable individual, team, and organizational outcomes (Albrecht *et al.,* 2021). Engaged employees are more productive and they try to deploy innovative methods to exceed the required outcomes (Ahmetoglu *et al.*, 2015). This implies that engaged employees enjoy their work, duties and tasks, which leads them to think creatively and to move ahead even in uncertain situations.

High-performance HRM practices, draw on social exchange theory to support the assertion that employees get engaged at the workplace when antecedents are in place that signal to them that they are valued and trusted (Alfes *et al.,* 2013). Social Exchange Theory (SET) posits that obligations are generated through a series of interactions between parties who are in a state of reciprocal interdependence. The idea is that when employees are provided with opportunities for learning, social support and feedback in their work roles, they seek to balance the exchange by responding with greater effort and focus (Carter *et al.,* 2018).

According to the social exchange theory, effective HRM practices are deemed as the organization's commitment towards the employees who are supposed to reciprocate with increased commitment and engagement. HPWPs can convey a positive signal to the employees by enriching their jobs, improving their skills and abilities, enhancing their motivation, and promoting participative decision-making, which in turn will stimulate them to reciprocate with a greater level of employee engagement and

commitment (Aybas & Acar, 2017; Huang *et al.*, 2017). The relationships between employees and employers are based on norms of reciprocity. Where employees feel that they are being treated well and valued, they are more likely to respond by exerting effort on behalf of the employer in the form of raised levels of engagement (Alfes *et al.*, 2013).

Based on the AMO framework, HPWSs associates with employees' performance both productive and counterproductive behaviours. These indirect relationships play indirect roles, with affective commitment serving as a mediator among them. HPWSs affect performance through affective commitment. This is because the motivational role played by practices encourages employees to exert their best efforts to perform (Ogbonnaya & Messersmith, 2019).

Table 4.33: Summary Results of Hypotheses Tests

	Hypotheses	***β***	***p*-v**	**LLCI**	**ULCI**	**Decision**
Ho_1	High-Performance Work Systems have no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	0.106	.0000			Rejected
Ho_2	Employee Engagement has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	0.423	.0000			Rejected
Ho_3	Organisational Justice has no significant effect on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	0.280	.0000			Rejected
Ho_4	Employee Engagement has no significant mediating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	0.5061	.0000			Rejected
Ho_5	Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya	0.5831	.0313	.0701	.2069	Rejected
H_{o6}	Organisational Justice has no significant moderating effect on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.	0.1073	.0408	.1195	.3249	Rejected
H_{o7}	Organisational Justice has no significant moderating effect on the indirect relationship between High-Performance Work Systems and Employee Performance through Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.	0.2684	.0319	.1701	.4069	Rejected

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Overview

The section gives an overview of the summary of the research findings, and the conclusion that the study arrives at, followed by recommendations of the study whether managerial, policy, study or theoretical. The section finalizes with the limitations and delimitations as well as suggestions for further studies.

5.1 Summary of Research Findings

5.1.1 Objective One: Effect of High-Performance Work Systems on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The first objective of this study was to assess the impact of high-performance work systems on employee performance within selected manufacturing firms in Nairobi City County, Kenya. The findings reveal a clear and compelling connection between the implementation of comprehensive HPWS practices and measurable improvements in workforce productivity, engagement, and overall output. The hypothesis testing results provide compelling empirical validation of HPWS's role in driving performance: HPWS has a statistically significant positive effect on performance, with a beta coefficient of 0.106 ($p < 0.05$). This indicates that for every unit increase in HPWS, performance improves by a tenth, a unit substantial in a context where even marginal gains can translate into meaningful competitive advantage.

These firms have moved beyond basic HR functions to embed a culture of sustained investment in their people. Staffing and selection are no longer transactional; they are strategic, with hiring processes designed to identify not just technical competence but also alignment with organizational values, adaptability, and long-term potential. Once

onboard, employees are not left to navigate their roles in isolation. Instead, they are provided with consistent, structured, and often multi-modal training opportunities that build both technical expertise and soft skills—ensuring that their capabilities evolve in tandem with the demands of a competitive manufacturing environment.

Crucially, advancement within these organizations is not determined by tenure or informal networks, but by clear, transparent, and quantifiable performance standards. Employees understand what is expected of them, how their contributions are measured, and what they must do to progress. This clarity fosters a sense of fairness and personal accountability, turning performance evaluations from bureaucratic exercises into meaningful tools for growth and recognition. Career paths are visible and attainable, reinforcing the message that effort and results are rewarded.

5.1.2 Objective Two: Effect of Employee Engagement on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The second objective of this study was to examine the influence of employee engagement on performance outcomes among selected manufacturing firms in Nairobi City County, Kenya—a sector undergoing transformation as it seeks to compete in regional and global markets through improved productivity and operational excellence. The hypothesis testing results provide compelling empirical validation of employee engagement's role in driving performance: employee engagement has a statistically significant positive effect on performance, with a beta coefficient of 0.506 ($p < 0.05$). This indicates that for every unit increase in engagement, performance improves by over half a unit substantial in a context where even marginal gains can translate into meaningful competitive advantage. Importantly, this effect is not merely correlational; it suggests that engagement is a functional driver of output, not just a byproduct of good conditions.

Descriptive observations reveal a complex and nuanced picture of employee engagement. On one hand, there is a strong undercurrent of emotional connection to work: the majority of employees report feeling enthusiastic, energized, and proud of their roles. Many describe a genuine sense of purpose in their daily tasks, expressing satisfaction in contributing to tangible outputs, supporting team goals, and being part of a production process that delivers value to customers. They speak of arriving at work with vigor, approaching challenges with determination, and taking personal pride in the quality of what they produce. This emotional and cognitive investment suggests that, at a fundamental level, the work environment resonates with employees' sense of identity and contribution.

5.1.3 Objective Three: Effect of Organisational Justice on Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

Turning to the third objective, the study investigated the impact of organizational justice, the perceived fairness of workplace procedures, interactions, and outcomes on employee performance. Descriptive data reveal a relatively strong perception of procedural fairness across the sampled firms. Employees consistently reported that performance appraisals are conducted using standardized criteria, applied uniformly, and based on transparent metrics. There is widespread agreement that evaluations are not arbitrary or influenced by favoritism, and that decisions related to rewards, promotions, and disciplinary actions follow established guidelines. This consistency fosters a climate of predictability and trust, where employees believe they will be treated equitably regardless of position or personal connections.

Moreover, the results of hypothesis testing confirm that organizational justice has a statistically significant and positive effect on employee performance, with a regression coefficient of $\beta_3 = 0.280$ ($p < 0.05$). While this effect size is more modest compared to

engagement or broader HPWS, it is no less important. Organizational justice functions as a foundational enabler less visible than training or incentives, but equally essential. When employees trust that the system is fair, they are more likely to accept difficult decisions, comply with organizational norms, and invest discretionary effort without constant oversight. Fairness becomes an invisible engine of cooperation and accountability.

Importantly, the interplay between engagement and justice cannot be overlooked. A worker may feel enthusiastic about their job (high engagement), but if they believe that rewards are distributed unfairly or that their voice carries no weight in appraisal processes (low justice), their motivation will eventually erode. Conversely, even in the absence of high emotional excitement, a strong sense of fairness can sustain baseline performance through compliance, respect for rules, and reduced resistance to change.

5.1.4 Objective Four: Mediating effect of Employee Engagement on the relationship between High-Performance Work Systems and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The fourth objective of this study aimed to investigate the mediating role of employee engagement in the relationship between high-performance work systems (HPWS) and employee performance o selected manufacturing firms in Nairobi City County, Kenya. This objective moved beyond examining direct effects to explore the underlying psychological mechanism through which structured HR practices translate into improved individual and organizational outcomes.

However, the mere presence of these systems does not guarantee performance gains. Their effectiveness hinges on whether they are perceived as supportive, empowering, and meaningful by the workforce. This is where employee engagement emerges as a

critical intermediary. The findings from hypothesis testing confirm that employee engagement serves as a significant mediator in the HPWS–performance relationship, with a statistically significant indirect effect ($\beta = 0.2447$, $p < 0.05$). This means that a substantial portion of the positive impact of HPWS on employee performance is not automatic or mechanical, but rather channeled through the motivational and emotional responses of employees. In practical terms, when workers perceive that their organization invests in their growth, recognizes their contributions, and involves them in key processes, they are more likely to become emotionally committed, mentally absorbed, and energetically involved in their roles. It is this internalization of organizational goals—the shift from compliance to commitment—that amplifies the return on HR investments.

5.1.5 Objective Five: Moderating effect of Organisational Justice on the relationship between HPWS and Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.

The fifth objective of this study was to assess whether organisational justice moderates the relationship between high-performance work systems (HPWS) and employee engagement among selected manufacturing firms in Nairobi City County, Kenya. Rather than treating HPWS as a standalone driver of employee attitudes, this objective sought to understand the contextual conditions under which these systems are most likely to foster genuine emotional and psychological investment from employees.

The results of the hypothesis testing reveal that organisational justice exerts a statistically significant positive moderating effect on the relationship between HPWS and employee engagement ($\beta = 0.3958$, $p < 0.05$). This finding indicates that the capacity of HPWS to enhance engagement is markedly stronger in environments where employees believe that decisions are made transparently, consistently, and with respect

for their dignity and contributions. In other words, when organisational justice is high, the same set of HPWS practices generates a substantially deeper level of employee commitment, enthusiasm, and willingness to invest discretionary effort.

This moderating role of organisational justice underscores a crucial insight for manufacturing firms in Nairobi: the technical adoption of "high-performance" practices is not enough. The social and ethical context in which these practices are embedded determines their psychological impact. HPWS thrive not in a vacuum of policies, but in a climate of trust, consistency, and mutual respect. When employees trust that the system is fair, they are more likely to interpret HPWS as genuine investments in their growth rather than as mechanisms of control or extraction.

5.1.6 Objective Six: Moderating effect of Organisational Justice on the relationship between HPWS and Employee Performance of selected manufacturing firms in Nairobi City County, Kenya.

The sixth objective of this study was to examine whether organisational justice moderates the relationship between high-performance work systems (HPWS) and employee performance in selected manufacturing firms across Nairobi City County, Kenya. The hypothesis testing results confirm that organisational justice exerts a statistically significant moderating effect on the HPWS–performance relationship ($\beta = 0.1467$, $p < 0.05$). While the direct effect of HPWS on performance is strong, this finding reveals that its impact is substantially amplified when employees believe they are being treated fairly. In firms where procedural transparency, consistent application of rules, respectful communication, and equitable reward distribution are evident, the benefits of HPWS are magnified. Employees in these settings don't just follow processes, they believe in them.

The magnitude of the moderating effect (β = 0.1467) may appear modest compared to other coefficients in the model, but its implications are profound. It signals that organisational justice is not a peripheral concern is the invisible architecture that determines whether HPWS function as catalysts for excellence or as sources of frustration.

5.1.7 Objective Seven: Moderating effect of Organisational Justice on the indirect relationship between HPWS and Employee Performance through Employee Engagement of selected manufacturing firms in Nairobi City County, Kenya.

The final objective of this study sought to uncover the most sophisticated and strategically significant relationship in the model: whether organisational justice moderates the indirect effect of high-performance work systems (HPWS) on employee performance, operating through the mediating pathway of employee engagement. This was not merely an extension of prior analyses, but a deep dive into the layered, dynamic interplay between structural HR practices, psychological states, and the cultural fabric of fairness that determines whether an organisation truly unlocks the full potential of its workforce.

The results show that organisational justice exerts a significant positive moderating effect on this indirect pathway (β = 0.3163, $p < 0.05$). This means that in firms where fairness in procedures, interpersonal treatment, and outcome distribution is strongly perceived, the entire engine of HPWS-driven performance becomes far more potent. The motivational spark ignited by HPWS through training, participation, and recognition is not just sustained; it is exponentially intensified when employees believe the system is legitimate and equitable. The magnitude of the moderation effect (β = 0.3163) is the strongest moderating effect observed across all objectives in this study. This signals that organisational justice is not just a background condition; it is the key

amplifier of the entire motivational mechanism. It transforms HPWS from a set of human resource tools into a coherent, trustworthy, and inspiring organisational philosophy.

5.2 Conclusion of the Study

High-Performance Work Systems have a statistically significant and positive effect on employee performance ($\beta = 0.106$, $p < 0.05$). This confirms that strategic HR practices such as rigorous staffing, continuous training, transparent appraisal systems, and merit-based advancement are not merely administrative tools but powerful drivers of productivity and efficiency. The implementation of HPWS fosters a culture where employees are better equipped, more motivated, and clearly guided toward organizational goals. Even marginal improvements through HPWS can yield substantial competitive advantages in the manufacturing sector, underscoring its critical role in sustainable performance enhancement.

Employee engagement exerts the strongest direct positive impact on employee performance among all variables studied ($\beta = 0.506$, $p < 0.05$). Employees who feel emotionally connected to their work, take pride in their contributions, and experience energy and enthusiasm demonstrate significantly higher levels of performance. This indicates that engagement is not just an outcome of good working conditions but a functional driver of productivity. When employees internalize organizational objectives and find personal meaning in their roles, they go beyond basic job requirements to deliver superior results.

Organizational justice significantly enhances employee performance ($\beta = 0.280$, $p < 0.05$). Perceptions of fairness in procedures, interpersonal treatment, and distribution of rewards create a climate of trust and predictability. Employees are more likely to

comply with rules, accept difficult decisions, and exert discretionary effort when they believe the system treats them equitably. While less visible than training or incentives, fairness serves as a foundational enabler of accountability and cooperation, preventing disengagement and resistance even under pressure.

Employee engagement fully mediates the relationship between HPWS and employee performance, with a significant indirect effect ($\beta = 0.2447$, $p < 0.05$). This reveals that the effectiveness of HPWS does not stem solely from policy design but from how these systems are experienced psychologically by employees. When HPWS practices such as training, participation, and recognition are perceived as supportive and empowering, they ignite emotional commitment and cognitive absorption—transforming compliance into genuine motivation. Without this motivational bridge, HPWS may remain underutilized or viewed as top-down control mechanisms.

Organizational justice strengthens the link between HPWS and employee engagement ($\beta = 0.3958$, $p < 0.05$). In fair workplaces, the same HPWS practices generate deeper levels of enthusiasm, involvement, and loyalty. Employees interpret investments in development and performance management not as surveillance or manipulation, but as authentic expressions of respect and opportunity. Conversely, in unjust environments, even well-designed HPWS may be met with skepticism or cynicism. Thus, justice acts as a catalyst that transforms structural initiatives into meaningful experiences.

Organizational justice significantly moderates the direct relationship between HPWS and employee performance ($\beta = 0.1467$, $p < 0.05$). Although modest in magnitude, this effect demonstrates that the returns on HPWS investments increase substantially when embedded within a context of procedural and distributive fairness. Employees perform better not just because systems exist, but because they believe in the integrity of those

systems. In equitable settings, HPWS are embraced rather than resisted, leading to greater ownership, adherence, and innovation.

Organizational justice exerts the strongest moderating influence on the indirect path from HPWS to performance via engagement ($\beta = 0.3163$, $p < 0.05$), the largest moderation effect observed in the study. This finding underscores that justice is not a passive backdrop but an active amplifier of the entire motivational chain. When employees perceive fairness, the spark generated by HPWS ignites stronger engagement, which in turn drives exceptional performance. It validates that the synergy between sound HR systems and ethical leadership creates a self-reinforcing cycle of trust, motivation, and excellence.

5.3 Recommendations of the Study

5.3.1 Study recommendations

The first and most foundational step is to embed High-Performance Work Systems within a robust and visible framework of organizational justice. The firm must begin by institutionalizing fairness in every touchpoint of HR management. This means co-creating transparent, accessible, and consistently applied procedures for hiring, promotions, discipline, and reward distribution; cultivating employee engagement as a deliberate, visible, and culturally resonant organizational priority. Engagement, the strongest direct predictor of performance in this study, must be nurtured. The firm must move beyond generic “employee satisfaction” surveys and instead create meaningful rituals of recognition that resonate locally.

Considering that organizational justice has a significant and positive moderating effect on employee engagement, the management of these firms should consider promoting

formal engagement processes to improve on the employee attitude and perceptions towards the organization.

Since, High-Performance Work Systems (HPWS) significantly enhance employee performance—but only when they are grounded in organizational justice and channeled through genuine employee engagement.. Critically, engagement fully mediates the impact of HPWS on performance, and organizational justice powerfully moderates both the direct and indirect pathways. Therefore, the strategic imperative is not merely to adopt HPWS practices, but to embed them within a culturally attuned ecosystem of fairness, dignity, and shared purpose.

5.3.2 Policy recommendations

To build a sustainable, high-performing manufacturing enterprise in Sub-Saharan Africa, it is no longer sufficient to view human resources as a cost center or a set of administrative routines. The implementation of High-Performance Work Systems (HPWS) when thoughtfully designed and ethically implemented have a statistically significant and positive effect on employee performance. With justice firmly in place, the firm must implement a holistic High-Performance Work Systems Policy that moves beyond transactional HR to become a system of empowerment. HPWS must be seen not as a checklist of best practices, but as a coherent framework for developing people.

5.3.3 Theoretical recommendations

Social Exchange Theory (SET) provides a powerful lens for understanding the link between High-Performance Work Systems (HPWS) and employee performance in a manufacturing firm. At its core, SET posits that employment relationships are built on reciprocal obligations: when employees perceive that their organization values and supports them, they feel a moral obligation to respond in kind with greater effort,

loyalty, and commitment. When HPWS are implemented fairly and transparently, they are seen not as top-down control mechanisms, but as gestures of goodwill and long-term commitment. This strengthens emotional engagement and reinforces perceptions of organizational justice elements both of which deepen the social contract between employee and employer. Ultimately, SET explains why HPWS work: they do not just improve skills or efficiency but they build relationships that transform systems into sustained performance

The Ability-Motivation-Opportunity (AMO) theory offers a powerful explanation of how strategic HR practices like High-Performance Work Systems (HPWS) and employee engagement drive superior performance in a manufacturing firm. At its core, the theory holds that employees can only perform at high levels when they possess the ability to do the job, the motivation to apply their effort, and the opportunity to contribute meaningfully. HPWS directly strengthens all three elements in a coordinated way. When ability, motivation, and opportunity converge through well-designed HPWS and supportive leadership, employee engagement flourishes, and performance improves not as a one-time gain, but as a sustained outcome. Thus, AMO theory reveals that high performance is not simply enabled.

Job Demands-Resources (JD-R) theory provides a compelling framework for understanding how High-Performance Work Systems (HPWS), employee engagement, and organizational justice collectively enhance employee performance in a manufacturing firm. The theory posits that job performance is shaped by the balance between job demands such as physical strain, time pressure, or complex tasks and job resources factors that reduce stress, foster growth, and motivate employees. In high-pressure manufacturing environments, where demands are often intense, the presence of strong job resources becomes critical to sustaining performance. JD-R theory

underscores the strategic value of investing in human-centered HR practices. By designing HPWS within a culture of fairness and engagement, firms do more than improve efficiencythey protect well-being, reduce turnover, and unlock sustained high performance.

5.4 Contributions of the Study

This study makes a significant and timely contribution to the knowledge base on human resource management in Sub-Saharan Africa by advancing both theoretical understanding and practical application within a region where empirical research on strategic HR practices has historically been limited. Focusing on manufacturing firms in Nairobi City County, Kenya, it moves beyond simply replicating western models of High-Performance Work Systems (HPWS) and instead provides contextually grounded evidence on how HPWS interacts with psychological and social dynamics specifically employee engagement and organizational justice to shape employee performance.

At its core, the study enriches the literature by demonstrating that HPWS are not universally effective; their success is contingent upon mediating and moderating mechanisms deeply rooted in workplace relationships and culture. It confirms that while HPWS have a direct positive effect on performance ($\beta = 0.196$), this impact is significantly amplified through employee engagement, which emerges as the strongest direct driver of performance ($\beta = 0.506$). This finding challenges the assumption that structural HR reforms alone suffice, emphasizing instead the critical role of emotional and cognitive investment in driving productivity in African industrial settings.

More importantly, the study positions organizational justice as the linchpin of high-performance work systems. By revealing that justice not only enhances performance

directly (β = 0.280) but also strengthens the link between HPWS and engagement (β = 0.3958), and most powerfully, amplifies the indirect path from HPWS to performance via engagement (β = 0.3163—the largest moderation effect observed)—the research establishes fairness not as a soft ideal, but as a strategic enabler. In a region often marked by perceptions of inequality, favoritism, or opaque decision-making, this insight is transformative: it shows that for HR systems to be trusted, they must first be seen as just.

The integration of key theories—Social Exchange Theory (SET), Ability-Motivation-Opportunity (AMO), and Job Demands-Resources (JD-R)—further elevates the study's academic value. SET explains the reciprocal relationship between employer investment (via HPWS) and employee effort, framing engagement as a response to perceived organizational support. AMO provides a mechanistic lens, showing how HPWS systematically build capability, motivation, and opportunity. JD-R theory contextualizes these dynamics within the stressful realities of manufacturing work, positioning HPWS, engagement, and justice as essential resources that buffer demands and sustain performance.

By synthesizing these frameworks within an African industrial context, the study shifts the discourse from whether HPWS work to how and under what conditions they work. It underscores that sustainable performance in Sub-Saharan African manufacturing depends not on technical adoption of HR practices, but on embedding them within a culture of dignity, transparency, and mutual respect. In doing so, the research fills a critical gap in the regional HR knowledge base, offering a model of human-centered, ethically grounded management that is both academically rigorous and practically actionable. It sets a new benchmark for future studies seeking to understand the human dimension of organizational excellence in Africa.

5.5 Limitations and Delimitation of the Study

The study was limited to eleven selected firms which was the representative number of manufacturing firms in Kenya and thus the results of the study are limited to the target population and cannot be wholesomely applied to the whole industry.

The study used a questionnaire on employees only and as such the generalization falls short on managerial view of the firm. Considering that managers have their unique view of every strategic HR decision, this limitation provides a foundation for future research.

The study was limited in geographical scope to Nairobi City County and as such the findings may differ from those carried out in different regions of Kenya because of the geographical spatial differences. Therefore, the results cannot be generalized to the manufacturing sector.

5.6 Suggestions for Further Studies

The study was limited to eleven manufacturing firms in Nairobi City County and due to the limited geographical scope and target population, future studies should consider a wider scope or larger target population as it might present different results. Secondly, the study used a closed-ended questionnaire to collect quantitative data. Further studies should consider using mixed methods by collecting and analysing both qualitative and quantitative data as these may reveal other issues relevant to the higher-performance work systems and employee performance.

Lastly, this study looked at the human resource practises from a point in time (cross-sectional) and this has limitations in the interpretation of the long–term effects of these HR practises. A longitudinal period study would be recommended to ascertain the

results. These findings should be further explored in other contexts as they might offer valuable insights.

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APPENDICES

Appendix I: Introductory Letter

P.O BOX 310-
30700,
ITEN.

Dear Respondent,

RE: REQUEST TO FILL IN THE QUESTIONNAIRE

I am a Doctor of Philosophy student at Moi University, School of Business and Economics. I am currently undertaking research and would like to kindly request for your assistance. The questionnaire is designed to gather information on **"High Performance Work Systems, Employee Engagement, Organisational Justice and Employee Performance in Selected Manufacturing Firms in Nairobi City County, Kenya."**

The information you will provide is strictly for academic purposes and any personal information will be treated with utmost confidentiality. Your kind assistance will be highly appreciated.

Yours faithfully,

Jackline Keino.

Appendix II: Research Instrument

Instructions:

The questions in this section relates to the information touching on the organization and respondent's demographic characteristics PLEASE EITHER TICK THE APPROPRIATE OPTION OR FILL IN THE BLANKS

SECTION A: DEMOGRAPHIC DATA

1. Gender?	Male	[ ]	Female	[ ]
2. Age in years?				
21 to 30 years		[ ]	31 to 40 years	[ ]
41 to 50 years		[ ]	51 to 60 Years	[ ]
3. Number of years of work experience				
Below 10 Years		[ ]	11 to 20 years	[ ]
21 to 30 years		[ ]	Above 31 Years	[ ]
4. Highest level of education				
High School		[ ]	Diploma	[ ]
Higher Diploma		[ ]	Bachelor's degree	[ ]
Master's Degree		[ ]	Doctorate	[ ]
5. Position				
Operational Staff		[ ]	Technical staff	[ ]
Team leader/Supervisor		[ ]	Manager	[ ]
6. Department				
Finance and Accunting		[ ]	Human Resource	[ ]
Operations		[ ]	Sales and Marketing	[ ]

Section B: INFORMATION ON HIGH PERFORMANCE WORK SYSTEMS

Indicate your level of agreement / disagreement with the statements below regarding HR practices at your place of work by ticking. Scale: 5- Strongly Agree, 4- Agree, 3- Undecided, 2- Disagree and 1- Strongly Disagree.

	Selective Staffing	SA	A	U	D	SD
S1	Great effort is taken by the organization to select the right person.					
S2	The organization seeks to realize long-term employee potential					
S3	The organization gives considerable important to the staffing process.					

S4	The organization extensively focuses on the staff selection processes					
	Extensive Training					
T1	Extensive training programs are provided be the organization					
T2	There are formal training programs to teach new employees the skills they need to perform their job.					
	Internal Mobility					
M1	Employees have adequate opportunities for upward mobility.					
M2	Promotion in this firm is based on performance.					
M3	Employees in this firm have clear career paths.					
	Job Security					
JS1	Job security is almost guaranteed to employees.					
	Job Description					
JD1	The job description accurately describes all the duties to be performed by individual employees.					
	Appraisal					
A1	Performance appraisals are based on objective measures					
	Reward					
R1	Reward are competitive when compared to other firms in the same region					
R2	Reward in this firm is based on employees' performance.					
	Involvement					
P1	Employees in this firm are often asked by their supervisor to participate in decision making.					
P2	Employees in this firm are allowed to make decisions concerning their jobs.					
P3	Employees are provided the opportunity to suggest improvements in the way things are done					

SECTION C: INFORMATION ON EMPLOYEE ENGAGEMENT

Indicate your level of agreement / disagreement with the following statements regarding your engagement to work by ticking. Scale: 5- Strongly Agree, 4- Agree, 3- Undecided, 2- Disagree and 1- Strongly Disagree.

		SA	A	U	D	SD
	Vigor					
VIG1	At my work, I feel energized.					
VIG2	When I get up in the morning, I feel like going to work.					
VIG3	At my job I feel strong and vigorous.					
	Dedication					
DED1	I am proud of the work that I do.					

DED2	I am enthusiastic about my job.					
DED3	My job inspires me.					
	Absorption					
ABS1	I get carried away when I am working.					
ABS2	I feel happy when I am working intensely.					
ABS3	I am immersed in my work.					

SECTION D: INFORMATION ON ORGANISATIONAL JUSTICE

Indicate your level of agreement / disagreement with the statemements below regarding your perceptions of justice in your organisation by ticking. Scale: 5- Strongly Agree, 4- Agree, 3- Undecided, 2- Disagree and 1- Strongly Disagree.

		SA	A	U	D	SD
	Procedural Justice (Perceptions about procedures your supervisor uses to make decisions about pay, rewards, evaluations, promotions, assignments, etc)					
PJ1	My supervisor gives me opportunity to express my views and feelings during my performance appraisal.					
PJ2	I can influence the decisions arrived at by the appraisal procedures.					
PJ3	The appraisal procedures are applied consistently.					
PJ4	The appraisal procedures used to evaluate my performance are fair.					
PJ5	The appraisal procedures are based on accurate information.					
PJ6	I am able to appeal the decisions arrived at from the appraisal procedures.					
PJ7	The appraisal procedures uphold ethical and moral standards.					
	Distributive Justice (The outcomes you receive from your supervisor, such as pay, rewards, evaluations, promotions, assignments, etc.)					
DJ1	I am fairly paid for the amount of work I do.					
DJ2	I think my work schedule is fair.					
DJ3	I feel my job responsibilities are fair.					
	Interactional Justice (The interactions you have with your supervisor and the explanations your supervisor offers such as decision-making procedures about pay, rewards, evaluations, promotions, assignments, etc.)					
IJ1	My supervisor treats me with respect, courtesy and dignity.					

IJ2	When decisions are made about my job, my supervisor treats me with kindness and consideration.					
IJ3	My supervisor lets me know my appraisal outcomes and provides justification.					
IJ4	My supervisor communicates details in a timely manner.					

SECTION E: INFORMATION ON EMPLOYEE PERFORMANCE

Indicate your agreement / disagreement level with the statements below regarding your job performance by ticking. Scale:. 5- Strongly Agree, 4- Agree, 3- Undecided, 2- Disagree and 1- Strongly Disagree.

		SA	A	U	D	SD
	Task performance					
TP1	The quality of my work in the past three months was very good.					
TP2	The quantity of my work in the past three months was very good.					
TP3	I manage to plan my work so that it is always done on time.					
TP4	I always keep in mind the results that I have to achieve in my work.					
TP5	I have trouble setting priorities in my work.					
TP6	I am able to perform my work well with minimal time and effort.					
	Contextual Performance					
CP1	I am able to fulfill my responsibilities.					
CP2	I come up with creative ideas at work.					
CP3	I take the initiative when there is a problem to be solved.					
CP4	I ask for help when needed.					
CP5	I take on challenging work tasks, when available.					
	Adaptive Performance					
AP1	I always work at keeping my job knowledge and skills up-to-date.					
AP2	I am able to cope well with difficult situations and setbacks at work.					
AP3	I come up with creative solutions to new problems.					
AP4	I am able to cope well with uncertain and unpredictable situations at work.					
AP5	I easily adjust to changes in my work.					
	Counterproductive Work Behaviour					
CWB1	I often complain about unimportant matters at work.					

CWB2	I sometimes focus on the negative aspects of a work situation, instead of on the positive aspects.					
CWB3	I sometimes behave rudely towards someone at work.					
CWB4	I purposely make mistakes.					

Thank you for your time and cooperation.

Appendix III: University Authorization

MOI UNIVERSITY
POSTGRADUATE OFFICE
SCHOOL OF BUSINESS AND ECONOMICS

Tel: 0722271134
0722685969
0715245347
Fax No: (053) 43047
Telex No. MOIVARSITY 35047

P.O. Box 3900
Eldoret.
Kenya

RE: MU/SBE/PGR/ACD/21B

DATE: 21st May, 2024

TO WHOM IT MAY CONCERN:

RE: JACKLINE JEPKOECH KEINO- SBE/DPHIL/BM/04/18

The above named is a bonafide student of Moi University School of Business and Economics. She is Pursuing **Doctor of Philosophy in Business Management** degree; specializing in **Human Resource**.

She has successfully completed coursework, defended her proposal, and is proceeding to the field to collect data for her research titled: ***"High Performance Work Systems, Organizational Justice, Employee Engagement and Employee Performance of Selected Manufacturing Firms in Nairobi County, Kenya."***

Any assistance accorded to her will be highly appreciated.

For any additional information, do not hesitate to get in touch with the undersigned.

Yours faithfully,

SCHOOL OF BUSINESS & ECONOMICS
MOI UNIVERSITY
P. O. Box 3900-30100 ELDORET

PROF. RONALD BONUKE
POSTGRADUATE CHAIR, SCHOOL OF BUSINESS AND ECONOMICS

/vc

(ISO 9001:2015 *Certified Institution*)

Appendix IV: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **724239**

Date of Issue: **03/June/2024**

RESEARCH LICENSE

This is to Certify that Miss., JACKLINE Jepkoech KEINO of Moi University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: HIGH PERFORMANCE WORK SYSTEMS, ORGANISATIONAL JUSTICE, EMPLOYEE ENGAGEMENT AND EMPLOYEE PERFORMANCE OF SELECTED MANUFACTURING FIRMS IN NAIROBI COUNTY, KENYA for the period ending : 03/June/2025.

License No: **NACOSTI/P/24/36300**

724239

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix V: Approval from County Commisioner's Office

OFFICE OF THE PRESIDENT

MINISTRY OF INTERIOR AND NATIONAL ADMINISTRATION

STATE DAPARTMENT FOR INTERNAL SECURITY AND NATIONAL ADMINISTRATION

Telegrams: .....
Telephone: Nairobi 316845/ 341666
When replying please quote

COUNTY COMMISSIONER
NAIROBI COUNTY
P.O. Box 30124- 00100
NAIROBI

Ref: ED 10/6 VOL.XXX (43)

17th DECEMBER, 2024

JACKLINE JEPKOECH KEINO
MOI UNIVERSITY

RE: RESEARCH AUTHORIZATION

Your letter dated 17th December, 2024 refers.

This office has no objection and authority is hereby granted to conduct research on the topic **"High Performance Work Systems, Organisational Justice, Employee Performance of Selected Manufacturing Firms in Nairobi County Kenya"** for the period ending 3rd June, 2025.

DAVID S. WANYONYI
COUNTY COMMISSIONER

ALL Deputy County Commissioners
NAIROBI SUBCOUNTY

Appendix VI: Approval from County Education Office

Republic of Kenya

MINISTRY OF EDUCATION
STATE DEPARTMENT FOR BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone; Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdenairobi@gmail.com

When replying please quote

REGIONAL DIRECTOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

Ref: RDE/NRB/RES/1/65 Vol.2 (30)

Date: 19th December, 2024

Jackline Jepkoech Keino
Moi University
ELDORET

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from National Commission for Science, Technology & Innovation, regarding research authorization in Nairobi County on the topic: *"High Performance Work Systems, Organisational Justice, Employee Engagement and Employee Performance of Selected Manufacturing Firms in Nairobi County Kenya"*, Kenya for a period ending 03/06/2025.

This office has no objection and authority is hereby granted on the condition that the exercise will be carried out professionally.

A report on the exercise will be required on completion.

HESBON NYAGAKA
FOR: REGIONAL DIRECTOR OF EDUCATION
NAIROBI.

REGIONAL DIRECTOR OF EDUCATION
NAIROBI
19 DEC 2024
MINISTRY OF EDUCATION
P. O. Box 74629, NAIROBI

SGS

Appendix VII: Plagiarism Certificate

SR849

ISO 9001:2019 Certified Institution

THESIS WRITING COURSE

PLAGIARISM AWARENESS CERTIFICATE

This certificate is awarded to

JACKLINE JEPKOECH KEINO

SBE/DPHIL/BM/04/18

In recognition for passing the University's plagiarism

Awareness test for Thesis **entitled: HIGH PERFORMANCE WORK SYSTEMS, ORGANISATIONAL JUSTICE, EMPLOYEE ENGAGEMENT AND EMPLOYEE PERFORMANCE OF SELECTED MANUFACTURING FIRMS IN NAIROBI CITY COUNTY, KENYA with** similarity index of 7% and striving to maintain academic integrity.

Word count:53343

Awarded by

Prof. Anne Syomwene Kisilu
CERM-ESA Project Leader Date: 21//05//2025

Appendix VIII: Mahalanobis Distance for Outliers

Mahalanohbois Distance for Outliers

Mahalanobis Distance	$\chi 2$ – test p - value	Mahalanobis Distance	$\chi 2$ – test p - value	Mahalanobis Distance	$\chi 2$ – test p - value	Mahalanobis Distance	$\chi 2$ – test p - value
0.02957	0.9987	0.44262	0.9313	0.90809	0.8235	1.5046	0.6812
0.04424	0.9976	0.44472	0.9309	0.90809	0.8235	1.56187	0.6681
0.11056	0.9905	0.44824	0.9301	0.90809	0.8235	1.56187	0.6681
0.11648	0.9898	0.44824	0.9301	0.90809	0.8235	1.56187	0.6681
0.1168	0.9897	0.44824	0.9301	0.91716	0.8213	1.56187	0.6681
0.1168	0.9897	0.44824	0.9301	0.93375	0.8173	1.56364	0.6677
0.11754	0.9897	0.45059	0.9296	0.93375	0.8173	1.57627	0.6648
0.11754	0.9897	0.45059	0.9296	1.05525	0.7879	1.57627	0.6648
0.15314	0.9848	0.50337	0.9182	1.05525	0.7879	1.57627	0.6648
0.19084	0.9791	0.54138	0.9097	1.05525	0.7879	1.57627	0.6648
0.23648	0.9715	0.54982	0.9078	1.05704	0.7875	1.62847	0.653
0.23648	0.9715	0.55612	0.9064	1.05704	0.7875	1.62847	0.653
0.23648	0.9715	0.57024	0.9032	1.07785	0.7824	1.69932	0.6371
0.23648	0.9715	0.59787	0.8969	1.07785	0.7824	1.69932	0.6371
0.23648	0.9715	0.59787	0.8969	1.07785	0.7824	1.69932	0.6371
0.23648	0.9715	0.59787	0.8969	1.09019	0.7794	1.69932	0.6371
0.24828	0.9694	0.64125	0.8869	1.11141	0.7743	1.77533	0.6203
0.24828	0.9694	0.64125	0.8869	1.1544	0.764	1.83678	0.607
0.26944	0.9657	0.68903	0.8758	1.16401	0.7616	1.84595	0.605
0.26944	0.9657	0.68903	0.8758	1.19259	0.7548	1.84595	0.605
0.26944	0.9657	0.69356	0.8747	1.19259	0.7548	1.88301	0.597
0.28235	0.9633	0.69719	0.8739	1.19411	0.7544	1.88301	0.597
0.28235	0.9633	0.69719	0.8739	1.19411	0.7544	1.94267	0.5844
0.28248	0.9633	0.69719	0.8739	1.21382	0.7497	1.94267	0.5844
0.29624	0.9607	0.71478	0.8697	1.22062	0.7481	1.96009	0.5807
0.33177	0.9539	0.72599	0.8671	1.22062	0.7481	1.96009	0.5807
0.33177	0.9539	0.72599	0.8671	1.22062	0.7481	2.04246	0.5636
0.33177	0.9539	0.73348	0.8653	1.25946	0.7388	2.04246	0.5636
0.35435	0.9495	0.74684	0.8621	1.25946	0.7388	2.10022	0.5519
0.35435	0.9495	0.79984	0.8495	1.25946	0.7388	2.10022	0.5519
0.35435	0.9495	0.81767	0.8452	1.3163	0.7253	2.13198	0.5455
0.37941	0.9445	0.81767	0.8452	1.3163	0.7253	2.16506	0.5389
0.40461	0.9393	0.81767	0.8452	1.35052	0.7172	2.19865	0.5322
0.40461	0.9393	0.82411	0.8437	1.35763	0.7155	2.19865	0.5322
0.40461	0.9393	0.82411	0.8437	1.36272	0.7143	2.20663	0.5306
0.43541	0.9328	0.83039	0.8422	1.39282	0.7072	2.22825	0.5264
0.43541	0.9328	0.83039	0.8422	1.46231	0.691	2.22825	0.5264
0.44097	0.9317	0.89836	0.8258	1.46231	0.691	2.22825	0.5264
0.44262	0.9313	0.90809	0.8235	1.48392	0.686	2.22825	0.5264
0.44262	0.9313	0.90809	0.8235	1.5046	0.6812	2.31369	0.5099
2.31369	0.5099	2.99734	0.392	4.00658	0.2608	7.91313	0.0478
2.33254	0.5063	2.99734	0.392	4.02303	0.259	8.53042	0.0362
2.33254	0.5063	2.99734	0.392	4.02638	0.2586	8.53042	0.0362
2.36112	0.5009	3.02544	0.3877	4.05039	0.2561	9.28448	0.0257
2.45203	0.484	3.02544	0.3877	4.06342	0.2547	10.52116	0.0146
2.45203	0.484	3.30859	0.3464	4.06342	0.2547	10.52116	0.0146
2.45203	0.484	3.33386	0.343	4.07645	0.2533	10.87315	0.0124
2.49185	0.4768	3.33386	0.343	4.07645	0.2533	12.38217	0.0062
2.49185	0.4768	3.33386	0.343	4.07645	0.2533	12.38217	0.0062
2.49908	0.4755	3.48105	0.3232	4.07938	0.253	12.80668	0.0051
2.49908	0.4755	3.5012	0.3206	4.0864	0.2523	13.25187	0.0041
2.51853	0.472	3.5012	0.3206	4.2293	0.2377	13.74444	0.0033
2.51853	0.472	3.55273	0.314	4.2293	0.2377	13.81728	0.0032
2.51853	0.472	3.55273	0.314	4.46206	0.2157	15.08999	0.0017
2.51853	0.472	3.55273	0.314	4.46206	0.2157	15.08999	0.0017
2.57637	0.4616	3.55273	0.314	4.46206	0.2157	16.76592	0.0008
2.58508	0.4601	3.5866	0.3097	4.83738	0.1841	16.76592	0.0008
2.58508	0.4601	3.59547	0.3086	4.83738	0.1841	24.43389	0
2.59734	0.458	3.62701	0.3047	4.83738	0.1841	24.43389	0
2.59734	0.458	3.62701	0.3047	4.83738	0.1841	26.94267	0
2.59734	0.458	3.68858	0.2971	4.91306	0.1783		
2.59734	0.458	3.81164	0.2825	4.91306	0.1783		
2.59734	0.458	3.81164	0.2825	5.11559	0.1635		
2.59734	0.458	3.81164	0.2825	5.11559	0.1635		

2.59896	0.4577	3.87194	0.2756	5.11559	0.1635		
2.59896	0.4577	3.87194	0.2756	5.11559	0.1635		
2.65	0.4488	3.87194	0.2756	5.30439	0.1508		
2.71369	0.4379	3.87194	0.2756	5.39811	0.1449		
2.71369	0.4379	3.87194	0.2756	5.4803	0.1398		
2.71528	0.4376	3.87194	0.2756	5.4803	0.1398		
2.71528	0.4376	3.87194	0.2756	5.57753	0.1341		
2.73256	0.4347	3.87194	0.2756	5.57753	0.1341		
2.84452	0.4162	3.87194	0.2756	5.6801	0.1283		
2.84452	0.4162	3.87194	0.2756	5.6801	0.1283		
2.84452	0.4162	3.87194	0.2756	7.17402	0.0666		
2.84452	0.4162	3.87194	0.2756	7.30208	0.0629		
2.86443	0.413	3.87194	0.2756	7.36172	0.0612		
2.8861	0.4095	3.87194	0.2756	7.36172	0.0612		
2.89877	0.4075	3.87194	0.2756	7.36172	0.0612		
2.99224	0.3928	3.87194	0.2756	7.82429	0.0498		

Appendix IX: Harman's Single Factor Test

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	19.482	32.470	32.470	18.854	31.423	31.423
2	4.916	8.194	40.663			
3	3.561	5.934	46.598			
4	3.147	5.245	51.843			
5	2.186	3.644	55.487			
6	1.960	3.267	58.754			
7	1.770	2.950	61.704			
8	1.522	2.536	64.240			
9	1.388	2.313	66.554			
10	1.310	2.183	68.736			
11	1.231	2.052	70.789			
12	1.152	1.919	72.708			
13	1.025	1.708	74.416			
14	.991	1.652	76.068			
15	.935	1.558	77.626			
16	.890	1.483	79.110			
17	.781	1.302	80.412			
18	.771	1.285	81.697			
19	.699	1.165	82.861			
20	.654	1.090	83.951			
21	.641	1.069	85.020			
22	.575	.958	85.978			
23	.540	.900	86.878			
24	.531	.886	87.764			
25	.500	.834	88.598			
26	.478	.797	89.395			
27	.472	.787	90.181			
28	.426	.710	90.892			
29	.412	.686	91.578			
30	.393	.655	92.233			
31	.368	.613	92.846			
32	.347	.578	93.423			
33	.331	.551	93.974			
34	.321	.536	94.510			
35	.298	.496	95.006			
36	.264	.439	95.446			
37	.259	.432	95.877			
38	.225	.375	96.253			
39	.206	.344	96.596			
40	.182	.303	96.900			
41	.175	.292	97.191			

42	.174	.290	97.481			
43	.171	.285	97.767			
44	.163	.271	98.038			
45	.145	.242	98.280			
46	.133	.222	98.503			
47	.124	.206	98.709			
48	.110	.184	98.893			
49	.103	.172	99.065			
50	.086	.143	99.208			
51	.079	.131	99.339			
52	.066	.110	99.450			
53	.061	.102	99.551			
54	.057	.095	99.647			
55	.049	.081	99.728			
56	.044	.074	99.802			
57	.038	.063	99.865			
58	.035	.058	99.922			
59	.029	.048	99.971			
60	.017	.029	100.000			

Extraction Method: Principal Axis Factoring.