THE RELATIONSHIP BETWEEN HUMAN RESOURCES MANAGEMENT PRACTICES AND EMPLOYEE PERFORMANCE IN ELECTRICAL AND ELECTRONICS MANUFACTURING INDUSTRIES

by

SHASHVEENA THEVI A/P VENU GOBALL

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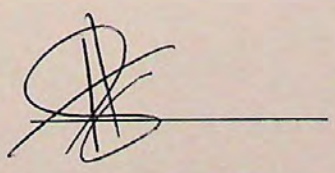

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ABSTRACT

The purpose of this research is to study the relationship between human resources management practice (training and development, performance appraisal, reward and recognition) and employee performance in electrical and electronical industries. Data was collected through questionnaires from 210 employees working in manufacturing companies located in four Malaysian states: Penang, Johor, and Selangor. Quantitative approach has been used in this study through questionnaire and online distribution for data collection. the data were analysed using for four analyses which are reliability test, descriptive analysis, mean analysis, correlation analysis. The results show the significance of human resource management (HRM) practices in predicting employee performance. This chapter discuss the implications of these findings for HRM practise and offer recommendations for developing effective HRM strategies to enhance employee performance.

ABSTRAK

Tujuan kajian ini adalah untuk mengkaji hubungan antara amalan pengurusan sumber manusia (latihan dan pembangunan, penilaian prestasi, ganjaran dan pengiktirafan) dengan prestasi pekerja dalam industri elektrik dan elektronik. Data telah dikumpulkan melalui soal selidik daripada 210 pekerja yang bekerja di syarikat pembuatan yang terletak di empat negeri Malaysia: Pulau Pinang, Johor, dan Selangor. Pendekatan kuantitatif telah digunakan dalam kajian ini melalui soal selidik dan pengedaran dalam talian untuk pengumpulan data. Data dianalisis menggunakan empat analisis iaitu ujian kebolehpercayaan, analisis deskriptif, analisis min, dan analisis korelasi. Hasil kajian menunjukkan kepentingan amalan pengurusan sumber manusia (HRM) dalam meramal prestasi pekerja. Bab ini membincangkan implikasi penemuan ini terhadap amalan HRM dan menawarkan cadangan untuk membangunkan strategi HRM yang berkesan untuk meningkatkan prestasi pekerja.

DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and any editorial work, paid or unpaid, carried out by a third party is acknowledged.

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LIST OF ABBREVIATIONS

HR	-	Human Resource
HRM	-	Human Resource Management
HPHRMP	-	High-Performance Human Resource Management Practice
MIDA	-	Malaysian Investment Development Authority
SET	-	Social Exchange Theory
SPSS	-	Statistical Package For Social Sciences

CHAPTER 1

INTRODUCTION

1.1 Introduction

Chapter 1 shows the research for the thesis. It discusses the background and the need for the study. This chapter also justifies the research study, its objectives, and the research questions addressed. Additionally, the expected contributions of this research are outlined. Besides, as a contribution to the knowledge, the research methodology and design of this research are highlighted. This chapter will explain the conceptual definition and operation of the term used.

1.2 Background of study

The manufacturing sector in Malaysia remains a cornerstone of the nation's economic expansion, significantly impacting exports, employment, and foreign investments. According to the Malaysian Investment Development Authority (2024), the sector recorded total investments of RM84.3 billion in 2022, reflecting a substantial increase from previous years. This growth underscores the sector's pivotal role in advancing Malaysia's industrial capabilities and sustaining its economic momentum. The electrical and electronics (E&E) sector stands as the leading manufacturing industry in Malaysia, with the electrical products sub-sector being a critical asset to the national economy (ETP Annual Report, 2022). The expansion of E&E goods is the primary factor driving the improved and higher performance of export-oriented businesses (Falahat & Magin, 2017). Moreover, the current industry trend has pivoted towards the development of innovative, higher value-added products that incorporate Industry 4.0 elements.

The E & E manufacturing sector is crucial to Malaysia's economy, significantly contributing to Gross Domestic Profit (GDP) and job creation. The Malaysian Investment Development Authority (2024) states the total approved investments in this sector reached RM2 billion. Significantly, domestic investments contributed 15% (RM0.3 billion), while foreign investments made up the remaining 85% (RM1.7 billion) in 2022. This sector is a major employer, providing jobs for engineers, technicians, and assembly workers, and driving the need for continuous training and upskilling. The E & E sector also supports related industries, fostering broader economic growth and stability, making it a cornerstone of Malaysia's economic development strategy. Consequently, this investment landscape highlights the sector's strategic importance and its ongoing evolution towards advanced technological integration. The success of Malaysia's E&E industry is evident through its impressive contribution to the nation's economy. According to Malaysian Investment Development Authority (2024), the E&E sector emerged as the country's largest export earner, generating a total of RM455 billion and accounting for 38.3% of the total value of exports in 2022. These figures highlight the sector's attractiveness to both local and international investors, showcasing its robust growth and strategic importance in the global market.

Table 1.1
Total E&E companies in Malaysia

States of E&E in Malaysia	Number of companies
Penang	45
Selangor	21
Johor	15

Source: Electrical & Electronics Division, Malaysian Investment Development Authority, 2024

Employee performance is a crucial factor influencing organizational success. It directly affects the organization's outcomes through individual behaviour, even though other contributing factors also play a role (Saleh et al., 2020). In Malaysia, the performance of engineers is crucially influenced by several key factors. First and foremost, technical proficiency and skills are paramount; engineers must master relevant principles and practices while continuously updating their knowledge to align with industry standards and technological advancements. Furthermore, problem-solving and innovation are critical, as engineers are often tasked with diagnosing and resolving complex issues, contributing to the development of innovative solutions and process improvements. Specifically, having the capabilities in effective project management and execution are also essential, requiring engineers to plan, execute, and manage projects while adhering to timelines, budgets, and quality standards (Galli B, 2020). These aspects are particularly vital given the industry's reliance on advanced technologies and the necessity for skilled workers proficient in Industry 4.0 elements (Hecklau et al., 2016). Engineers in Malaysian manufacturing companies face specific performance challenges such as optimizing machinery efficiency, ensuring product quality, adhering to safety protocols, and enhancing team communication, all of which have a profound impact on organizational effectiveness.

In this regard, Human Resources Management (HRM) practices are crucial for engaging the workforce, conducting performance evaluations, applying knowledge, enhancing skills through training, retaining talent, and effectively managing administrative matters (Singh et al., 2020). Addressing these challenges necessitates effective HRM practices, especially in training and development, performance appraisal, and reward and recognition. According to Zheng and Lamond (2010) identify inefficiencies in HRM practices as the primary factor affecting employee

performance. Thus, focusing on these areas (1) training and development, (2) performance appraisal, and (3) reward and recognition is essential for improving employee outcomes.

1.3 Problem Statement

The E&E manufacturing industry is a cornerstone of national economies, driving both social and economic development. Technological advancements and globalization are continuously introducing new products, services, and business models (Tuček, 2016; Povolná & Švarcová, 2017; Rajnoha & Lesníková, 2016). This sector has a significant impact on every dimension of sustainable development, including economic, social, environmental, and institutional aspects. The industry's performance is influenced by global trade, competition, technological advancements, workforce qualifications, and skills. In this dynamic environment, manufacturing firms must adopt effective methods and strategies to change to modifying conditions (European Commission, 2017; Piekarczyk, 2016; Sachpazidu-Wójcicka, 2017).

According to Ayentimi et al., (2018), the shortage of skilled labor in Ghana is significantly restricting firms' ability to secure qualified employees to across various industries. The study highlights a notable impact on employee performance and the shortage not only hampers firms' ability to find qualified employees but also affects overall employee productivity and effectiveness. Specifically, the lack of skilled workers leads to increase workload on existing employees, reduce job satisfaction, and lower organizational performance, ultimately impacting the firm's ability to compete and thrive in the market in E&E manufacturing industries (Thomas, 2013). Addressing these skills gaps through targeted training and development can be crucial for the survival and success of manufacturing firms (Smith & Perks, 2016). Training enhances employee performance and equips firms to remain competitive (Jie & Roger, 2015) This investigates the connect training and development practices and organizational employee performance. Understanding this relationship will help top management recognize the value of investing in employee training, thereby enhancing engineers'

performance in E&E industries. Hence, the shortage of skills has posed a significant challenge for manufacturing companies (Smith & Perks, 2016), and acquiring skills through training can offer a sustainable solution for the survival of these firms.

Training benefits are often not immediately apparent in daily operations, making it difficult to justify the associated costs. Given the significant expense of training programs, organizations must be able to track and demonstrate their value (Goldstein & Ford, 2022). For instance, U.S. companies spend over $126 billion annually on employee training and development, focusing primarily on technical and managerial skills. This investment aims to cultivate specialized employees and leaders who can drive substantial business results (Aguinis & Kraige, 2009; Goldstein & Ford, 2022). However, effective training should not only create new capabilities but also reinforce and build upon existing ones (Joyce & Slocum, 2019).

Moreover, high employee turnover rates present a substantial challenge for the manufacturing industry. Turnover leads to the loss of valuable employees and incurs additional costs (Zheng & Lamond, 2010). Frequent departures disrupt team dynamics and continuity, which decreases productivity as new employees require time to reach their full potential. The loss of experienced staff also depletes the organization's skill and knowledge base, negatively affecting production quality and efficiency. Additionally, high turnover can lower the motivation of remaining employees by increasing their workload and complicating work scheduling. The departure of skilled workers, who represent crucial human capital, significantly undermines organizational effectiveness and performance (Kaya & Abdioğlu, 2010). Addressing this challenge is essential for maintaining stability, enhancing efficiency, and fostering a sustainable workforce within manufacturing organizations through training and development, performance appraisal and reward and recognition.

Other than that, E&E manufacturing industries are increasingly challenged with managing employee performance effectively. Issues such as inconsistent performance levels, unclear objectives, and lack of structured feedback mechanisms contribute to diminished productivity, lower morale, and decreased overall effectiveness. Without a structured framework for assessing performance, organizations struggle to pinpoint areas needing improvement, align personal goals with company objectives, and identify top performers. According to Gallup (2023), organizations that use structured performance evaluations are more likely to have clear performance standards, which help in making objective and consistent performance assessments. This reduces biases and ensures that evaluations are based on concrete data rather than subjective impressions (Gallup, 2023). Thus, enhancing and refining employee performance through the development of HRM practices is crucial for both employee and organizational success (Hee & Jing, 2018)

In today's competitive environment in E&E industries, the employees who feel unappreciated and undervalued are at a higher risk of seeking alternative job opportunities, leading to increased turnover rates. This phenomenon is supported by recent research, which highlights the critical role of recognition in employee retention. According to a study by Kumar and Pansari (2023), employees who perceive a lack of recognition and appreciation are significantly more likely to experience decreased job satisfaction and heightened turnover intentions. The study emphasizes that when employees feel their contributions are not valued, their motivation and commitment to the organization decline, prompting them to explore other career options where they believe they will be more adequately recognized and rewarded. Additionally, research by Larkin et al. (2024) confirms that organizations with ineffective reward systems face higher turnover rates, as employees leave in search of environments where their

efforts are acknowledged and rewarded. This evidence underscores the importance of implementing comprehensive reward and recognition programs to maintain employee satisfaction, reduce turnover, and ultimately enhance organizational success.

The primary concerns that motivated this study likely stem from several critical issues highlighted above. In the competitive and fast-paced Electrical and Electronics (E&E) manufacturing industry, maintaining high employee performance is crucial for companies to stay competitive. These concerns may relate to whether current HRM strategies are adequately designed to enhance employee performance, motivation, and engagement, especially in a technologically advanced and innovation-driven sector like E&E. In this study, these concerns drive the need to examine the relationship between HRM practices and employee performance, with the aim of identifying areas for improvement and providing actionable insights to enhance HRM strategies within the E&E manufacturing sector.

1.4 Research Questions

The research aims to address the following questions:

i.) Does training and development related to employee performance in electrical and electronics in manufacturing industry in Malaysia?

ii.) Does performance appraisal related to employee performance in electrical and electronics in manufacturing industry in Malaysia?

iii.) Does reward and recognition related to employee performance in electrical and electronics in manufacturing industry in Malaysia?

1.5 Research Objectives

The objectives proposed for this research are:

i.) To examine the relationship between training and development and employee performance in electrical and electronics manufacturing industry in Malaysia.

ii.) To examine the significant relationship between performance appraisal and employee performance in electrical and electronics manufacturing industry in Malaysia.

iii.) To examine the significant relationship between reward and recognition and employee performance in electrical and electronics manufacturing industry in Malaysia.

1.6 Significant of the study

This research aims to deepen the understanding of how employee performance influenced by HRM practise, with a specific focus on the (E&E) manufacturing industries in Malaysia. Companies can use the findings of this study to understand how HRM practices can enhance employee performance. The results will provide valuable insights for organizations with a goal of optimizing their human resources management. Companies can apply the study's findings to tailor HRM practices that specifically target areas like employee motivation, engagement, and development, thereby directly enhancing overall performance.

The importance of this study stems from both its theoretical insights and its practical applications. By identifying key HRM practices that influence employee performance, the research can help companies develop more effective HR strategies. The implementation of better HRM practices is likely to increase employee satisfaction, reduce turnover, and increase productivity. Moreover, the study provides a localized perspective tailored to the E&E manufacturing sector in Malaysia, offering specific insights that can be particularly beneficial for businesses operating in this region.

1.7 Scope of the study

This study seeks to investigate how human resources management (HRM) practices impact employee performance in the E&E manufacturing sector. Specifically, it focuses on the electrical and electronics (E&E) manufacturing sectors in Malaysia, targeting engineers across three states: Penang, Selangor, and Johor. These three states are key industrial hubs for Malaysia's electrical and electronics (E&E) manufacturing sector, which is well-known for its significant growth and development. These regions have a high concentration of E&E companies and are crucial to the industry's overall success, making them ideal for examining the relationship between human resources management practices and employee performance. For this study, the analytical unit is limited to engineers employed in these E&E industries, with a target population of approximately 460 engineers.

A quantitative approach will be utilized for this study, employing the SPSS (Statistical Package for Social Sciences) version 27 for data analysis. The research will concentrate on three HRM practices which is training and development, performance appraisal, and reward and recognition, examining their impact on employee performance. The research is conducted over a six-month period and investigates relevant HRM theories to provide insights into these practices.

1.8 Definitions of Key Terms

There are few key terms are employed throughout this study, and defining each is crucial for a clearer understanding and effective conceptualization.

i. **Training and development:** Training and development refer to the structured activities an organization undertakes to help employees gain the skills and experience required for their current roles or future positions (Mondy & Noe, 2005).

ii. **Performance Appraisal:** A performance assessment appraisal is a methodical process designed to evaluate and record an employee's effectiveness in their role (Smith & Brown, 2023).

iii. **Reward and Recognition:** Reward and recognition refer to benefits such as salary raises, bonuses, and promotions, which are publicly awarded for outstanding performance that aligns with organizational objectives (Juran & Gryna, 1993).

iv. **Employee Performance:** Employee performance reflects how well an organization can accomplish its goals. It involves the successful completion of tasks by individuals or teams, as assessed by the organization's top management. This performance requires meeting established and acceptable criteria while using resources efficiently and effectively in a dynamic environment (Ngwa et al., 2019).

1.9 Organisation of Thesis

This thesis is organized to offer a concise and methodical description of the investigation's methodology and conclusions. Chapter 1 begins with an introduction to the study, outlining the background and research problem, followed by a detailed presentation of the research questions, objectives, scope, limitations, significance, and definitions of key terms. It concludes with an overview of the research structure.

Chapter 2 offers a comprehensive literature review and develops the research hypotheses, defining critical variables such as training and development, performance appraisal, reward and recognition and employee performance. This chapter also discusses relevant previous studies, formulates the hypotheses, introduces a theoretical framework, and explains the theoretical foundation of the study.

Chapter 3 details the research methodology, including the research framework, hypotheses, study design, population and sampling techniques, and questionnaire design. It also covers the measurement variables, data collection strategies, and methods for data analysis.

Chapter 4 displays the survey results, examining the connection between HRM practices and employee performance in the electrical and electronics manufacturing sectors.

Chapter 5 finishes the study by summarizing the results in connection to the research questions, discussing the consequences, acknowledging the limits of the study, and making suggestions for additional research.

CHAPTER 2

LITERATURE REVIEW

2.1 Chapter Overview

In this chapter, the researcher outlines the theoretical framework of the study, developed through a review of relevant literature and related research. It elaborates on the definitions, theories, and models pertinent to Human Resource Management (HRM) practices. Additionally, the chapter delves into how specific HRM practices such as training and development, performance appraisal, and reward and recognition affect employee performance within the electrical and electronics (E&E) manufacturing sectors.

2.2 Employee Performance

Employee performance reflects how well an organization can accomplish its goals. It involves the successful completion of tasks by individuals or teams, as assessed by the organization's top management. This performance requires meeting established and acceptable criteria while using resources efficiently and effectively in a dynamic environment (Ngwa et al., 2019). Performance includes both the quality and quantity of work produced, reflecting an employee's ability to deliver high-quality outcomes while maintaining productivity levels that meet or exceed organizational standards. Additionally, performance measures how effectively employees utilize their skills and resources, adapting to a constantly changing environment to meet predefined and acceptable criteria.

Tumbuan and Simanjorang (2016) highlight that employee performance is crucial aimed at reaching organizational objectives. Effective teamwork hinges on employees

working together seamlessly, with each individual having a clear understanding of their tasks to ensure successful job completion. An organization can only progress when its workforce performs optimally. According to Oravee et al. (2018), employee performance involves the efficient execution of job responsibilities and the successful completion of assigned tasks.

Moreover, employee attitudes play a significant role in translating HRM principles and practices into tangible performance outcomes. High-performing employees, often driven by intrinsic motivation and support, can greatly enhance organizational performance. This emphasis on employees' perspectives is reflected in much of the research on human resource practices (Bowen & Ostroff, 2014; Nishii & Wright, 2018). The implementation of HR management systems reflects the organization's strategy and context, as the approach to managing human capital is shaped by organizational decisions. Additionally, employee performance is assessed through various rating systems that evaluate workers' abilities and productivity, ultimately reflecting how effectively employees execute their roles. Thus, understanding the factors influencing employee performance in the E&E manufacturing industry is essential for retaining valuable HR talent and ensuring organizational success.

2.3 Training and Development

Training and development process involves three main activities which is the training of employees, the education of internal stakeholders, and the opportunity to foster their growth. Training can focus on job-specific tasks, provided by a supervisor, or vocational training conducted off-site. This planned process enables employees to gain new knowledge and skills, as well as adapt to new technologies, thereby maintaining or enhancing workplace performance. Charnov (2016) defined that training is one of

the educational processes where human being learns new knowledge, information, and reinforce existing skills and knowledge. In addition to conveying relevant information, effective training practices also develop employees' abilities and skills that can be transferred to the workplace. The term "development" describes educational experiences meant to promote staff development. Development, as opposed to skills-oriented training, concentrates on teaching broad knowledge and fostering attitudes that get workers ready for roles at higher levels (Tanaya Walia,2017).

According to Noe, R. (2017), training defined as "the organized procedure by which people learn knowledge and/or skills for a definite purpose," involves teaching and learning activities intended to facilitate individuals' acquisition and application of these skills, knowledge, and attitudes. According to Noe (2019) and Saks and Burke (2020) emphasize that training is not only crucial for individual development but also for organizational success. They argue that effective training programs are essential for enhancing employee performance and fostering a culture of continuous improvement and innovation. These programs must be strategically aligned with the organization's goals to ensure they address the specific competencies required for various jobs within the organization.

Advances in technology have made tremendous strides in modern times, impacting the economy and lifestyle. At the same time, this has led to increased competition among organizations (Law & Guo, 2015; Nilsson & Ringholm, 2019). This has caused challenges for many elderly people. Hence, training and development is crucial as it significantly enhances employee performance, leading to increased productivity especially in manufacturing industry. Effective training programs expand workers' expertise, allowing them to make a contribution more efficiently to their teams and the

overall production process. Therefore, E&E manufacturing organizations invest in comprehensive training for their employees to improve their current job performance levels, thereby fostering operational excellence and maintaining a competitive edge in the market. Training typically enhances employee performance, which subsequently boosts their productivity. Consequently, training is crucial for broadening employees' knowledge and skills, allowing them to provide more effectively to a team. As a result, organizations invest in comprehensive training programs to elevate their employees' job performance levels. Consequently, training and development would be considered a crucial HRM practice in the current study.

2.4 Performance Appraisal

Da Silva et al. (2020) defines employee performance in terms of individual competencies demonstrated in their field, tasks that support organizational goals, and the ability to adapt to organizational demands. This definition encompasses productivity and the developmental aspects of performance. Koopsman (2014) classifies performance into task, contextual, adaptive, and counter-productive work behaviours. Mohammad et al. (2014) describes employee performance as the effective application of skills, knowledge, experience, and abilities to fulfil the objectives set by management.

Smith and Brown (2023) elucidate how a performance review appraisal is a methodical procedure intended to evaluate and document an engineer’s effectiveness in their role. This process is a crucial element of a comprehensive performance management system, aimed at aligning individual performance with organizational goals, providing feedback for improvement, and informing decisions related to promotions, compensation, and professional development. Normally, performance evaluations are

usually predicated on how well an employee is doing in relation to yearly objectives that they jointly set with their management. (Sabiu et al., 2019; Krishnan et al., 2018).

Sabiu et al. (2019) demonstrated a positive link between performance assessments and organizational success. Using partial least squares path modelling, their cross-sectional study revealed that organizations which regularly evaluate employee performance tend to achieve better overall performance. Performance appraisals aim to offer constructive feedback, set clear goals, identify training needs, motivate employees, and facilitate informed administrative decisions while enhancing communication between employees and supervisors. When these goals are effectively achieved, organizations experience immediate positive outcomes.

Iqbal et al. (2019) investigated the relationship between performance appraisal goals and organizational outcomes by surveying 563 workers in Pakistan's telecom sector. According to their findings, the performance evaluation system is more practical and effective when job descriptions and strategic objectives are included since they better represent the views of the employees.

Kivipõld et al. (2020) explored how performance appraisal processes impact organizational effectiveness. Through a structured questionnaire, their analysis showed that a robust performance assessment system positively influences employee's perceptions of fairness and the organization's external effectiveness. Transparent, consistent, and objective performance assessments enhance perceptions of fairness, which boosts trust, morale, and job performance. When performance assessments are transparent, consistent, and based on clear, objective criteria, academic staff are more likely to perceive the evaluation process as fair. This sense of fairness can enhance their trust in the administration, boost morale, and increase job performance. As a

result, one significant practice in the perceived HRM practices included in the current study is performance appraisal.

2.5 Rewards and recognition

In human resources management, rewards systems include both tangible and intangible benefits that organizations provide to their employees. It can be intentional or unintentional, but these rewards are in exchange for the employees' work. Employees place a high value on these rewards because they meet certain needs that they have identified for themselves. These rewards can also include beneficial non-financial elements. Recognition in HRM practices refers to acknowledging and appreciating employees' contributions, efforts, and accomplishments within an organization. This practice is essential for boosting employee morale, motivation, and engagement, ultimately leading to improved performance and retention.

The reward system is a prevalent High-Performance Human Resource Management Practice (HPHRMP) designed to acknowledge and reward sales associates for their outstanding performance. This system includes both incentive and recognition programs. Incentives are monetary rewards offered by the organization to employees for their contributions to sales, quality, and customer service. Moreover, extrinsic incentives address various needs, such as having sufficient funds to cover expenses, feeling reliable and secure in one’s job, and having one’s skills appreciated by the employer. According to Hellriegel (1999) and referenced in Eshak et al. (2016) are an intrinsic reward is one provided by the company and includes perks like pay, status, and job stability. These advantages are comparable to "hygiene factors" as defined by Herzberg in the context of the job. Extrinsic rewards, as defined by Baron (1983) and referenced in Eshak et al. (2016), are material benefits unrelated to the work that a

person does for a living. These may include pay or salary, bonuses, incentives, promotions, and job security, also known as monetary rewards.

Workplace rewards and recognition programs, especially in the industrial sector, significantly enhance employee engagement and performance. Recognizing employees' efforts and accomplishments boosts their motivation and fosters a healthy work environment. Offering substantial incentives, such as opportunities for career growth and promotion, helps retain top talent and promotes long-term corporate success. This approach enhances productivity, quality, and efficiency on the production floor while also improving individual performance in manufacturing. According to Deloitte, 2020, recognition is a critical driver of employee belonging, with 44% of respondents stating that being valued for their individual contributions is the biggest driver of belonging at work. Additionally, 79% of employees who left an organization had not been recognized in the past six months, and 64% of employees said that feeling recognized would reduce their desire to seek other job opportunities. In support of this, a study by Gallup (2019) revealed that employees who feel acknowledged are more inclined to remain with their current employer, underscoring the significance of consistent and meaningful recognition in lowering turnover rates. As a result, one significant practice in perceived HRM practices that will be included in the current research is reward and recognition.

2.6 Underpinning Theory

Human management activities transitioned from experience-based management to scientific management, creating a new chapter in the history of human management. Learning theories, such as Social Exchange Theory, have vital significance in increasing training benefits and enhancing training effectiveness (Attiyah, 2011). The entry for Social Exchange Theory (SET) contains sections that explain the theory, look at its developments, show off applications to HRM, and offer ideas for more study directions. According to Mitchell et al. (2012), SET is a key theory in management and HRM studies that helps explain how interactions between two actors can change the nature of the relationship as well as the attitudes and behaviours of the players.

The theory's relevance in addressing diversity and inclusion initiatives has also been highlighted. SET provides a framework for examining how diverse teams can foster positive exchanges and mutual support, leading to enhanced performance and innovation (Colquitt et al., 2020). Furthermore, recent research has explored the role of SET in shaping leadership styles, emphasizing how leaders' reciprocal interactions with employees can drive motivation and productivity (Erdogan & Bauer, 2021).

Social Exchange Theory suggest that when organizations invest in employee training, it fosters a sense of obligation and reciprocity among employees. Training enhances employees' skills and knowledge, making them more effective in their roles. In return, employees have a strong sense of devotion and allegiance to the company, leading to improved job performance (Blau & Andersson, 2020). Moreover, continuous learning opportunities signal to employees that the organization values their growth, which strengthens their engagement and performance (Colquitt et al., 2020).

Performance appraisals based on Social Exchange Theory principles focus on fair and transparent evaluations. When employees perceive the appraisal process as just and constructive, it enhances their trust in the organization. This trust leads to positive reciprocal behaviours, such as increased effort and cooperation, ultimately boosting job performance. Effective feedback mechanisms within performance appraisals also facilitate employees identify their strengths and areas for improvement, further driving performance (Erdogan & Bauer, 2021).

Furthermore, the use of rewards, both intrinsic and extrinsic, can significantly impact employee performance through the lens of social exchange theory. When employees receive rewards that are perceived as fair and commensurate with their contributions, it reinforces positive social exchanges. These rewards create a cycle of reciprocity where employees are motivated to maintain high performance levels to continue receiving recognition and benefits. Rewards also strengthen the relational bonds between employees and the organization, fostering a culture of high performance and mutual respect (Cropanzano et al., 2017)

In this study, Social Exchange Theory (SET) explains how effective HRM practices such as fair compensation, recognition, and development opportunities create a sense of obligation and reciprocity among employees. This reciprocal relationship leads to increased motivation, commitment, and, ultimately, improved employee performance in the highly competitive Electrical and Electronics manufacturing industries. By fostering a positive exchange between the organization and its employees, SET highlights the critical role of HRM practices in sustaining long-term organizational success.

2.7 Hypothesis Development

2.7.1 Training and Development and Employee Performance

Effective employee performance is contingent upon training and development. Businesses can profit greatly from knowing the connection between employee performance and training (Enyia, 2017). Abdulrahman (2018) investigated the relationship between bank performance and training and development. 260 engineers were given surveys, 209 of which were returned. Using a quantitative approach, the researcher assessed staff training and development in banks to identify key components affecting performance. The results from a multiple regression analysis in Erbil showed that staff training has a more substantial impact on bank performance compared to employee development.

In an era of rapid technological advancement, continuous learning and adaptation are essential for maintaining job security and staying relevant as automation and advanced machinery evolve. In the manufacturing industry, training and development initiatives are vital for improving employee performance and personal growth. A survey of 100 members of the Ministry of Oil was analyzed using organization analysis and meta-statistics. The study found a strong correlation between the Ministry's organizational success and its HRM practices, particularly training and development.

The positive impact of staff training on bank performing highlights the importance of well-structured and comprehensive training programs. Improved training quality and extent significantly enhance overall bank performance, demonstrating the critical role of training in boosting employee skills and productivity. Thus, there is imperative relationship between training and development with employee performance, underscoring its significance in enhancing organizational outcomes across industries.

H1: Training and development are related to employee performance in electrical and electronics manufacturing industry in Malaysia.

2.7.2 Performance Appraisal and Employee performance

Performance appraisal (PA) involves the systematic evaluation of employee performance, while job performance refers to how well employees fulfil their job duties. Performance appraisal systems are designed to evaluate and improve employee performance through regular feedback, goal setting, and recognition. Budworth, MH., Chummar, S. (2022) highlighted that feedback is a critical element of performance appraisals that can significantly influence job performance. Positive feedback can improve performance by boosting employee confidence and motivation, while negative feedback needs to be managed carefully to avoid demotivation. In addition, research indicates that performance appraisals that include training and development plans are particularly effective in the manufacturing sector. Training helps employees gain new skills and enhance their current abilities, leading to better performance in their roles. This was demonstrated in the study by Guan and Frenkel (2019), which showed that training increased employee performance through greater work engagement and the support of a robust HRM system.

Sabiu et al. (2019) demonstrated a connection between performance evaluation and the success of an organization.By using a statistical method called partial least squares path modelling, they conducted a cross-sectional study to understand the relationships between different variables. Their research proved that performance assessment has a positive and significant impact on how well an organization performs. In other words, organizations that regularly evaluate and assess employee performance tend to perform better overall.

Performance appraisals (PA) aim to provide constructive feedback, set clear goals, identify training needs, motivate employees, make informed administrative decisions, and enhance communication between employees and supervisors. When these goals are effectively met, organizations experience immediate positive consequences. Iqbal et al.'s (2019) study looked at the relationships between performance appraisal (PA) objectives and the direct effects on the organization. They created a survey and got answers from 563 workers in Pakistan's telecoms area. Individual-centered execution evaluation upholds the representative perspective better, as per the outcomes from the primary condition demonstrating study. These discoveries recommended that remembering sets of responsibilities and vital objectives for the exhibition evaluation framework would make it more powerful and practicable.

Kivipøld et al. (2020) provided evidence about the impact of a performance appraisal procedure on an organization's efficacy. A thorough study using a standardized questionnaire revealed that employee perceptions of fair treatment and the organization's external effectiveness are influenced by the performance assessment system. According to this study, putting in place a strong performance evaluation system can have a big impact on how fair treatment is seen by employees. When performance assessments are transparent, consistent, and based on clear, objective criteria, employee are more likely to perceive the evaluation process as fair. This sense of fairness can enhance their trust in the administration, boost morale, and increase employee performance. Thus, in the E&E manufacturing sector, there is a strong correlation between employee performance and performance reviews.

H2: Performance appraisal is related to employee performance in electrical and electronics manufacturing industry in Malaysia.

2.7.3 Rewards and Recognition and Employee performance

According to Ngwa et al. (2019), a reward system that combines intrinsic and extrinsic rewards could spur workers to achieve higher goals, such exceeding management- or leader-set sales targets. Additionally, Ngwa said that when workers feel appreciated for their efforts and contributions, their productivity will increase. Instead, then rewarding employees just once a financial year, leaders who consistently acknowledge their efforts and success through rewards could enhance employee performance.

Gabriel et al. (2016) looked at the connection between worker performance in the manufacturing sector and efficient incentive administration. They discovered that intrinsic rewards, which include compensation, recognition, and chances for professional growth, significantly and favorably affect worker performance. The study came to the conclusion that improving employee motivation is essential for raising productivity levels across the organization as a whole.

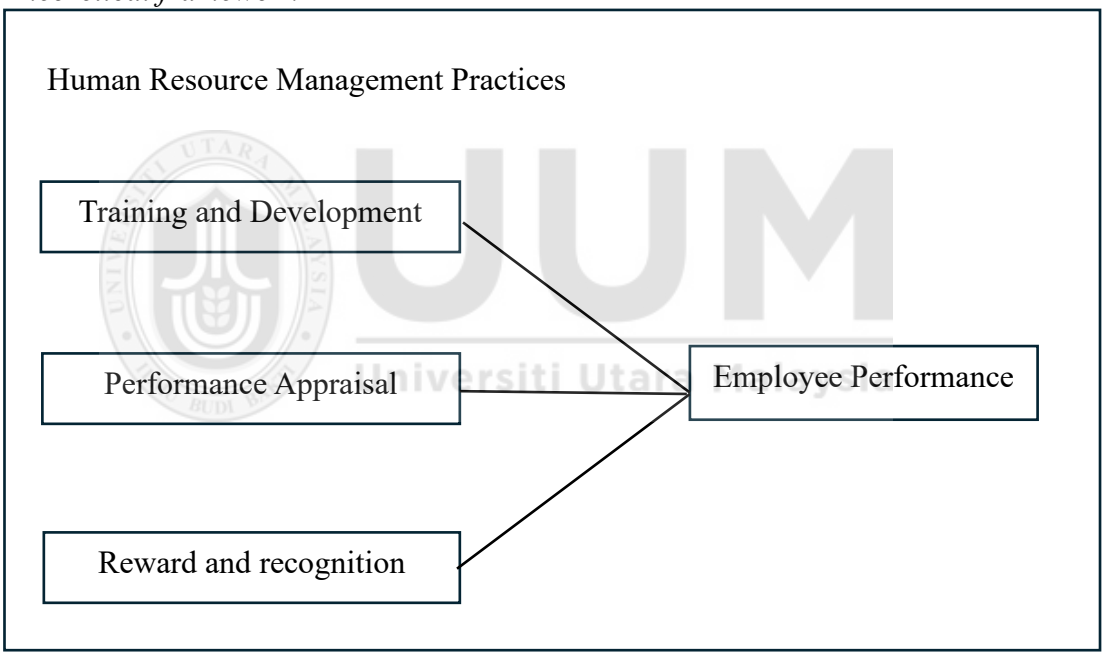
Further research has explored how rewards from leaders can boost worker performance. Kokubun (2018) demonstrated a strong correlation between employee performance and incentives. Prabu and Wijayanti (2016) also found that rewards significantly and positively affect employee performance. Additionally, Pramesti et al. (2019) highlighted a strong positive correlation between rewards and employee performance, noting that increased rewards lead to improved employee performance and higher organizational sales.

H3: Reward and recognition are related to employee performance in electrical and electronics manufacturing industry in Malaysia.

2.8 Research Framework

Based on the research framework known as Figure 2.1, the study identified training, performance appraisal, and reward and recognition as independent variables, with employee performance as the dependent variable. The different types of independent variables in the framework helped to identify the propositions to be tested, guided the analysis, and directed the research to answer the questions.

Figure 2.1
Theoretical framework



Using a research framework, the independent and dependent variables of this study were examined. In this study, the independent variable is human resource management techniques; the dependent variable is employee performance. This is to investigate how HRM practices impact worker performance in the industry that manufactures electronics and electrical equipment.

This framework leads to the following hypotheses:

Hypothesis 1: Training and development are related to employee performance in electrical and electronics manufacturing industry in Malaysia.

Hypothesis 2: Performance appraisal is related to employee performance in electrical and electronics manufacturing industry in Malaysia.

Hypothesis 3: Reward and recognition are related to employee performance in electrical and electronics manufacturing industry in Malaysia.

2.9 Chapter Summary

Chapter 2 discusses the abundance of research done regarding human resources practices and employee performance. The previous research reviews show that human resource management is important towards employee performance. Thus, the literature review helps researchers and readers also have better understanding as the basis for testing the hypothesis in the next chapter by elaborating further methods for collecting data accordingly.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter reviewed research conducted by other scholars, comparing various studies to gain a deeper understanding of subtopics and aligning these reviews with the research objectives and questions (Hezren, 2023). This chapter simplifies the approaches and techniques used to collect and analyze data to achieve the study's objectives efficiently (Silvia, 2021).

This chapter explained the research methodology that analyses in the study which is research design, population, sampling method and data analysis techniques. It describes the research design, variables, and measurement, as well as the population and sample. At the same time, this chapter also covers the data collection methods and design of the questionnaire. Additionally, it discusses the statistical techniques selected for data analysis.

3.2 Research Design

Research methodology can be aided by using a research model. According to Burns and Bush (2013), a research model is a set of extended resolutions describing the methods for obtaining and evaluating the required data, which constitutes a holistic strategy. According to Ahmad and Usop (2021), researchers should choose a design that provides sufficient information about the research hypothesis. In addition, research design increases the validity of research results (Ahmed & Usopp, 2021).

The quantitative and qualitative research procedures are two well-known methods that researchers utilize to perform their studies (Neil, 2019). According to Neil (2019),

research design is the general setup and procedures followed when doing experiments to validate theories in accordance with standards upheld for data gathering and analysis.

According to Zikmund (2023), qualitative research is a method used by scientists to comprehend events more deeply when they don't utilize quantitative data. According to Uma and Roger (2019), this research approach is typically used to gather information on the respondents' opinions and beliefs about the research scenario.

Uma and Roger (2019) define quantitative research as a type of study design in which researchers use unqualified, descriptive data. Researchers frequently utilize this methodology to ascertain the relationship between the independent and dependent variables within the target population (Zikmund, 2023). The appropriateness of the research depends on the use of both qualitative and quantitative research designs (Zikmund, 2023).

3.2.1 Types of Study

This research employs quantitative techniques. Quantitative research, according to Burns and Grove (2013), is an organized, objective, and methodical procedure used to characterize and test correlations as well as look into the causal linkages between variables. The survey's strengths are its descriptive analysis, interpretation, and analysis. A descriptive survey design was used for the survey's execution. In order to represent a population that is too big to monitor in person, surveys are employed to gather raw data (Mouton, 2016). In a survey, participants self-report information and respond to a sequence of questions provided by the researcher (Polit & Hungler 2016). A self-administered questionnaire that the participants completed after receiving it

from the researcher was used to gather data for this analysis. Hence, quantitative approach is use in this study to identify the relationship between HRM practice and employee performance in E&E manufacturing industries. Data from the desired sample group is collected using a cross-sectional data collection method as specified by Uma & Roger (2019).

3.2.2 Sources of Data

Primary and secondary data were analysed in this study. Primary data are details about the variable of interest that the researcher directly collected for the aim of the study. Respondents' opinions are gathered through self-administered questionnaires or primary data sources. One of the primary sources of data for this method is the written feedback that is provided in response to the series of written materials that the respondents are given. A list of written questions was provided to the respondents, and their task was to mark the correct response. The administration of questionnaires entails the acquisition and compilation of data within a specific timeframe, which may span many days, weeks, or months. This primary data is invaluable for understanding the direct impact of HRM practices on employee performance, capturing real-world experiences and perceptions that secondary data might not fully reflect.

Secondary data refers to information that has been gathered but was not created by the author. It also includes information found in documents such as academic journals, research papers, articles, support materials. For instance, Government publications and reports serve as a crucial source of secondary data. These documents often contain extensive statistics and analyses about workforce demographics, employment trends, and industry-specific data that can contextualize your research. Academic journals and

research papers are another vital source of secondary data. They provide access to peer-reviewed studies and empirical research that have explored similar topics, offering insights into the methodologies and findings of previous researchers. This can help you identify established theories and frameworks, which you can then apply or adapt to your research. Secondary data can help identify patterns, trends and theoretical foundation that might be relevant to HRM practices in manufacturing industries, thereby enriching your study with a broad, data-driven foundation.

3.3 Research Population and Sample

The population and sample are important in this study because they provide information that is the output of the study. As stated by Rusli and Hasbee (2021), the population is described as "all the people who have the characteristics that the researcher needs to study". In contrast, Bryman (2020) defines population as the complete set of interested parties that the researcher wants to study and collect data from. Population is described as the researcher's purpose to look at the entire number of people, things, or events, according to Uma and Roger (2019). Zikmund (2023) also defined population as the requirement that the researcher look for common traits in this population.

The study targets the electric and electronic (E&E) manufacturing sectors in Penang, Selangor, and Johor, providing valuable insights into regions experiencing notable growth in manufacturing (MIDA, 2024). These three states have been chosen for their pivotal roles in Malaysia's industrial landscape, particularly in the electric and electronic sectors, which are critical to the country's economic development.

According to MIDA (2024), Penang is renowned as the "Silicon Valley of the East," with a robust presence of multinational electronic companies and a thriving ecosystem for advanced manufacturing and technology. Currently, there are 45 companies in the E&E manufacturing industries in Penang. Additionally, Selangor is well-developed, and the state's manufacturing sector has experienced steady growth, supported by its infrastructure and favorable business environment, which includes 21 E&E companies. Moreover, Johor, with its proximity to Singapore, is a critical industrial region with a strong manufacturing base fueled by its strategic location, skilled workforce, and infrastructure development, which includes 15 E&E companies. This approach provides a well-rounded understanding of the sector's dynamics and the effectiveness of HRM practices in different regional contexts.

3.4 Sampling Technique

Sampling is a crucial component of doing research that necessitates in-depth analysis, even though it is utilized in business research to examine the features of an unknown population (Lohr. S, 2019). This sampling method ensures that each sampling unit has an equal chance of being selected (Mudi, 2016). In educational research, a variety of sampling techniques are frequently employed.

Sekaran & Bougie, 2014 states that one kind of probability sampling that falls within the category of random sampling is simple random sampling. According to Sekaran and Bougie (2014), random sampling selects a sample that accurately reflects the target population. Besides that, the simple random sampling approach is a common sampling technique used in many research studies. A simple randomization process guarantees that every member of the population has a known and equal probability of being chosen as a subject (Wu,C & Thompson, 2020) A well-known method for selecting a

sample from a population made up of N number of sampling units is simple random sampling (Abdul Hakeem, 2023). However, there are several key challenges in data collection. The main challenges are time constraints, financial costs, and physical distance.

According to Copper and Schindler (2021), simple random sampling depends on the order of the target population by following some definite arrangement, followed by defining the population as an initial stage, and then choosing the sample size, and a list. In population, assign a number to the unit, find random numbers and finally select a sample.

3.5 Research Measurement

De Vaus (2021) and Easterby-Smith et al. (2022) state that questionnaires are one of the most widely used data gathering techniques in use today, which is why they were chosen as the data collection instrument. In order to examine and measure the effective outcome of the researcher's demand and interest linked with the study's purpose, questionnaires are frequently recognized as an efficient data collection strategy. In addition, the use of questionnaires can increase the generalizability and consistency of the results and create confidence in respondents to give correct answers.

Costing is a major issue for all researchers when collecting data, and this study is no exception. Fowler (2013) states that survey questionnaire technique is simple and economical compared to other methods. This is a key reason why the researcher chose to use a questionnaire for data collection in the current study. Furthermore, this strategy is systematically effective in estimating associations between statistical variables, researchers in the field of employee performance have routinely adopted it in their studies.

This survey's questionnaire employs a five-point Likert scale, with responses denoting agreement or disagreement on a range of 1 strongly disagree to 5 strongly agree. The researchers' decision to use this scale is based on empirical findings by Zikmund (2003), who found that because of the scale's straightforward administration, it is appropriate for examining attitudes and behaviours. According to Garland (2021), who supports the use of scales, rating systems aid in directing survey participants to express their opinions.

Table 3.1
Origin of Constructs

Variable	Construct	Items	Cronbach's alpha	Sources
Independent variable	Training and Development	4	0.838	Koh Rui Jing, 2018
	Performance Appraisal	4	0.844	Koh Rui Jing, 2018
	Reward and recognition	4	0.830	Langford, 2009
Dependent variable	Employee Performance	8	0.877	Koh Rui Jing, 2018

3.6 Questionnaire Design

A questionnaire is a main tool used for gathering data. According to Lay and Khoo (2009), a questionnaire is a printed series of questions whose purpose is to gather information about the study's objective. Only a questionnaire developed with all the information needed for the study will meet the study's goal (Sekaran & Bougie, 2014).

As a result, the first step in creating a questionnaire is describing the focus of the research purpose. The questionnaire will then be sent to administrators and managers in E&E manufacturing industries in Malaysia. The questionnaire is accessible in English and is designed to investigate employee's training aspects, work performance, and employee performance.

3.6.1 Instruments of Variables

3.6.1.1 Information on respondents' demographics

Part A in this questionnaire is to analyze the demographic factors of the respondents such as academic qualification, gender, age, race, years of working experience, job grade, and monthly income.

3.6.1.2 Participation in training and development manufacturing industries.

This section contains questions on training dimensions. Previous researchers' questionnaires were updated for this part. The questionnaire statements in this part should be responded using the Likert scale to indicate respondents' degree of agreement.

In this study, the independent variables are training and development. A five-item scale, adapted from Langford (2009), was used to evaluate these variables. This scale demonstrated an acceptable level of reliability ($\alpha = 0.84$). Engineers at E&E

manufacturing will be asked to rate their experiences with HRM practise that affect employee performance using a 5-point Likert scale, where 1 represents "Strongly Disagree" and 5 represents "Strongly Agree." The four items related to HRM practise that affect employee performance are detailed in Table 3.3.

Table 3.2
Variables and items of training and development

Independent Variables

Original Items	Adapted Items
1. My employer encourages me to extend my abilities.	
2. This organization has provided me with training opportunities enabling me to extend my range of skills and abilities.	
3. I get the opportunity to discuss my training and development requirements with my employer.	
4. I get my work to pay for any work-related training and/or development I want to undertake.	My organization pays for any work-related training and/or development I want to undertake.

Source: Koh Rui Jing (2018)

3.6.1.3 Performance appraisals towards employee performance

This section pertains to self-assessed performance appraisals related to employee performance. It includes a total of 4 statements or surveys. Respondents are asked to use a Likert scale to express their degree of agreement with each statement.

Table 3.3
Measurement items for performance appraisal

Independent Variables

Original Items	Adapted Items
1.Performance appraisals are based on objective and quantifiable results.	In my organization, performance appraisals are based on objective and quantifiable results.
2. The performance review process is linked to compensation plans.	In my organization, the performance review process is linked to compensation plans.
3.The performance review process is standardized and documented.	In my organization, the performance review process is standardized and documented.
4. Promotions and pay increases are based on achieving documented performance objectives.	In my organization, promotions and pay increases are based on achieving documented performance objectives.

Source: Koh Rui Jing (2018)

3.6.1.4 Reward and recognition towards job performance

This section's questionnaires analyse the effect of reward and recognition on employee performance based on self-reports. It contains 4 statements or surveys, which respondents should answer using Likert scale assessments to indicate their level of agreement.

Table 3.4
Variables and items of rewards and recognition

Independent Variables
Adopted from Langford,2009
1. I am satisfied with the income I receive.
2. I am satisfied with the benefits I receive.
3. I am recognized for my contributions.
4. The rewards and recognition I receive from this job are fair.

Source: Langford (2009)

3.6.1.5 Employee Performance in the E&E manufacturing industry

This section's questionnaires analyse the impact of human resources practices on employee performance based on self-reports. It contains 8 statements or surveys, which respondents should answer using Likert scale assessments to indicate their level of agreement.

Table 3.5
Measurement items for employee performance

Dependent Variables
Adopted from Koh Rui Jing, 2018
1. I complete my job accurately and timely to achieve the work objective.
2. I able to identify, analyze problems and find solution for it.

3. I deal confidently and efficiently with top management and colleagues

4. I demonstrate necessary knowledge and skills to perform the job effectively

5. I establish my job objectives with regard to the department and company goals.

6. I am capable of completing my task within the time frame.

7. I produce high quality work.

8. I complete duties according to procedures

Source : Koh Rui Jing (2018)

3.7 Data Collection

The primary method of any research project is data collection, which provides guiding principles for the intended information to be collected, processed, analyzed, and reported. Data gathering can be broadly classified into primary and secondary types according to their methods of collection (David, 2022). In this study, the researcher will use primary data, which are gathered directly from the field.

This study was conducted in Malaysia among employees working in the electric and electronic (E&E) manufacturing industry across three states: Penang, Selangor, and Johor. These regions have been at the forefront of the industry's development, contributing significantly to Malaysia's position as a global leader in E&E manufacturing. By concentrating on these states, the study captures insights from the most dynamic and influential areas of the industry, ensuring the findings are relevant to understanding the broader trends and challenges within Malaysia's E&E sector.

The researcher sought approval and a validation letter as a postgraduate student from Universiti Utara Malaysia before collecting the data. To effectively reach engineers in E&E manufacturing companies across Penang, Selangor, and Johor, the distribution of the questionnaire was strategically planned to maximize engagement and participation. To reach the appropriate audience, the questionnaire was sent via targeted email invites, industry-specific online platforms, Facebook, LinkedIn, and other social media sites.

Participation in the survey was optional, and respondents were invited to take part. Additionally, the confidentiality and anonymity of the responses were guaranteed, meaning that the questionnaire did not request any personal data from the respondents. Respondents' readiness and desire to engage in the survey was increased by this

strategy. The purpose of the survey was also disclosed to respondents on the first page of the questionnaire.

3.8 Data Analysis Technique

Data analysis is the process of applying methodical and analytical thinking to each portion of data to analyse information (Mouton, 2016). One of the numerous steps that must be followed when conducting research is this study design. Data analysis is the method employed by academics to transform data into an insight. The rationale for gathering information from many sources is collated, verified, and assessed in order to derive a conclusion or deduction. Version 27 of the Statistical Package for Social Science (SPSS) will be utilized to assess the data gathered for this investigation critically.

3.8.1 Descriptive Analysis

The term "descriptive statistics" refers to the features of variables (Chua, 2016). Descriptive statistics, according to Ahmad and Usop (2016), help outline the fundamental characteristics of data in a sample. It is a method for comprehensively organizing and displaying data, according to Elifson, Runyon, and Haber (2019). Descriptive analysis will be used in this study to calculate frequency of categorical variables, including gender, age, marital status, level of education, employment level, years of services in current company, years of experience and location of your organization to show the data in percentage for individual information of respondents.

3.8.2 Reliability Test

The objective of the reliability test employed in this investigation is to gauge stability and consistency. According to Sekaran and Bougie (2016), Cronbach's alpha is a

reliability coefficient that assesses how closely the variables relate to one another. Furthermore, the dependability of the findings will be indicated by the Cronbach's alpha value. When Cronbach's alpha is high, the results are regarded as reliable. The test results are generated using SPSS version 27.

Table 3.6
Cronbach's Alpha Measurement

Cronbach's Alpha	Strength of Association
a>0.9	Excellent
0.7<a<0.9	Good
0.6<a<0.7	Acceptable
0.5<a<0.6	Poor
a<0.5	Unacceptable

Source: Elmes, 2011

3.8.3 Mean Analysis

The goal of mean analysis is to ascertain the data average. The mean statistics for the dependent variable, employee performance will be viewed using this study.

Table 3.7
Mean measurement

Mean Score	Interpretation of Mean Score
1.00-2.00	Low
2.01-3.00	Moderately Low
3.01-4.00	Moderately High
4.01-5.00	High

Source: Nunnally, 1997

3.8.4 Pearson Correlation Analysis

After considering the total variance of the two measures without taking into account the control of the researcher, correlation analysis calculates the strong correlation between two and above variables**.** Correlation measures the degree of agreement between two variables, X and Y, and is used to assess the link between two or more classes of data. When there is a relationship between a greater value of X and a higher value of Y, this is called a positive correlation. When a low value of Y is linked to a high value of X, a negative correlation occurs in the relationship Schober, Boer, & Schwarte (2018).

The most popular way to estimate the correlation between two variables at the moment is with Pearson's correlation coefficient. The correlation coefficient, represented by the symbol r, can show positive or negative connections and has a range of -1 to +1. when the entire supply falls straight up on a line with a slope of r = -1. The dotted cloud, which is presumably connected to the trend line, has a significant association. Therefore, the stronger it is, the closer r is to +1.

Stronger correlations are those that approach r -1 for both positive and negative correlations (Salkind, 2019). Salkind (2019) provides an explanation of the correlation's strength, which is summarized in Table 3.8 below.

Table 3.8
Correlation Strength Table

Coefficient Range	Strength of Association
± 0.00 to ± 0.20	Slight, almost negligible correlation
± 0.21 to ± 0.40	Small, weak correlation
± 0.41 to ± 0.70	Moderate correlation

± 0.71 to ± 0.90	High, strong correlation
± 0.91 to ± 1.00	Very strong correlation

Source: Sellar et al., 2019

3.9 Chapter Summary

This chapter offers a concise summary of all aspects of the research methodology utilized in the study. It includes details about the study subjects, such as population and sample size, as well as information on the questionnaires and administrative procedures employed. The subsequent chapter 4 provides an explanation of the statistical analysis results for the data that was obtained, which were performed using SPSS Version 27.

CHAPTER 4

ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the findings from the study based on 210 completed questionnaires. Data analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 27 for Windows, covering descriptive statistics, reliability, mean, and correlation analyses.

The chapter starts by detailing the demographic profile of the respondents, which includes their gender, age, marital status, highest educational attainment, job level, tenure with the current organization, overall work experience, and organizational location. Mean analysis is then conducted to determine the average values of various variables, offering insights into the central tendencies of the data. Additionally, correlation analysis examines the strength and direction of relationships between variables, providing a thorough evaluation of the interdependencies within the dataset.

4.2 Population and Response Rate

This section provides a summary of the background information for the respondents who took part in this research. As shown in Table 4.1, a total of 210 respondents completed the questionnaire. The study focused on engineers working in the electric and electronic (E&E) manufacturing industries. In 2017, online surveys became the predominant mode for quantitative research worldwide (ESOMAR, 2018; Daikeler et al., 2020). Similarly, online surveys have become a popular method for data collection in educational research (Saleh & Bista, 2017).

To achieve the minimum sample size of 210 respondents, 460 questionnaires were distributed to the target audience via Google Forms. A total of 211 questionnaires were returned, but only 210 contained complete data. One questionnaire was deemed incomplete because the Google Form was not set to require answers to all questions. This resulted in a response rate of 45.65%, which, according to Krejcie and Morgan (1970), is an acceptable figure for this research.

All demographic data and variable responses were input into the Statistical Package for Social Sciences (SPSS) software, version 27, to facilitate a more efficient and accurate analysis. The demographic variables were assigned numerical codes, with gender being coded as 1 for males and 2 for females. For the dependent and independent variables, a combination of letters and numbers was used for coding. For instance, employee performance was abbreviated as EP, and the related questions were labeled EP1, EP2, EP3, and EP4. Similarly, other independent variables were coded consistently to maintain clarity and organization throughout the data analysis process. This systematic coding approach ensured that the data could be easily managed and analyzed within the SPSS software, allowing for a comprehensive and precise evaluation of the research findings.

Table 4.1
Respondent's Responses Rate

Questions	Number	Percentage
Distributed Questionnaires	460	100
Returned Questionnaires	211	45.87
Usable Questionnaires	210	45.65
Unusable Questionnaires	1	0.22

Source: Questionnaires Results

4.3 Data Analysis

This study employed four types of analyses: descriptive analysis, reliability analysis, mean analysis, and correlation analysis. The Statistical Package for the Social Sciences (SPSS) software was the primary tool used for these analyses. Descriptive analysis outlined and detailed the main characteristics of the dataset by computing the mean and standard deviation. This offered insights into the data's main tendency and variability based on the responses collected.

Reliability analysis evaluated the internal consistency of the variables, confirming that the items within each scale consistently measured the same underlying concept. This step was essential for verifying the dependability and stability of the measurement tools used in the study. Mean analysis was conducted to calculate the average values of different variables, providing a clear understanding of the central trends in the data. This helped in understanding the general tendencies of the respondents' answers.

Lastly, correlation analysis examined the relationships between two or more variables. This analysis identified the strength and direction of these relationships, revealing how variables were interrelated and contributing to the overall findings of the research.

4.4 Scale of Measurement

4.4.1 Descriptive Analysis (Demographic Variable)

The descriptive test results of demographic variables were indicated in Table 4.2.

Table 4.2
Results of descriptive analysis

Characteristics	Item	Frequency	Percentage
Gender	Male	115	54.8
	Female	95	45.2
Age	20-25	27	12.9
	26-30	62	29.5
	31-35	50	23.8
	36-40	30	14.3
	41-45	18	8.6
	46-50	11	5.2
	51-55	10	4.8
	56-60	2	1
	60 and above	0	0
Marital status	Single	91	43.3
	Married	119	56.7
	Others		
Your highest educational background	Diploma	24	11.4
	Degree	127	60.5

	Master	58	27.6
	Doctor of Philosophy	1	0.5
	Others	0	0
Employment level	Engineer	99	47.1
	Senior Engineer	68	32.4
	Lead Engineer	34	16.2
	Chief Engineer	9	4.3
Number of years you have worked in current organization	1-5 years	143	68.1
	6-10 years	50	23.8
	11-15 years	12	5.7
	16-20 years	3	1.4
	More than 20 years	2	1
Years of working experience	1-5 years	78	37.1
	6-10 years	54	25.7
	11-15 years	35	16.7
	16-20 years	23	11
	More than 20 years	20	9.5
Location of your organization.	Penang	57	27.1
	Kuala Lumpur	5	2.4

	Selangor	75	35.7
	Johor	73	34.8

Source: Questionnaires Results

The demographic characteristics of the respondents in this study provide a comprehensive overview of the sample population. The gender distribution reveals that a slight majority of the respondents were male, accounting for 54.8%, while females comprised 45.2% of the total respondents. This suggests a somewhat balanced representation of genders in the study.

The age distribution among the respondents shows that the largest age group was between 26-30 years, making up 29.5% of the respondents. This is followed by the 31-35 years age group, which constituted 23.8% of the sample. Respondents aged 20-25 years represented 12.9%, while those aged 36-40 years accounted for 14.3%. The proportion of respondents decreased with increasing age, with 8.6% aged 41-45 years, 5.2% aged 46-50 years, 4.8% aged 51-55 years, and 1% aged 56-60 years. Notably, there were no respondents aged 60 and above, indicating a younger workforce within the sample.

Marital status analysis indicates that a higher percentage of respondents were married, comprising 56.7% of the sample, while 43.3% were single. This distribution provides insight into the personal backgrounds of the respondents, which could be relevant in understanding their work-life balance and commitment levels.

In terms of educational background, the majority of respondents held a degree, accounting for 60.5%. This is followed by those with a master's degree, making up 27.6% of the sample. Respondents with a diploma constituted 11.4%, and a very small percentage (0.5%) held a Doctor of Philosophy degree. There were no respondents

with other types of educational qualifications, suggesting a well-educated workforce predominantly holding degrees and higher qualifications.

The employment level of the respondents shows that nearly half were engineers, making up 47.1% of the sample. Senior engineers constituted 32.4%, lead engineers accounted for 16.2%, and chief engineers represented 4.3%. This distribution highlights a significant presence of experienced and senior-level professionals within the sample.

The number of time respondents had been employed by their current company varied greatly. The majority of respondents (68.1%) had been employed by their present company for one to five years, indicating a relatively young workforce. This is followed by 23.8% of respondents who had worked for 6-10 years, 5.7% for 11-15 years, 1.4% for 16-20 years, and only 1% had worked for more than 20 years in their current organization. This suggests a trend of relatively short tenure within the current organizations.

When examining overall working experience, 37.1% of respondents had 1-5 years of experience, indicating a significant number of early-career professionals. This is followed by 25.7% with 6-10 years of experience, 16.7% with 11-15 years, 11% with 16-20 years, and 9.5% with more than 20 years of working experience. This distribution highlights a diverse range of experience levels among the respondents.

Finally, the location of the organizations represented in the study shows that the majority of respondents were from Selangor, making up 35.7% of the sample. This is followed closely by Johor, with 34.8% of respondents. Penang accounted for 27.1% of the respondents, while a small percentage (2.4%) were from Kuala Lumpur. This geographic distribution indicates a strong representation from key industrial regions

within Malaysia, providing a broad perspective on the E&E manufacturing sector across these areas.

4.4.2 Reliability Analysis

Table 4.3
Results of Cronbach's alpha

Variables	Valid	N of items	Cronbach 's Alpha
Training and Development	210	4	0.932
Performance Appraisal	210	4	0.917
Rewards and Recognition	210	4	0.909
Employee Performance	210	8	0.971

Source: Outcome from SPSS version 27

Table 4.3 displays the results of the reliability analysis. The Cronbach's alpha value for the dependent variable, employee performance, is $\alpha = 0.971$. For the independent variables, the Cronbach's alpha values are: training and development ($\alpha = 0.932$), performance appraisal ($\alpha = 0.917$), and rewards and recognition ($\alpha = 0.909$). As noted by Adeniran Adetayo Olaniyi (2019), a Cronbach's alpha value ranging from 0.70 to 0.90 is typically deemed acceptable, with higher values being more desirable depending on the research context. Specifically, a value of 0.70 is acceptable for exploratory research, while values of 0.80 to 0.90 are suitable for basic and applied research scenarios, respectively. The high reliability scores in this study indicate that the variables are both valid and reliable for further analysis.

4.4.3 Mean Analysis

Table 4.4
Results of mean Analysis

Variables	Valid	Mean	Std. Deviation
Training and Development	210	3.60	1.28
Performance Appraisal	210	3.71	1.23
Rewards and Recognition	210	3.61	1.18
Employee Performance	210	3.79	1.11

Source: Outcome from SPSS version 27

Table 4.4 shows the results of mean analysis for the independent variable and dependent variable which is training and development, performance appraisal, reward and recognition and employee performance. The analysis was based on mean ± standard deviation values. According to Joshi and Sharma (2020) note that mean analysis aids in identifying patterns and trends in data, which is essential for making informed decisions and drawing meaningful conclusions in business. With a mean score of 3.60 and a standard deviation of 1.28, the respondents' opinions about the efficacy of training and development initiatives in their companies are moderately in accord. Furthermore, compared to training and development, performance appraisal has a significantly lower response variability with a mean score of 3.71 and a standard deviation of 1.23, indicating that respondents usually regard the performance appraisal process favorably. The mean score for rewards and recognition is 3.61, with a standard deviation of 1.18, indicating that respondents are somewhat satisfied with the rewards and recognition they receive, with responses being relatively consistent. Employee Performance has the highest mean score of 3.79 and the lowest standard deviation of

1.11, suggesting that respondents generally perceive their performance positively, with the least variability in their responses. These mean scores provide a snapshot of the central tendency for each variable, while the standard deviations indicate the variability of responses, offering insights into how consistently respondents rated each aspect of HRM practices and their perceived performance.

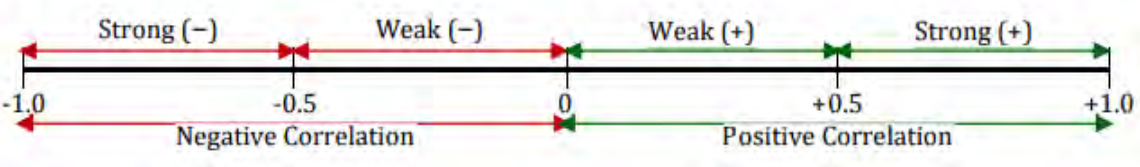
4.4.4 Pearson Correlation Analysis

Correlation analysis is used to determine how strongly two variables are related to one another. This relationship is quantified using a correlation coefficient. Typically, Pearson's Product-Moment Correlation Coefficient and Spearman's Rank Correlation Coefficient are used for this purpose. This research focuses on Pearson's Simple Linear Correlation for examining the relationship between variables.

The correlation coefficient, denoted as R, ranges from -1 to +1 ($-1 \leq R \leq +1$). This coefficient measures the degree of association between the variables. According to Gogtay and Thatte (2017), Figure 1's correlation coefficient value serves as a gauge for determining the direction and intensity of the association between the variables. Basic correlation coefficient interpretation spectrum shown in Figure 4.1.

Figure 4.1

Correlation coefficient : Rules of Thumb



(Source: Gogtay and Thatte, 2017, p. 79)

Table 4.5
Pearson Correlation Coefficient: Rules of Thumb

Coefficient Range	Strength of Association
± 0.00 to ± 0.20	Slight, almost negligible correlation
± 0.21 to ± 0.40	Small, weak correlation
± 0.41 to ± 0.70	Moderate correlation
± 0.71 to ± 0.90	High, strong correlation
± 0.91 to ± 1.00	Very strong correlation

Source: Sellar et al. (2019)

Table 4.6
The results of Pearson Correlation Analysis

		IV1	IV2	IV3	DV1
IV1	Pearson Correlation	1	.780**	.648**	.761**
	Sig. (2-tailed)		0.000	0.000	0.000
	N	210	210	210	210
IV2	Pearson Correlation	.780**	1	.772**	.746**
	Sig. (2-tailed)	0.000		0.000	0.000
	N	210	210	210	210
IV3	Pearson Correlation	.648**	.772**	1	.605**
	Sig. (2-tailed)	0.000	0.000		0.000
	N	210	210	210	210
DV1	Pearson Correlation	.761**	.746**	.605**	1

	Sig. (2-tailed)	0.000	0.000	0.000	
	N	210	210	210	210

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

Source: Outcome from SPSS version 27

Hypothesis 1: Training and development have a relationship with employee performance.

		DV
IV1	Pearson Correlation	.761**
	Sig. (2-tailed)	.000

Table 4.6 indicates a significant relationship between training and development and employee performance, with an r value of 0.761 and a p value of < 0.01. Training and development are considered to have strong significant relationship with employee performance because r value is between 0.50 to 1.0.

Hypothesis 2: Performance appraisal has a relationship with employee performance.

		DV
IV2	Pearson Correlation	.746**
	Sig. (2-tailed)	.000

Table 4.6 reveals a significant relationship between performance appraisal and employee performance, with an r value of 0.746 and a p-value of < 0.01. This indicates a strong significant association, as the r value falls between 0.50 and 1.0.

Hypothesis 3: Reward and recognition has a relationship with employee performance.

		DV
IV3	Pearson Correlation	.605**
	Sig. (2-tailed)	.000

Table 4.6 demonstrates a significant relationship between reward and recognition and employee performance, with an r value of 0.605 and a p-value of < 0.01. This suggests a strong and significant connection, as the r value is within the range of 0.50 to 1.0.

Based on the overall result of the hypothesis from Pearson correlation analysis.

Table 4.7
Overall hypothesis results

Hypothesis Statement	**Results**	**Decision**
Training and development have a significant relationship with employee performance.	r=0.761 , p<0.01	Accepted
Performance appraisal has a significant relationship with employee performance.	r=0.746 , p<0.01	Accepted
Reward and recognition has a significant relationship with employee performance.	r=0.605 , p<0.01	Accepted

Source: Outcome from SPSS version 27

4.5 Chapter Summary

Using SPSS version 27, Chapter 4 of this research paper presents a comprehensive analysis of the data collected from 210 respondents. This chapter begins with a detailed study of the respondents' demographic characteristics, followed by an examination of the population and response rate, highlighting a 45.65% response rate from the distributed questionnaires. Descriptive, reliability, mean, and correlation analyses are performed, revealing key findings such as the high reliability of the variables with Cronbach's alpha values ranging from 0.909 to 0.971. The mean analysis provides average values and standard deviations for the variables, whereas Pearson correlation analysis reveals significant relationships between training and development, performance appraisal, rewards and recognition, and employee performance, with all hypotheses being confirmed. The chapter concludes by reinforcing the strong correlations identified and summarizing the results, paving the way for deeper discussion and interpretation in the following chapters.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter explores the theoretical, practical, and policy consequences of the research findings and offers a thorough explanation of them. It covers the findings conclusions and provides a thorough synopsis of the findings given in Chapter Four. This chapter further discusses the consequences of the results, admits the limits of the study, and makes suggestions for additional research. The findings show that a mix of organizational and individual factors influence employee effectiveness.

5.2 Recapitulation of the Study's Findings

This study explores the relationship between HRM practices and employee performance within Malaysia's electrical and electronics manufacturing sector. The HRM practices examined include training and development, performance appraisal, and reward and recognition. The objectives of this study are to address the following research questions:

i.) To examine the relationship between training and development and employee performance in electrical and electronics manufacturing industry in Malaysia.

ii.) To examine the significant relationship between performance appraisal and employee performance in electrical and electronics manufacturing industry in Malaysia.

iii.) To examine the significant relationship between reward and recognition and employee performance in electrical and electronics manufacturing industry in Malaysia.

This research employs Social Exchange Theory (SET) as the foundation for examining the predictors of employee performance within Malaysia's electrical and electronics manufacturing industry. The study is cross-sectional and relies on engineers' responses to questionnaires distributed across three states: Penang, Selangor, and Johor.

In summary, the hypotheses were as follows: H1 (the relationship between training and development and employee performance), H2 (the relationship between performance appraisal and employee performance), and H3 (the relationship between reward and recognition and employee performance). All these hypotheses were supported. The subsequent section provides a detailed discussion of the study's conclusions, elaborating on the supported and unsupported hypotheses.

5.3 Discussion

This section offers detailed explanations for the relationships explored in this study, addressing the three research questions. Each of the three hypotheses was tested and found to be supported. The following sub-sections will discuss these hypotheses in depth, providing insights into the reasons behind the study's findings.

Hypothesis 1: Training and development are positively related to employee performance in electrical and electronics manufacturing industry in Malaysia

The objective of this study is to examine the relationship between training and development and employee performance in electrical and electronics manufacturing industry in Malaysia. The engineers of electrical and electronics (E&E) industry involvement in training and development has been determined from Part B (1.1) of the questionnaire which consists of 4 items which were adapted from Koh Rui Jing, (2018). These factors were then analyzed using Pearson correlation analysis to satisfy the questionnaire presented. According to the findings in table 4.6, training and development has a significant relationship with employee performance in E&E industries. With the r value is 0.761 and the p value is < 0.01 which proves performance appraisal are considered to have strong significant relationship with employee performance.

This demonstrates how the participants made the most of their education and growth during the program, which they then applied to their jobs to further enhance employee performance. Participation of engineers in training programs helps them to perform better in their job. Therefore, it can anticipate that training and development play a vital role in engineers in E&E industry employee performance. In addition, continuous development helps engineers improve their technical skills and competencies, which can lead to higher efficiency, productivity, and quality of work. As mentioned by Nguyen and Lee (2021) found that structured development programs improve engineers' problem-solving skills and adaptability, leading to enhanced performance and efficiency in the E&E industry.

Hypothesis 2: Performance appraisal is positively related to employee performance in electrical and electronics manufacturing industry in Malaysia

The objective of this study is to examine the relationship between employee appraisal and employee performance in electrical and electronics (E&E) manufacturing industry in Malaysia. In this study the researcher used a set of questionnaires of 4 items to measure the employee performance from the performance appraisal in the E&E industry. This questionnaire was adapted from Koh Rui Jing, 2018. This set of questions has been put into Part B (1.2) in the questionnaire where every item was based on aspects that is going to be study on which are employee performance. This factor was then analyzed using Pearson correlation analysis to answer the questionnaire presented.

The findings showed that performance appraisal has a significant relationship with employee performance in E&E industries. With the r value is 0.746 and the p value is < 0.01 which proves performance appraisal are considered to have strong significant relationship with employee performance. The result of this hypothesis is identified that training will result in improved employee performance. The average mean score for performance appraisal is 3.71. Hee and Jing (2018) found similar results, showing a positive link between performance appraisal and employee performance within the Malaysian manufacturing sector.

The results of the findings in the previous chapter represent that the performance appraisal factor is at a high level. This indicates that engineers in the E&E industries could assess their current performance and future goals related to their work efforts. Furthermore, there is a significant positive relationship between work-life policies and employee performance. This finding aligns with Mendis and Weerakkody's (2017)

study on the telecommunications industry in Sri Lanka, which also identified a positive relationship between work-life balance and employee performance. Moreover, performance appraisals are crucial for enhancing employee performance by providing clear and specific feedback on their strengths and areas for improvement. This feedback promotes a sense of clarity and direction by assisting staff members in understanding where they stand and what needs to be improved. Additionally, appraisals facilitate the setting of clear and achievable goals, aligning employees' objectives with those of the organization. This alignment ensures that employees' efforts are directed toward contributing to the company's overall success.

Hypothesis 3: Reward and recognition are positively related to employee performance in electrical and electronics manufacturing industry in Malaysia

The primary objective of this research is to examine the relationship between worker performance and incentives and acknowledgment in Malaysia's electrical and electronics manufacturing industry. In this study, the engineers of electrical and electronics industries involvement in reward and recognition have been determined by from Part B (1.3) of the questionnaire which consists of 4 item which were adapted from Langford, (2009). These factors were then analysed using Pearson correlation analysis to answer the questionnaire presented.

Based on the findings in table 4.6, reward and recognition have a significant relationship with employee performance in E&E industries. With the r value is 0.761 and the p value is < 0.01 which proves performance appraisal are considered to have strong significant relationship with employee performance. The findings of this study,

supported by previous research, such as Salleh et al. (2018), demonstrate that reward and recognition have a significant relationship with employee performance.

Reward and recognition are crucial components of effective human resource management, as they directly impact employee motivation, satisfaction, and performance. Recognizing and rewarding employees not only acknowledges their efforts and achievements but also creates a pleasant atmosphere where employees feel respected and valued. This positive reinforcement encourages employees to maintain high levels of performance. By implementing effective reward and recognition strategies, companies in the E&E industries can cultivate a culture of excellence, driving both individual and organizational performance to new heights. Therefore, it is imperative for organizations to prioritize and continually improve their reward and recognition programs to achieve sustained success in the highly competitive E&E sector.

5.4 Implication of study

The findings of this study support the contention in the literature on all aspects of human resource practice have significant implications with employee performance. This research highlights the significant impact of training and development on employee performance in the E&E manufacturing industries. This aligns with results from recent studies, such as those by Khan et al. (2019), which indicate that ongoing training programs not only enhance employees' technical skills but also boost their confidence and job satisfaction. The practical implication is that companies should invest in continuous learning opportunities, tailored to the evolving technological demands of the industry. By doing so, organizations can ensure their workforce remains proficient and adaptable, leading to increased productivity and innovation.

These issues are covered in an abundance of team-building literature. A lot of team-building exercises concentrate on components of team performance that are related to training and development, as this study defines it. As a result, these interventions can be thought of as cooperative training and development initiatives that improve the knowledge, competencies, and skills of workers. It has been noted that managers of teams, especially autonomous ones, need to make training and development investments for their staff. Thus, a training and development program needs to assist the management of the company in introducing staff members to the process of executing their capabilities, in addition to demonstrating the collaboration of employee talents and knowledge.

Secondly, the study also underscores the critical role of performance appraisal in driving employee performance. Consistent with recent evidence from Aggarwal and Thakur (2013), effective performance appraisal systems provide employees with clear feedback, helping them understand their strengths and areas for improvement. This clarity fosters a performance-oriented culture, where engineers are motivated to meet and exceed their targets. For HR managers in the E&E manufacturing sector, the implication is to design appraisal systems that are fair, transparent, and aligned with organizational goals, thereby enhancing overall employee productivity and the efficacy of the organization.

In addition, the recent studies continue to support the significant impact of rewards and recognition on employee performance. The implication of these findings is that rewards and recognition need to satisfy an individual's expected expectations and be perceived as fair or equally gratifying by the employee for incentive systems reflecting employees to function properly and achieve their goals. This aligns with earlier findings by Malik, Choi, and Butt, (2022) found that both intrinsic and extrinsic

rewards are crucial for enhancing employee motivation and job satisfaction. This reinforces the importance of recognizing and rewarding employees' contributions. The implication for practice is that E&E manufacturing firms should implement comprehensive reward systems that acknowledge both individual and team achievements. By doing so, they can foster a positive work environment, encourage high performance, and reduce turnover rates. Effective reward strategies can include monetary incentives, public recognition, and career advancement opportunities, all of which contribute to a motivated and high-performing workforce.

Finally, for theoretical contribution to the Social Exchange Theory (SET), by reference recent studies that highlight the reciprocal nature of training and development within the employer-employee relationship. According to Ghosh et al. (2022) , the studies suggest that employees perceive organizational investments in their training as a form of support and recognition, which in turn fosters increased loyalty, commitment, and improved performance. This study aligns with SET's principle that these reciprocal exchanges strengthen the overall employee-employer relationship, contributing to a more engaged and productive workforce (Sumanth & Jansen, 2023).

For instance, recent reviews of SET emphasize the need to explore the psychological aspects of these exchanges, including how continuous training and development can enhance not just technical skills but also the emotional and motivational commitment of employees to their organizations. The ongoing investment in employee development is seen as an act of organizational support, which employees reciprocate through higher levels of performance and commitment

5.5 Limitations of study

The results of this study are subject to several limitations that should be taken into account when interpreting the data. Firstly, the study geographically focuses on the electrical and electronics (E&E) manufacturing industries in Penang, Selangor, and Johor may restrict the generalizability of the results to other regions within Malaysia or internationally. According to Malaysian Investment Development Authority (MIDA), these three states have been chosen for their pivotal roles in Malaysia's industrial landscape, particularly in the electric and electronic sectors, which are critical to the country's economic growth. Hence to overcome the problem, the researcher is advised to distribute the questionnaires using google form and monitor remotely.

Secondly, the duration of this study is very limited which is leading to only the questionnaires used for data collection. It was arduous as the engineer have a tight schedule leading to more simple methodology taken to collect data for the purpose of analysis. Apart from that, this study was only focused on 3 states that leading in E&E manufacturing industries which is Penang, Selangor and Johor is very difficult to conduct this research due to the very constraint of time.

Another significant limitation of this study is the potential discomfort among engineers in acknowledging issues related to HR practices and their own performance. Engineers, as highly skilled professionals, may feel uneasy or hesitant to openly discuss challenges or deficiencies they face in their workplace. This discomfort can stem from fear of negative repercussions, concerns about job security, or a desire to maintain a positive professional image. As a result, the self-reported data collected through questionnaires might not fully capture the true extent of HR-related problems

or performance issues, leading to potential response bias. This reluctance to disclose genuine issues can affect the validity and reliability of the findings, as it may result in an underreporting of negative experiences or overreporting of positive ones (Podsakoff et al., 2013). Consequently, the study might not provide a complete and accurate picture of the relationship between HRM practices and employee performance in the E&E manufacturing sector. To overcome this issue, the researcher should ensure the anonymity and confidentiality of the questionnaire to make engineers feel safe and secure in acknowledging problems related to HR practices and employee performance.

5.6 Recommendation for Future Research

Based on this research, several recommendations have been proposed for future studies to help develop engineers who demonstrate strong leadership qualities and serve as exemplary role models. Additionally, these recommendations aim to provide future researchers with valuable insights for improving their investigations into independent variable and dependent variables.

The initial recommendation is for the researcher to investigate how employee performance is developed and how individual perspectives and organizational dynamics are influenced by factors such as competencies, recruiting and selection, job analysis, empowerment, and career development. This is so because the HRM function is made up of a variety of factors that might operate both vertically and horizontally within a company. Because individual perception is very subjective, this advice will therefore help future research collect reliable and precise data for analyzing the factors that influence to employee performance across various aspects.

In order to provide new engineers career-related comprehension, HRM would advise creating a thorough training program. This training program exposes engineers to key

professional skills and competencies. In addition, HRM like to recommend that a younger engineer collaborate with more seasoned and senior specialists to construct this application. This is since senior or chief engineers with experience have knowledge of the competencies required of engineers when they begin their careers in management.

In addition, the sample size shouldn't be limited to 200 to increase the validity and dependability of this research study. More respondents would be gathered. Therefore, by obtaining a wider range of opinions and information from respondents, increasing the sample size and research duration may produce a more accurate study. Furthermore, the study location shouldn't be restricted to the country, work position, and employment characteristics of the respondents. It could include a wide scope of topics, including the primary, secondary, and tertiary sectors, or it could have no restrictions on geography.

Other than that, as this research needs additional data and information for more accurate findings, future researchers can incorporate qualitative approaches like observations and interviews in the study. Because they can provide wide views from a variety of angles and perspectives, both approaches can pique the respondent's attention. Only four variables were examined in this study, and it's possible that there are more important elements that have an impact on employee performance. As a result, in the future, researchers might think about examining and evaluating additional variables that might affect employee performance.

5.7 Conclusion

The study reveals that HRM practices, particularly training and development, have the most major impact on improving engineers' performance. However, performance appraisals and reward and recognition mechanisms also contribute to enhancing performance, their impact is somewhat less pronounced.

The study's findings offer critical insights for HR managers seeking to develop effective strategies to boost overall employee performance. Despite these findings being valuable, the ever-changing nature of employee abilities, motivations, and technological advancements necessitates ongoing adjustments and flexible long-term strategies to ensure sustained performance improvements and successful talent management. The research confirms that HRM practices in manufacturing industries are strongly correlated with employee performance. It also demonstrates that these practices can effectively motivate employees and enhance performance rates.

In conclusion, the research successfully addresses all the study's questions and objectives. The implications for organizations and guidelines for future research have been clearly outlined, providing a comprehensive understanding of how HRM practices influence employee performance.

REFERENCES

Achievers. (2023). *State of employee recognition report*. https://www.achievers.com/resources/white-papers/2023-state-of-employee-recognition-report

Aguinis, H., & Kraiger, K. (2019). Benefits of training and development for individuals and teams, organizations, and society. *Annual Review of Psychology, 60,* 451–474.

Al-Qudah, M. K. M., Osman, A., Ab Halim, M. S., & Al-Shatanawi, H. A. (2014). The effect of human resources planning and training and development on organizational performance in the government sector in Jordan. *International Journal of Academic Research in Business and Social Sciences, 4(4),* 79.

Asim, M. (2013). Impact of motivation on employee performance with effect of training: Specific to education sector of Pakistan. *International Journal of Scientific and Research Publications, 3(9),* 1–9.

Aydın, A., & Tiryaki, S. (2018). Impact of performance appraisal on employee motivation and productivity in Turkish forest products industry: A structural equation modeling analysis. *Drvna Industrija, 69(2),* 101–111.

Ayentimi, D. T., Burgess, J., & Dayaram, K. (2018). Skilled labour shortage: A qualitative study of Ghana's training and apprenticeship system. *Human Resource Development International, 21(5),* 406–424. https://doi.org/10.1080/13678868.2018.1447881

Basit, A. (2018). Impact of leadership style on employee performance: A case study on private organization in Malaysia. *International Journal of Accounting & Business Management, 5(2),* 112–130.

Bilau, A. A., Ajagbe, M. A., Kigbu, H. H., & Sholanke, A. B. (2015). Review of shortage of skilled craftsmen in small and medium construction firms in Nigeria. *Journal of Environment and Earth Science, 5(15),* 98–110.

Blau, P. M. (1964). *Exchange and power in social life.* Transaction Publishers.

Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of Organizational Behavior, 36(1),* 3–15.

Borghouts–van de Pas, I., Bosmans, M., & Freese, C. (2021). Unemployment prevention: The role of human resource management in job-to-job transitions in the event of redundancy. *European Journal of Social Security, 23(2),* 103–119.

Brown, C., & Taylor, D. (2020). Cognitive ability and job performance in manufacturing. *Manufacturing Psychology Quarterly.*

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing, 25(8),* 652–661. https://doi.org/10.1177/1744987120927206

Chacha, J. M. (2013). Human resource factors influencing employee performance in international nongovernmental organizations in Kenya: A case of management science of health, Kenya office (Doctoral dissertation).

Chatterjee, S., & Diaconis, P. (2018). The sample size required in importance sampling. *The Annals of Applied Probability, 28(2),* 1099–1135.

Colquitt, J. A., Baer, M. D., Long, D. M., & Halvorsen-Ganepola, M. D. (2020). Diversity and social exchange: The reciprocal nature of inclusive work environments. *Academy of Management Journal, 63(2),* 512–536.

Colquitt, J. A., LePine, J. A., & Wesson, M. J. (2019). *Organizational behavior: Improving performance and commitment in the workplace.* McGraw-Hill Education.

Colquitt, J. A., Scott, B. A., Rodell, J. B., Long, D. M., Zapata, C. P., Conlon, D. E., & Wesson, M. J. (2013). Justice at the millennium, a decade later: A meta-analytic test of social exchange and affect-based perspectives. *Journal of Applied Psychology, 98,* 199–236. https://doi.org/10.1037/a0031757

Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review with theoretical remedies. *Academy of Management Annals, 11(1),* 479–516.

Daft, R. (2015). *Organization theory and design.* Cengage Learning.

Davenport, T. H. (2013). *Thinking for a living: How to get better performances and results from knowledge workers.* Harvard Business Press.

Deloitte. (2024). *Global human capital trends.* Retrieved from https://www2.deloitte.com/global/en/insights.html

Diamantidis, A., & Chatzoglou, P. (2018). Factors affecting employee performance: An empirical approach. *International Journal of Productivity and Performance Management, 68(1),* 173–190.

Emelianova, Y. (2019). Impact of reward system on employee performance: A case study of Normet Ltd. *Journal of Business and Industrial Marketing, 34(4),* 500–510.

Erdogan, B., & Bauer, T. N. (2021). Social exchange theory and leadership: Insights from reciprocal interactions. *The Leadership Quarterly, 32(5),* 101–121.

European Journal of Business and Management. (2023). Impact of performance appraisal on employee productivity. *European Journal of Business and Management, 15(2),* 120–134.

Gallup. (2023). *State of the workplace.* Retrieved from https://www.gallup.com

George, D., & Mallery, P. (2016). *SPSS for Windows step by step: A simple guide and reference (11.0 update).* Pearson.

Ghosh, A., Tripathi, S., & Kumar, R. (2022). Exploring the role of training and development programs in enhancing employee commitment and job satisfaction. *International Journal of Human Resource Management, 33(2),* 345–362.

Halawi, A., & Haydar, N. (2018). Effects of training on employee performance. *International Humanities Studies, 5(2),* 23–36.

Hassan, S. (2016). Impact of HRM practices on employee's performance. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 6(1),* 15–22. https://doi.org/10.6007/IJARAFMS/v6-i1/1951

Hecklau, F., Galeitzke, M., Flachs, S., & Kohl, H. (2016). Holistic approach for human resource management in Industry 4.0. *Procedia CIRP, 54,* 1–6.

Iqbal, N., Ahmad, N., Haider, Z., Batool, Y., & ul-ain, Q. (2014). Impact of performance appraisal on employee's performance involving the moderating role of motivation. *Oman Chapter of Arabian Journal of Business and Management Review, 3(1),* 37–56.

Kanapathipillai, V. (2023). The impact of employee training programs on job performance and job satisfaction in the telecommunication companies in Malaysia. *European Journal of Human Resource Management Studies.* Retrieved from https://oapub.org

Karami, A., Dolatabadi, H. R., & Rajaeepour, S. (2013). Analyzing the effectiveness of reward management system on employee performance through the mediating role of employee motivation: Case study: Isfahan Regional Electric Company. *International Journal of Academic Research in Business and Social Sciences, 3(9),* 327–334.

Korstjens, I., & Moser, A. (2017). Series: Practical guidance to qualitative research. Part 2: Context, research questions and designs. *European Journal of General Practice, 23,* 274–279.

Kumar, S., & Pansari, A. (2023). The impact of employee recognition on job satisfaction and turnover intentions. *Journal of Organizational Behavior, 44(2),* 153–169.

Larkin, I., Pearce, J. L., & Ellis, R. (2024). Reward systems and employee turnover: A longitudinal study. *Human Resource Management Review, 34(1),* 98–115.

Lee, J., et al. (2019). Impact of workplace stress on job performance in manufacturing. *Journal of Occupational Health.*

Locke, E. A., & Latham, G. P. (2021). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*(9), 705-717.

Malaysian Investment Development Authority. (2024). *Investment opportunities in Malaysia*. https://www.mida.gov.my/

Martinez, R., & Johnson, L. (2024). Evaluating job performance for organizational success in manufacturing. *Journal of Business and Industrial Marketing.*

Mehmood, M., Awais, M., Afzal, M. M., Shahzadi, I., & Khalid, U. (2017). The impact of human resource management practices on organizational performance. *International Journal of Engineering and Information Systems (IJEAIS), 1*(9), 165-178.

Moser, A., & Korstjens, I. (2017). Series: Practical guidance to qualitative research. Part 1: Introduction. *European Journal of General Practice, 23*(1), 271-273.

Nazir, T., Shah, S. F. H., & Zaman, K. (2012). Literature review on total rewards: An international perspective. *African Management, 6*(8), 3046-3058.

Noe, R. A. (2017). *Employee training and development.* McGraw-Hill Education.

Noorazem, N. A., Sabri, S., & Nazir, E. N. M. (2021). The effects of reward system on employee performance. *Journal of Intelek, 16*(1), 40-51.

Osterloh, M., Frey, B. S., & Homberg, F. (2007). Performance evaluation and pay for performance: Does it really motivate public officials? In *Proceedings of the EGPA Conference*. Madrid, Spain: University of Zurich.

Podsakoff, P. M., Mackenzie, S. B., & Podsakoff, N. P. (2019). *The Oxford handbook of organizational citizenship behavior.* Oxford University Press.

Rogg, K. L., Schmidt, D. B., Shull, C., & Schmitt, N. (2001). Human resources practices, organizational climate, and customer satisfaction. *Journal of Management, 27*(4), 431-449. https://doi.org/10.1177/014920630102700403

Rupert, P., Stevanovic, P., & Hunley, H. (2009). Work-family conflict and burnout among practicing psychologists. *Professional Psychology: Research and Practice, 40*(1), 54-61. https://doi.org/10.1037/a0012538

Sajuyigbe, A. S. (2017). Impact of performance appraisal on employee performance in telecommunication industry: A study of MTN, Nigeria. *International Journal Management, 3*(1), 80-90.

Sattar, T., Ahmad, K., & Hassan, S. M. (2015). Role of human resource practices in employee performance and job satisfaction with mediating effect of employee engagement. *Pakistan Economic and Social Review, 53*(1), 81-96.

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research, 3*(7), 749-752.

Shin, J. H., & Jung, D. I. (2017). Employee motivation and job performance: The moderating role of training and development. *Journal of Human Resources and Sustainability Development, 5*(1), 1-13.

Sumanth, J., & Jansen, K. (2023). The impact of organizational support through training initiatives on employee engagement and productivity. *Journal of Organizational Behavior, 45*(3), 567-589.

Tahir, I., & Khan, M. A. (2017). Human resource management practices and employees' job performance in Pakistani private sector organizations. *Journal of Business and Management Research, 2*(2), 27-35.

Thomas, J. (2013). Study on causes and effects of employee turnover in the construction industry. *International Journal of Science and Research (IJSR), 2*(3), 2319-7064.

APPENDIX

Dear Respondent,

This questionnaire is a part of the requirements for the award of Master of Science (Management). It aims to identify the relationship of human resource practice towards employee performance at manufacturing Industries.

Therefore, I sincerely invite you to spend a few minutes to complete the questionnaire and return at the earliest convenience. No personal information will be disseminated to the public. Your cooperation is very much appreciated. Should you wish further information about this survey, please contact e-mail address shashveenathevi@gmail.com or phone num 0167149409.

Yours sincerely,

SHASHVEENA THEVI

Postgraduate Student
School of Business Management
University Utara Malaysia

PART A: Demographic Information

The following information is required for analysis purposes. Please tick (√) on the line that corresponds to your response OR write your response in the space provided.

1. Gender

[ ] Male [ ] Female

2. Age

[ ] 20-25 [ ] 26-30
[ ] 31-35 [ ] 36-40
[ ] 41 -45 [ ] 46 -50
[ ] 51 -55 [ ] 56 -60
[ ] 60 and above

3. Marital status

[ ] Single [ ] Married [ ] Others

4. Your highest educational background.

[ ] Diploma [ ] Degree
[ ] Master [ ] Doctor of Philosophy

[ ] Others. Please specify_____

5. Employment level.

[ ] Engineer [ ] Senior Engineer

[ ] Lead Engineer [ ] Chief Engineer

6. Number of years you have worked in this organization.

[ ] 1-5 years [ ] 6-10 years

[ ] 11 -15 years [ ] 16-20 years

[ ] more than 20 years

7. Years of working experience.

[ ] 1 to 5 years
[ ] 6 to 10 years
[ ] 11 to 15 years
[ ] 16 to 20 years
[ ] More than 20 years

8. Location of your organization.
[ ] Penang
[ ] Selangor
[ ] Johor

PART B

Section 1 Human Resource Management Practices

This section is seeking your opinion regarding the Human Resource Management Practices in your organization. Please indicate your level of agreement by circling the appropriate scale provided. Use the following scale to respond to the statements given.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Training and Development						
1	My employer encourages me to extend my abilities.	1	2	3	4	5
2	My organization has provided me with training opportunities enabling me to extend my range of skills and abilities.	1	2	3	4	5
3	I get the opportunity to discuss my training and development requirements with my employer.	1	2	3	4	5
4	My organizaion pays for any work-related training and/or development I want to undertake.	1	2	3	4	5
Performance Appraisal						
5	In my organization, performance appraisals are based on objective and quantifiable results.	1	2	3	4	5
6	In my organization, the performance review process is linked to compensation plans.	1	2	3	4	5
7	In my organization, the performance review process is standardized and documented.	1	2	3	4	5
8	In my organization, promotions and pay increases are based on achieving documented performance objectives.	1	2	3	4	5
Rewards and Recognition						
9	I am satisfied with the income I receive.	1	2	3	4	5
10	I am satisfied with the benefits I receive.	1	2	3	4	5

11	I am recognized for my contributions.	1	2	3	4	5
12	The rewards and recognition I receive from this job are fair.	1	2	3	4	5

SECTION 2: Job Performance

This section is seeking your opinion regarding your job performance at the workplace. Please indicate your level of agreement by circling the appropriate scale provided. Use the following scale to respond to the statements given.

Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	**2**	**3**	**4**	**5**

Job Performance						
1	I complete my job accurately and timely to achieve the work objective.	1	2	3	4	5
2	I able to identify, analyze problems and find solution for it.	1	2	3	4	5
3	I deal confidently and efficiently with top management and colleagues.	1	2	3	4	5
4	I demonstrate necessary knowledge and skills to perform the job effectively.	1	2	3	4	5
5	I establish my job objectives with regard to the department and company goals.	1	2	3	4	5
6	I am capable of completing my task within the time frame.	1	2	3	4	5
7	I produce high quality work.	1	2	3	4	5
8	I complete duties according to procedures.	1	2	3	4	5

THANK YOU FOR YOUR PARTICIPATION